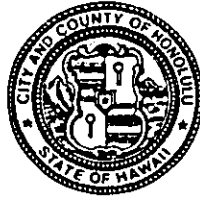


DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR



November 13, 2002

RECEIVED

CHERYL D. SOON
DIRECTOR

'02 NOV 13 P3:02

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TPD02-00520

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
State of Hawaii
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Final Environmental Assessment (FEA) and Finding of No Significant Impact
Middle Street Transit Center
TMK: *Developable Land*: 1-2-18:01 (portion), 02, 03, 09, 10
Submerged Land (Kalihi Stream): 1-2-17:03, 04, 05

The City and County of Honolulu Department of Transportation Services respectfully requests that you publish a notice of the Final Environmental Assessment and Finding of No Significant Impact (FONSI) for this project in the November 23, 2002 OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form, four copies of the FEA, and the project summary on disk. Please call Mr. Brian Suzuki at 527-6880 if you have any questions.

Sincerely,

Handwritten signature of Cheryl D. Soon in cursive.

CHERYL D. SOON
Director

Enclosures

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3.0 INTRODUCTION/PURPOSE

This report presents the results of Kimura International's findings from the Phase II Environmental Site Assessment (ESA) activities for the subject site located at the Middle Street and Kamehameha Highway junction, Honolulu, Hawaii (Tax Map Key 1-2-18 Parcels 1, 2, 3, 9, and 10, and Tax Map Key 1-2-17 Parcels 3, 4, and 5).

The purpose of this investigation was to provide an environmental evaluation of targeted areas identified by Kimura International based on a site reconnaissance and findings and recommendations from previous reports prepared for the subject site. The activities were performed in general accordance with: 1) Risk-based Corrective Action and Decision Making at Sites with Contaminated Soil and Groundwater, HDOH, December 1995; and 2) Technical Guidance Manual for the Implementation of the Hawaii State Contingency Plan, HDOH, February 1996. The following tasks were completed:

- Conducted research and investigation of former underground storage tanks areas;
- Conducted a site reconnaissance of the property;
- Subcontracted American Leak Detection to tone proposed boring locations for underground utilities;
- Obtained the services of Environmental Services Network (ESN)(formerly Transglobal Environmental Geosciences) to utilize a direct-push method to gather soil borings, collect subsurface soil samples, and install groundwater monitoring wells;
- Managed the advancement of thirteen (13) soil borings on the subject property;
- Collected soil samples from each soil boring;
- Collected additional soil samples utilizing a hammer drill with an auger bit and a slide hammer with stainless steel sleeves;
- Examined the soil samples for visual and olfactory signs of contamination;
- Measured select soil headspace using a photoionization detector (PID);
- Preserved, labeled, and submitted the samples to ESN Pacific for laboratory analyses;
- Analyzed the soil for petroleum constituents, solvents, metals, Polychlorinated Biphenyls (PCBs), Halogenated Volatile Organic Compounds (HVOCs), and organochlorine pesticides;
- Managed the conversion of three of the soil borings into temporary and permanent groundwater monitoring wells;
- Examined the groundwater for visual and olfactory signs of contamination;
- Measured and purged each groundwater monitoring well;
- Collected, labeled, and transported groundwater samples to ESN Pacific;
- Analyzed the groundwater for petroleum constituents, solvents, metals, PCBs and HVOCs; and
- Prepared this report documenting the field activities and the results of the investigation including maps and laboratory reports.

4.0 BACKGROUND

4.1 SITE DESCRIPTION

The subject property ("site") is located east of the corner of Middle Street and Kamehameha Highway in Kalihi, on the island of Oahu, Hawaii (Figure 1). The site consists of Tax Map Key (TMK) (1) 1-2-18: Parcels 1, 2, 3, 9, and 10; and TMK (1) 1-2-17: Parcels 3, 4, and 5 (Figure 2). Parcels 3, 4, and 5 of TMK (1) 1-2-17 are portions of Kalihi Stream (Figure 2). Yee Hop Realty, Ltd. is listed as the legal owner of the parcels (C&C, 2001).

The site is located approximately 21° 20' 2" N and 157° 53' 14" W. The site is bounded by Kamehameha Highway to the west; Middle Street to the north; Kalihi Stream to the south; and the City and County of Honolulu Bus Unit Repair Facility to the east. The elevation of the site is approximately 5 to 20 feet above mean sea level (Figure 1). The topography of the site slopes to the west.

4.2 GEOLOGIC AND HYDROGEOLOGIC SETTING

4.2.1 Site Geology

The site is located on the southern coastal zone in Kalihi, Oahu. The coastal zone consists of alluvium layering over the underlying basalt core. The alluvium is characterized by moderately low permeability. The alluvium is interspersed with calcareous deposits that resulted from world-wide climatic changes and isostatic adjustments in the mean sea level. Kalihi Stream passes through and is a part of a portion of the site. Local surface water flows to the west-southwest in the direction of Kalihi Stream.

4.2.2 Site Hydrogeology

There are two aquifers beneath the site. The upper unconfined sedimentary aquifer is not used as a source of drinking water, but has some ecological importance. The lower basal aquifer is confined and serves as an important source of drinking water to the island. The hydraulic pressure of the confined aquifer along with the low permeability of the alluvium layering prevents intrusion of the more saline upper aquifer from adversely affecting the water quality of the lower aquifer. This hydraulic pressure also prevents any groundwater contaminants in the upper aquifer from impacting the lower aquifer.

Groundwater in the upper aquifer may be influenced by Kalihi Stream and also by tidal fluctuations via Keehi Lagoon. A groundwater survey conducted by Harding Lawson & Associates (HLA, 1992) indicates a southerly direction of groundwater flow toward Kalihi Stream. Kalihi Stream drains into Keehi Lagoon. Keehi Lagoon is habitat used by the endangered Hawaiian Stilt.

4.3 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

The site has been the subject of at least one previous environmental investigation. That report was entitled "Hazardous Material Survey" and conducted by Masa Fujioka & Associates in September 2001. Prior to that report, a couple of reports were completed for the removal and cleanup of various USTs on the site. The two USTs registered to C.Q. Yee Hop were closed on May 21, 1993. Two USTs registered to Island-Wide Towing were removed in November 17, 1998.

Many of the buildings on the site were constructed prior to the 1950's and during the years of operation may have been treated with insecticides for termite control. Chlordane was discovered in the ash after a 1995 fire. Historically, chlordane was widely used in Hawaii and may exist under and around the older buildings.

4.4 SITE ACTIVITIES AND LAND USE

The land use for the site is industrial and is surrounded by lands used for light industrial and commercial purposes. A number of commercial businesses currently operate on the site. The current land use status is expected to continue into the future. The site has historically been used by various businesses for varying lengths of time since the 1800's. A generalized description of the past operations on the site was prepared describing past and current tenants. This evaluation is based upon the September 2001 Phase I report prepared by Masa Fujioka & Associates and a site reconnaissance conducted by Kimura International.

5.0 FINDINGS FROM ON-SITE INVESTIGATIVE ACTIVITIES

5.1 TMK 1-2-18: PARCEL 3

This parcel is currently used as a lot for the sale of cars, trucks, and equipment. This lot was first identified as a car lot in a 1955 Sanborn Map that also indicated the site was paved at the time. There is no information of usage of the property prior to 1955. Currently, there are offices (Building H) with an attached covered service area on the lot (Figure 3). A previous site visit found car batteries and a waste oil drum. Car repair and servicing are conducted onsite. A simple oil-water separator is located under the service area. The floor drain in the service area collects oil and wash-water in a sump. The oily waste is removed into 55-gallon drums. Other oily waste is also stored in 55-gallon drums and Unitek removes the waste oil drums. The wastewater from the sump discharges onto the surface of the lot approximately eight (8) feet to the south of the sump. A 1,000-gallon gasoline UST was removed in June 1993, but documentation on the removal or any sampling data was not available.

Two soil borings were advanced hydraulically downgradient of the service area. Two soil samples, one from the upper 1 to 2 foot depth range and the other from the groundwater/soil interface (vadose zone), were collected from each boring. All four soil samples were analyzed for petroleum hydrocarbons, PAHs, HVOCs, lead, and organochlorine pesticides. None of the soil samples had detectable levels of petroleum hydrocarbons, PAHs, HVOCs, or organochlorine pesticides, and none had levels of lead above HDOH Tier I Soil Action Level (SAL) of 400 ppm (see Table 1).

TABLE 1: SOIL SAMPLE RESULTS, PARCEL 3

Analytical Test	A1-1	A1-2	A2-1	A2-2
Fuel Scan	nd	nd	nd	nd
PAHs	nd	nd	nd	nd
HVOCs	nd	nd	nd	nd
Lead	30	55	nd	130
Pesticides	nd	nd	nd	nd

nd = not detected above laboratory detection limit

Boring A2 was converted into a permanent groundwater monitoring well and the groundwater sample (MW4) was tested for petroleum hydrocarbons, PAHs, BTEX, and organochlorine pesticides. There were no detectable levels of any of those analytes (see Table 2).

TABLE 2: GROUNDWATER SAMPLE RESULTS, PARCEL 3

Analytical Test	MW4
Fuel Scan	nd
PAHs	nd
BTEX	nd
Pesticides	nd

nd = not detected above laboratory detection limit

No further investigation is recommended for parcel 3 of this site based on the data gathered.

5.2 TMK 1-2-18: PARCEL 9

This parcel contains two large warehouses (Buildings G and H) along the southern boundary and a small building (Building F) along Middle Street (Figure 3). Building H houses Brandon's Aloha Country Store. Brandon's Aloha Country Store is a general grocery store that currently uses the south end of the building. The 1955 Sanborn Map shows the lot was used as a contractor storage yard. The 1963 Sanborn Map shows warehouses operating under Hawaiian Packing & Crating Co. used for household goods. The 1974 Sanborn Map shows the warehouse used as an aluminum-products warehouse until 1993. One soil sample was collected along the southern end of the building and tested for the presence of chlordane. The results of that analysis showed no detectable levels for any organochlorine pesticide (see Table 3).

Two USTs were installed along the east side of the Building H. One UST registered to Granger Pacific is a 1,000-gallon gasoline tank and was installed in 1969 on the northeast side of the building. There is no UST closure report filed with the Hawaii Department of Health, Solid and Hazardous Waste Branch. On the January 14 site visit, there appeared to be visual evidence of a patch in the asphalt indicating a removal of the Granger tank. Test results of the soil boring taken 5 feet below ground surface (sample B1) for petroleum hydrocarbons, PAHs, BTEX, and HVOCs shows no detectable levels of any of the analytes (summary table below). Lead was detected but at less than the HDOH Tier I SAL of 400 ppm.

The other UST is also a 1,000-gallon gasoline tank, registered to Wisdom Industries, and was installed in 1966 along the southeast side of Building H. There is no UST closure report filed with the HDOH, Solid and Hazardous Waste Branch. The Wisdom Industries UST, however, may also have been removed. American Leak Detection attempted, on February 12, to locate the UST by toning the area with a magnetometer. No evidence of metal or pipes associated with a tank was found. The top asphalt layer of the lot, however, does appear to be laid over an older layer of asphalt and it is possible that the tank may have been removed prior to the asphalt resurfacing. One soil boring was advanced to about 5 feet below ground surface in an attempt to locate the UST pit. The soil sample (B2) was analyzed for petroleum hydrocarbons, PAHs, HVOCs, and lead. The results indicate that no detectable levels of petroleum hydrocarbons, PAHs, or HVOCs were found. Lead, however, was found to be 2900 ppm, which is well above the HDOH Tier I SAL of 400 ppm (summary table below). This level of lead is also above the Tier I SAL for industrial/commercial land use of 750 ppm. Further investigation may be warranted for the lead contamination in the soil.

On the north end of Building H, there is one pole-mounted transformer. Just below the transformer, there is a sump that appears to drain into a 4-inch pipe the leads under

Building H towards Kalihi Stream. The sump seems to act as a collection point for surface water on this lot and one soil sample (B3) was taken from the sump. On the southwest corner of this parcel, there are four (4) pole-mounted transformers and two soil samples (K1 and K2) were collected from the area around the poles. According to previous reports, these transformers were not believed to contain PCBs. However, Hawaiian Electric Company was unable to verify the past use of PCBs in these transformers. Kimura International collected soil samples from beneath the transformers and test results confirmed the presence of PCB-1260 in the soil of the sump and around the northwest corner of the parcel beneath the pole-mounted transformers (summary table below). The levels were fairly low and it is difficult to determine whether the PCB was released from one or more of the transformers. Further investigation of these transformers, however, is recommended due to the potential risk involved.

Toledo Scale occupies Building G and they have been in operation there for the past 14 years. Toledo Scale conducts equipment maintenance and servicing. Past investigation indicates the use of hydraulic lifts at the site, but the January 14 site visit could not confirm this. Toledo Scale employees were unable to verify the existence of hydraulic lifts other than forklifts. This building was first identified in the 1963 Sanborn Map as a building used as a feed warehouse, woodworking shop and office for Hawaiian Packing & Crating Company. One soil boring (C8) taken 1 to 2 feet below ground surface was analyzed for petroleum hydrocarbons, Benzene/Toluene/Ethyl Benzene/Xylene (BTEX), Polynuclear Aromatic Hydrocarbons (PAHs), HVOCs, and organochlorine pesticides. The test indicated that no detectable levels of these contaminants were found and lead was less than the HDOH Tier I SAL of 400 ppm (see Table 3).

B&K upholstery is currently located in Building F. This building is indicated in the 1963 Sanborn Map as a Hawaiian Packing & Crating Co. office building. The contaminant of concern at Building F was chlordane. However, the results of the soil analysis did not detect chlordane, but did find dieldrin present. Dieldrin was also used in the past as an insecticide for the treatment of termites. The level of dieldrin detected is above the Preliminary Remediation Goal (PRG) set by EPA Region 9 and used by HDOH. Further investigation of the soil beneath the building is recommended.

Another warehouse once occupied the space between Building G and Building F on the parcel. On April 1, 1995, the warehouse is believed to be set on fire by arsonists. The ash from the fire was reportedly tested and found to contain styrene, lead and chlordane. The ash was disposed of according to reports in HDOH files. The fire completely demolished the building and the building was removed. The area is currently being used to store large trucks and equipment. Potential contaminants include lead, styrene, and chlordane around the old building site. Three soil samples (C5, C6, and C7) were collected from the old building site and tested. The results of the analyses found no detectable levels of HVOCs or organochlorine pesticides, and only one sample contained lead at less than the HDOH Tier I SAL of 400 ppm (see Table 3).

TABLE 3: SOIL SAMPLE RESULTS, PARCEL 9

Analysis	B1	B2	B3	B4	K1	K2	C5	C6	C7	C8	D1
Fuel Scan	nd	nd	nd	nd	-	-	-	-	-	nd	nd
PAHs	nd	nd	nd	nd	-	-	-	-	-	nd	nd
BTEX	nd	nd	nd	nd	-	-	-	-	-	nd	nd
HVOCs	nd	nd	nd	nd	-	-	nd	nd	nd	nd	nd
Pesticides (ppb)	-	-	nd	nd	-	-	nd	nd	nd	nd	74
Lead (ppm)	260	2900	1100	nd	-	-	280	nd	nd	150	nd
PCBs (PPM)	-	-	0.214	nd	0.133	0.186	-	-	-	-	nd

nd = not detected above laboratory detection limit
 - = not analyzed

5.3 TMK 1-2-18: PARCEL 2 AND 10

This parcel previously served as the easement for the railroad that once passed through the site. The parcel currently serves as the location for the U.S. Army sewer line that originates from Fort Shafter and ends at the Sand Island Wastewater Treatment Plant. According to Mr. Mike Medeiros, the sewer line is a 24-inch cast iron line that was recently re-lined (Appendix C). It is under high pressure and generally follows the old railroad easement. Special efforts to locate this line were made prior to soil boring activities.

There are two trailer-mounted Aboveground Storage Tanks (ASTs) containing diesel located on the parcel. Some evidence of surface spills was seen under the trailers. One soil sample (C3) was taken from beneath the ASTs at 1 to 2 feet below ground surface and analyzed for TPH-diesel, PAHs, and BTEX. The results indicate that there are detectable levels of TPH diesel and acenaphthene. BTEX was not detected.

TABLE 4: SOIL SAMPLE RESULTS, PARCEL 2 AND 10

Analysis	C3
TPH-Diesel	81
PAHs	<1.50 mg/kg (acenaphthene)
BTEX	nd

nd = not detected above laboratory detection limit

The levels of petroleum hydrocarbons and acenaphthene found in the soil sample are below the HDOH Tier I SALs. No further investigation for this parcel is recommended at this time. Kimura International recommends that the soil be managed during earthwork.

5.4 TMK 1-2-18: PARCEL 1

This parcel has the most extensive historical usage of the site. It was first used by Yee Hop Co. as a slaughterhouse and meat company and by Yee -Tuck as a hog farm with associated pens. This can be found in the 1914 Sanborn Map. Yee Hop Company turned into Hawaii Meat Company and that facility was later sold to the City and County of Honolulu for The Bus repair facility. A UST that was previously removed from the Hawaii Meat Company site had a release that has impacted surrounding areas. According to information from HDOH files, an investigation was conducted for the release due to impacts to Kalihi Stream. The Hawaii Meat Company UST, therefore, has some documented impact to the site along and under the Commercial Enterprises building (Building C). The Commercial Enterprises building is comparatively new. A previous site visit found transformers, car batteries, oil stained soil, and two gasoline pumps near the building. The January 14 site visit confirmed the existence of three (3) transformers and two (2) gas pumps. Three soil samples (I 4, I5 and I6) were taken along the eastern boundary of the site approximately 1 to 2 feet below ground surface and analyzed for metals and PCBs. The results of the analyses indicate that no PCBs were detected and lead and chromium were found at less than HDOH Tier I SALs (see Table 5). Three soil borings (I1, I2 and I3) were advanced along the western and southern sides of Building C, and four soil samples were collected at the soil/groundwater interface. The results of the analyses indicate the presence of petroleum hydrocarbons in the diesel and oil range in two of the borings. Boring I1 was converted into a temporary well (MW1) and a groundwater sample was retrieved. The groundwater sample was found to contain detectable levels of diesel range hydrocarbons. These results suggest that the past fuel oil release from the HMC UST is still present on the site at the groundwater level.

Contamination is present in this target area. Removal of the contamination would involve excavation of the ground beneath the existing building, which may not be feasible. It is possible that natural attenuation of the oil will occur over time and no further actions will be necessary. However, the target area may require future testing and investigation or remediation.

TABLE 5: SOIL AND GROUNDWATER SAMPLE RESULTS, BUILDING C

Analysis	I1	I1b	I2	I3	I4	I5	I6	MW1
Fuel Scan	nd	1800 ppm (TPHD), 750 ppm (TPHO)	nd	nd	-	-	-	1.1 ppm (TPHD)
PAHs	nd	nd	nd	nd	-	-	-	nd
BTEX	nd	nd	nd	nd	-	-	-	nd
Metals	25 ppm Pb	25 ppm Pb	50 ppm Pb	24 ppm Cr, 350 ppm Pb	12 ppm Cr, 30 ppm Pb	66 ppm Cr, 26 ppm Pb	130 ppm Pb	-
PCBs	-	-	-	-	nd	nd	nd	-

TPHD = TPH-Diesel

TPHO = TPH-Oil

Pb = Lead

Cr = Chromium

nd = not detected above laboratory detection limit

- = not analyzed

This parcel contains two other large buildings and several smaller buildings. Building A as first identified in a 1950 Sanborn Map as a Military Reserve Warehouse for "Gas-Chem". Hawaiian Packing & Crating Co., North American Van Lines and later NSA Van Lines used the building for storage. A previous visit found 55-gallon drums and commercial refrigerators on the south side of the building. These potential sources could not be found during the January 14 site visit. The building foundation is two (2) to four (4) feet above grade and completely surrounded by asphalt. The potential contaminant is believed to be chlordane and one soil sample (E1) was collected for analysis. The result of the analysis indicates that chlordane was detected at a level (5500 ppm) that may pose a health risk if exposed to the public.

Building B houses Gemini Signs, A-1 Painting, Shelton Contracting, and J.C. and Co. Welding. According to the 1963 Sanborn Map, Hawaiian Packing and Crating Company initially used the building. Then North American Van Lines took over. The 1978 Sanborn Map shows an auto repair facility behind the building. The previous site visit reported an aboveground oil tank along the southeast side of the building and commercial freezers south of the building. These potential sources were not observed during the January 14 site visit. However, small petroleum spills on the south side of the service area were seen. Four soil samples (F1, F2, F3 and F4) were collected around the southern side of the building and analyzed for petroleum hydrocarbons, solvents, lead and chlordane. The results indicate that there may be further investigations necessary around the Pineridge service area where petroleum hydrocarbons are just below action levels (see Table 6). No other contaminant was found in the area.

TABLE 6: SOIL SAMPLE RESULTS, BUILDING B

Analysis	F1	F2	F3	F4
Fuel Scan	50 ppm (TPHO)	4000 ppm (TPHO)	1300 ppm (TPHD)	-
PAHs	nd	nd	nd	-
BTEX	nd	nd	nd	-
HVOCs	nd	nd	nd	-
Lead	30	70	35	-
Pesticides	-	-	-	nd

TPHD = TPH-Diesel

TPHO = TPH-Oil

nd = not detected above laboratory detection limit

- = not analyzed

During sample collection, Kimura International staff discovered a traffic cover that resembled covers used on USTs. Therefore, the presence of a UST was suspected. The cover could not be removed for further inspection. On February 12, American Leak Detection performed toning operations for underground utility clearances and was able to detect a possible UST in the area of the traffic cover. The concrete pavement above the suspected UST is undisturbed and shows no sign of being replaced following an UST removal. An employee in the area pointed to two nearby locations for fuel dispensers. Two fuel pumps located at another location on the project site appear to fit the size of the marks left in the concrete. The Masa Fujioka report discussed the removal of two USTs previously registered to Island-Wide Towing. The location of those USTs is to the north of and below Building D (Pineridge trailer). The traffic cover and the Island-Wide Towing USTs are approximately 25 feet apart and do not appear to be related. Further investigations of this potential UST will be needed.

Building D is an office trailer occupied by Pineridge Farms. Pineridge Farms operates a heavy equipment leasing business and services their equipment onsite. Most of the servicing is conducted at adjacent work areas and, therefore, sampling points were moved to these other areas.

Island Wide Towing previously occupied Building E and the 1963 Sanborn Map indicates the building was historically used as a shop. USTs associated with Island-Wide Towing were removed in 1998 and an NFA letter was issued by DOH in June 2000. A diesel AST staged on a trailer was seen along the west side of the building during the January 14 site visit and some evidence of spillage was seen beneath the trailer. Potential contaminants include gasoline, diesel, oil, lead, and solvents. Three (3) soil samples (H1, H2, and G1) were collected along the north, west and south sides of Building E. The data indicates the presence of petroleum hydrocarbons, lead, and PCBs (see Table 7). One soil sample with 2900 ppm diesel range hydrocarbons was also found to contain PCB 1260 and lead at 2700 ppm. Metal plating appears to be covering a low depression in the ground just south of the building. Inquires with Pineridge staff indicates that the plates are covering an old fixture from the military occupation period. The fixture is made of concrete and metal bars that presents a physical hazard and was covered to protect the employees. Further investigation is recommended for this area.

TABLE 7: SOIL SAMPLE RESULTS, BUILDING E

Analysis	H1	H2	G1
Fuel Scan	2900 ppm (TPHD)	nd	280 ppm (TPHO)
PAHs	nd	nd	nd
BTEX	nd	nd	nd
HVOCs	nd	nd	nd
Lead	180 ppm	2700 ppm	170 ppm
Pesticides	-	nd	-
PCBs	0.482 ppm (1260)	-	-

TPHD = TPH-Diesel

TPHO = TPH-Oil

nd = not detected above laboratory detection limit

Near the southern border of the lot, Yee Tuck used the area as a hog farm with holding pens prior to 1914. About 1950, the facility name changed to Honolulu Pork Company and later to United Meat Company. The building that was used by the companies included two USTs. There was a 1,000-gallon gasoline tank and a 1,000-gallon diesel tank. Both had releases and impacted soils were excavated. A UST removal report says that it was not possible to remove all of the fuel oil impacted soils. The excavated soil was treated and the UST database indicates that cleanup was completed. Potential contaminants under the old building foundation and UST location include diesel, oil, lead, and chlordane. Three borings were advanced and these samples were tested. The results found no detectable levels of petroleum hydrocarbons, PAHs, or BTEX around the area where the old UST is believed to be located. There was no chlordane detected under the old foundation of the building. However, there was some Aldrin and Endosulfan I detected at concentration close to the PRGs (see Table 8).

TABLE 8: SOIL SAMPLE RESULTS, BUILDING J

Analysis	J1	J2	J3
Fuel Scan	nd	-	-
PAHs	nd	-	-
BTEX	nd	-	-
Pesticides	-	nd	38 ppb Aldrin, 46 ppb Endosulfan I
Lead	130 ppm	60 ppm	250 ppm

nd = not detected above laboratory detection limit

- = not analyzed

The level of Aldrin in the soil sample is just above the PRG of 29 ppb and further investigation is recommended. Aldrin was also used in the past as an insecticide for the treatment against termites. Aldrin is closely related to dieldrin.

5.5 TMK 1-2-17: PARCELS 3, 4, AND 5

This portion of the site encompasses a part of Kalihi Stream near Kamehameha Highway. During periods of heavy rainfall, debris collects at the bridge and slows the flow of water. This causes sediment to collect in these parcels. The sediment often contains

contaminants from upstream sources. The contaminants of concern include heavy metals, pesticides and PCBs. The analytical results of the two sediments samples (KS1 and KS2) have PCB-1260, lead, and chromium at levels below HDOH Tier I Action Levels (see Table 9). An upstream sample (KS3), taken above parcels 3 to 5, was found to contain chlordane, lead, and chromium at low levels. This appears to support the belief that the contamination is due to migration of contaminants from upstream sources.

TABLE 9: SEDIMENT SAMPLE RESULTS FOR KALIHI STREAM

Analysis	KS1	KS2	KS3
Pesticides	nd	nd	210 ppm chlordane
Metals	65 ppm Chromium, 87 ppm Lead	63 ppm Chromium, 79 ppm Lead	21 ppm Chromium, 66 ppm Lead
PCBs	nd	0.083 ppm 1260	nd

1260 = Aroclor 1260

nd = not detected above laboratory detection limit

During the investigation, a search along the north bank of Kalihi Stream revealed no evidence of spills or releases of any hazardous substance. Solid waste debris mixed in with the soil along the bank does raise concerns of the source of the soil and potential contamination. Kimura International collected soil samples along the bank of Kalihi Stream adjacent to the project site. These samples were found to contain petroleum hydrocarbons, lead and chromium at levels below HDOH Tier I Action Levels. A total of six (6) soil samples spread along the stream bank were collected and analyzed for petroleum hydrocarbons, PAHs, BTEX, pesticides, metals, and PCBs. The results of the lead and chromium analyses for both the stream sediment and the soil along the banks are very similar (see Table 10). The sediment in Kalihi Stream has lead between 55 and 110 ppm, and chromium between 40 and 76 ppm, while the stream bank has lead between 66 and 87 ppm, and chromium between 21 and 65 ppm. Kimura International recommends that no further investigation be conducted.

TABLE 10: SEDIMENT SAMPLE RESULTS FOR KALIHI STREAM BANK

Analysis	SB1	SB2	SB3	SB4	SB5	SB6
Fuel Scan	971 ppm TPHO	120 ppm TPHO	nd	nd	nd	nd
PAHs	nd	nd	nd	nd	nd	nd
BTEX	nd	nd	nd	nd	nd	nd
Pesticides	nd	nd	nd	nd	nd	nd
Metals	40 ppm Cr, 74 ppm Pb	53 ppm Cr, 91 ppm Pb	65 ppm Cr, 110 ppm Pb	57 ppm Cr, 100 ppm Pb	56 ppm Cr, 100 ppm Pb	63 ppm Cr, 55 ppm Pb
PCBs	nd	nd	nd	nd	nd	nd

nd = not detected above laboratory detection limit

5.6 OFFSITE SOURCES OF CONTAMINATION

In the early 1900's, the Yee Hop Slaughterhouse also operated a tannery that may have used various types of inorganic salts and organic compounds such as: aluminum compounds, ammonia, barium and compounds, chromates and chromium, copper and compounds, formaldehyde, formic acid, hydrochloric acid, lead, mercury and compounds, toluene, etc. The Slaughterhouse was located on the property now occupied by the City & County of Honolulu, bus facility. Since the operations ceased in the 1950's, it is expected that the potential gases and volatile organics are no longer present. However, the metals may still be in the soil if a release had occurred and migrated onto the subject site from the tannery. Three soil samples were collected and analyzed for metals. The results of the analyses found the presence of lead and chromium at well below HDOH Tier I SALs. The data does not support the belief that metal salts were used by the tannery operations or released to the site, and no further investigations are recommended.

6.0 METHODOLOGY

6.1 PHASE II ESA

This Phase II ESA was conducted to evaluate potential contamination in the surface/subsurface soils and groundwater. The Phase II ESA primarily targeted a variety of potential sources of contamination over the entire site. The Phase II also included research and investigation of potential onsite and offsite environmental hazards such as vehicle service areas, UST locations, AST locations, drum storage areas, subsurface plumes, transformers and chlordane treated soils. The approach of the Phase II ESA was to conduct a visual inspection of the project site, identify potential problem areas, and to sample areas of potentially affected media determined based on the visual inspection and review of existing documentation.

6.2 FIELD SAMPLING DATA QUALITY OBJECTIVES

The objective of the Phase II ESA was to determine the presence or absence of chemical contamination at the site. Both soil and groundwater samples were collected from the site at areas targeted based upon historical and current uses.

6.3 FIELD SCREENING PROCEDURES

During field sample collection activities, Kimura International personnel screened the soil for visual and olfactory indications of hydrocarbon contamination. Soil borings conducted by ESN provided soil cores ranging from the surface to groundwater. Soil was collected at periodic intervals and screened for visual and olfactory indicators. Selected samples were further screened by soil headspace readings taken with the PID.

A Photovac model MP100 Microtip PID was used to field screen soil samples for volatile organic compounds (VOCs). Prior to sampling, the PID was calibrated using 100-ppm isobutylene span gas. Kimura International personnel followed its standard operating procedures for headspace analysis (Appendix D).

A total of 16 soil samples were collected from thirteen (13) boring locations at various depths using a split-spoon sampler and 6-inch stainless steel sampling sleeves. An open-barrel split spoon sampler was driven down into the native soil. Upon retrieval, the soil collected, for petroleum analyses, in the open barrel was visually inspected. Kimura International personnel then selected the soil sample based on field observations and PID measurements. When field observations and measurements did not indicate an obvious area of contamination, the soil was sampled at the water table.

The biased sampling approach was designed to provide cost-effective screening of potentially impacted areas of the site. Some of the soil sampling was focused at potential

"hot" spot locations (areas potentially impacted by petroleum hydrocarbons). The hot spot locations and suspected depths for sample collection were determined by evaluating potential contaminant migration pathways and with field screening techniques. The approach coupled field measurement techniques with relatively quick direct-push technology (DPT) sampling. The DPT sampling method was chosen because it allowed for rapid soil sample collection and minimized investigation-derived waste.

6.4 SAMPLING AND LABORATORY ANALYSIS

Six-inch long, stainless steel sampling sleeves were used to collect soil samples. A peristaltic pump and disposable Teflon bailer, for volatile organic compounds, were used to collect groundwater samples following well purging. Groundwater was decanted from each bailer using a dedicated plastic bottom decanter and directed into appropriate pre-cleaned, laboratory sample containers.

Shallow soil samples were obtained with a manual slide hammer and a 2-inch core sampler. A 2-inch stainless steel sleeve was inserted into the core sampler and driven into the ground with the slide hammer. For each sample recovered below surface soil levels, a hammer drill and drill bit was first used to break through the asphalt layer. A 2-inch auger bit was then used to open the boring for the core sampler. All borings were drilled until the original clay soil was encountered. The core sampler was driven into the clay soil until a full sleeve was obtained. Each sleeve was immediately removed and capped with Teflon sheet and sleeve cap. All sample containers were properly sealed and labeled with the client name, sample identification number, sampling location, date and time of sampling, and the analyses to be performed. The samples were stored in a cooler with ice and delivered along with the proper chain-of-custody to ESN.

Soil and groundwater samples collected from the site were submitted to ESN for laboratory analysis of petroleum hydrocarbons via CA-LUFT Method 8015 modified, BTEX via EPA Method 8021, PAHs via EPA Method 8100, PCBs via EPA Method 8082, HVOCs via EPA Method 8021B, heavy metals via EPA Method 7000 series, and organochlorine pesticides via EPA Method 8081.

All samples were extracted and analyzed within the recommended maximum allowable holding time. The chain-of-custody together with the corresponding laboratory reports are presented in Appendix B.

7.0 SITE ACTIVITIES

7.1 SITE ACCESS AND SUBCONTRACTOR COORDINATION

Site access was coordinated with Mr. Michael Chun of Yee Hop Realty, Ltd. Kimura International subcontracted with American Leak Detection (ALD) to perform underground utilities toning prior to drilling activities, and ESN to perform boring activities. In addition, ESN also performed laboratory analyses of soil and groundwater samples.

7.2 UTILITIES CLEARANCE

Kimura International met with Mike Bell of ALD on February 12, 2002. Mr. Bell utilized a magnetometer to identify underground utility lines and UST locations. Information on the locations of underground utility lines and USTs were used to assist drilling operations.

A sewer line from Fort Shafter was identified in the previous Hazardous Material Survey report. The location of this pipeline was pointed out by Mike Medeiros of the U.S. Army, and found on a facility map provided by the U.S. Army Corp of Engineers. The pipeline generally follows the old railroad easement that crossed the property. The sewer line enters the property from Fort Shafter crosses Middle Street and exits the property by passing under Kalihi Stream on its way the Sand Island. The pipeline is believed to lie about 3 feet below ground surface at the Middle Street end and drops down to approximately 8 feet under Kalihi Stream. Due to the distance traveled by the pipeline, the contents are under high pressure and any contact during drilling operations could result in breakage. Efforts were made to avoid deep drilling near the pipeline.

7.3 BORING ACTIVITIES

A total of thirteen (13) soil borings were advanced throughout the site on February 12 and February 13, 2002. Boring locations were identified during site research and visual reconnaissance of the property, and cleared for investigations. The locations were targeted based on the assumption that areas may be contaminated from historical and/or current operations. Sample locations were limited to areas that were accessible to ESN's Strataprobe™ rig.

8.0 RESULTS

LABORATORY ANALYTICAL RESULTS FOR SOIL SAMPLES

ANALYTE	DETECTION LIMIT*	HDOH TIER I SAL †	KS1	KS2	KS3	SB1	SB2	SB3	SB4	SB5	SB6
FUEL SCAN	(mg/kg)	(mg/kg)									
TPH-Gas	20	2000	-	-	-	nd	nd	nd	nd	nd	nd
TPH-Diesel	20	5000	-	-	-	nd	nd	nd	nd	nd	nd
TPH-Oil	25	5000	-	-	-	970	120	nd	nd	nd	nd
PAHs	(mg/kg)	(mg/kg)									
Naphthalene	1.00	41	-	-	-	nd	nd	nd	nd	nd	nd
Acenaphthene	1.00	18	-	-	-	nd	nd	nd	nd	nd	nd
Fluoranthene	1.00	11	-	-	-	nd	nd	nd	nd	nd	nd
Benzo(a)pyrene	1.00	1.0	-	-	-	nd	nd	nd	nd	nd	nd
	(mg/kg)	(mg/kg)									
Benzene	0.050	1.7	-	-	-	nd	nd	nd	nd	nd	nd
Toluene	0.050	34	-	-	-	nd	nd	nd	nd	nd	nd
Ethylbenzene	0.050	0.050	-	-	-	nd	nd	nd	nd	nd	nd
Xylenes	0.050	23	-	-	-	nd	nd	nd	nd	nd	nd
PESTICIDES		(ug/kg)									
Aldrin	1.0	29	nd	nd	nd	nd	nd	nd	nd	nd	nd
a-BHC	1.0	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
b-BHC	1.0	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
g-BHC (Lindane)	1.0	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
d-BHC	1.0	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
4,4'-DDD	1.0	2400	nd	nd	nd	nd	nd	nd	nd	nd	nd
4,4'-DDE	1.0	1700	nd	nd	nd	nd	nd	nd	nd	nd	nd
4,4'-DDT	1.0	1700	nd	nd	nd	nd	nd	nd	nd	nd	nd
Dieldrin	1.0	30	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endosulfan I	1.0	370000	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endosulfan II	1.0	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endosulfan sulfate	1.0	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endrin	1.0	18000	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endrin aldehyde	1.0	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
Heptachlor	1.0	110	nd	nd	nd	nd	nd	nd	nd	nd	nd
Heptachlor epoxide	1.0	53	nd	nd	nd	nd	nd	nd	nd	nd	nd
Methoxychlor	1.0	310000	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chlordane (tech.)	200	1600	nd	nd	210	nd	nd	nd	nd	nd	nd
Toxaphene	500	440	nd	nd	nd	nd	nd	nd	nd	nd	nd
	(mg/kg)	(mg/kg)									
Arsenic	10	22	nd	nd	nd	nd	nd	nd	nd	nd	nd
Barium	50	-	nd	nd	nd	nd	nd	nd	nd	nd	nd
Cadmium	1	38	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chromium	5	210	65	63	21	40	53	65	57	56	63
Lead	5	400	87	79	66	74	91	110	100	100	55
Selenium	50	390	nd	nd	nd	nd	nd	nd	nd	nd	nd
Silver	50	390	nd	nd	nd	nd	nd	nd	nd	nd	nd
Mercury	0.5	23	nd	nd	nd	nd	nd	nd	nd	nd	nd
	(mg/kg)										
PCB-1016	0.050	1	nd	nd	nd	nd	nd	nd	nd	nd	nd
PCB-1221	0.050	1	nd	nd	nd	nd	nd	nd	nd	nd	nd
PCB-1232	0.050	1	nd	nd	nd	nd	nd	nd	nd	nd	nd
PCB-1242	0.050	1	nd	nd	nd	nd	nd	nd	nd	nd	nd
PCB-1248	0.050	1	nd	nd	nd	nd	nd	nd	nd	nd	nd
PCB-1254	0.050	1	nd	nd	nd	nd	nd	nd	nd	nd	nd
PCB-1260	0.050	1	nd	0.083	nd	nd	nd	nd	nd	nd	nd

* Detection limit is listed in the table under the analytical category.

† HDOH Tier I SAL is listed in the table under the analytical category.

LABORATORY ANALYTICAL RESULTS FOR SOIL SAMPLES

ANALYTE	DETECTION LIMIT *	HDOH TIER I SAL †	A1-1	A1-2	A2-1	A2-2
FUEL SCAN	(mg/kg)	(mg/kg)				
TPH-Gas	20	2000	nd	nd	nd	nd
TPH-Diescl	20	5000	nd	nd	nd	nd
TPH-Oil	25	5000	nd	nd	nd	nd
PAHs	(mg/kg)	(mg/kg)				
Naphthalene	1.00	41	nd	nd	nd	nd
Acenaphthene	1.00	18	nd	nd	nd	nd
Fluoranthene	1.00	11	nd	nd	nd	nd
Benzo(a)pyrene	1.00	1.0	nd	nd	nd	nd
BTEX	(mg/kg)					
Benzene	0.050	1.7	nd	nd	nd	nd
Toluene	0.050	34	nd	nd	nd	nd
Ethylbenzene	0.050	0.050	nd	nd	nd	nd
Xylenes	0.050	23	nd	nd	nd	nd
HVOCs		(mg/kg)				
Freon	0.050	-	nd	nd	nd	nd
Vinyl Chloride	0.050	0.022	nd	nd	nd	nd
1,1-Dichloroethene	0.050	0.054	nd	nd	nd	nd
Methylene Chloride	0.050	8.9	nd	nd	nd	nd
1,2-Dichloroethene	0.050	6.3	nd	nd	nd	nd
1,1-Dichloroethane	0.050	590	nd	nd	nd	nd
Cis 1,2-Dichloroethene	0.050	4.3	nd	nd	nd	nd
Chloroform	0.050	0.24	nd	nd	nd	nd
1,1,1-Trichloroethane	0.050	770	nd	nd	nd	nd
Carbon Tetrachloride	0.050	0.24	nd	nd	nd	nd
1,2-Dichloroethane	0.050	0.35	nd	nd	nd	nd
Trichloroethene	0.050	2.8	nd	nd	nd	nd
1,1,2-Trichloroethane	0.050	0.84	nd	nd	nd	nd
Tetrachloroethene	0.050	5.7	nd	nd	nd	nd
Chlorobenzene	0.050	150	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.050	0.38	nd	nd	nd	nd
METALS		(mg/kg)				
Lead	20	400	30	55	nd	130
	(ug/kg)					
Aldrin	1.0	29	nd	nd	nd	nd
a-BHC	1.0	-	nd	nd	nd	nd
b-BHC	1.0	-	nd	nd	nd	nd
g-BHC (Lindane)	1.0	-	nd	nd	nd	nd
d-BHC	1.0	-	nd	nd	nd	nd
4,4'-DDD	1.0	2400	nd	nd	nd	nd
4,4'-DDE	1.0	1700	nd	nd	nd	nd
4,4'-DDT	1.0	1700	nd	nd	nd	nd
Dieldrin	1.0	30	nd	nd	nd	nd
Endosulfan I	1.0	370000	nd	nd	nd	nd
Endosulfan II	1.0	-	nd	nd	nd	nd
Endosulfan sulfate	1.0	-	nd	nd	nd	nd
Endrin	1.0	18000	nd	nd	nd	nd
Endrin aldehyde	1.0	-	nd	nd	nd	nd
Heptachlor	1.0	110	nd	nd	nd	nd
Heptachlor epoxide	1.0	53	nd	nd	nd	nd
Methoxychlor	1.0	310000	nd	nd	nd	nd
Chlordane (tech.)	200	1600	nd	nd	nd	nd
Toxaphene	500	440	nd	nd	nd	nd

* Detection limit is listed in the table under the analytical category.
 † HDOH Tier I SAL is listed in the table under the analytical category.

LABORATORY ANALYTICAL RESULTS FOR SOIL SAMPLES

ANALYTE	DETECTION LIMIT*	HDOH TIER I SAL †	B1	B2	B3	B4	K1	K2	D1
	(mg/kg)	(mg/kg)							
TPH-Gas	20	2000	nd	nd	-	nd	-	-	-
TPH-Diescl	20	5000	nd	nd	nd	nd	-	-	-
TPH-Oil	25	5000	nd	nd	-	nd	-	-	-
PAHs	(mg/kg)	(mg/kg)							
Naphthalene	1.00	41	nd	nd	nd	nd	-	-	-
Acenaphthene	1.00	18	nd	nd	nd	nd	-	-	-
Fluoranthene	1.00	11	nd	nd	nd	nd	-	-	-
Benzo(a)pyrene	1.00	1.0	nd	nd	nd	nd	-	-	-
BTEX	(mg/kg)	(mg/kg)							
Benzene	0.050	1.7	nd	nd	nd	nd	-	-	-
Toluene	0.050	34	nd	nd	nd	nd	-	-	-
Ethylbenzene	0.050	0.050	nd	nd	nd	nd	-	-	-
Xylenes	0.050	23	nd	nd	nd	nd	-	-	-
HVOCs	(mg/kg)	(mg/kg)							
Freon	0.050	-	nd	nd	nd	nd	-	-	-
Vinyl Chloride	0.050	0.022	nd	nd	nd	nd	-	-	-
1,1-Dichloroethene	0.050	0.054	nd	nd	nd	nd	-	-	-
Methylene Chloride	0.050	8.9	nd	nd	nd	nd	-	-	-
1,2-Dichloroethene	0.050	6.3	nd	nd	nd	nd	-	-	-
1,1-Dichloroethane	0.050	590	nd	nd	nd	nd	-	-	-
Cis 1,2-Dichloroethene	0.050	4.3	nd	nd	nd	nd	-	-	-
Chloroform	0.050	0.24	nd	nd	nd	nd	-	-	-
1,1,1-Trichloroethane	0.050	770	nd	nd	nd	nd	-	-	-
Carbon Tetrachloride	0.050	0.24	nd	nd	nd	nd	-	-	-
1,2-Dichloroethane	0.050	0.35	nd	nd	nd	nd	-	-	-
Trichloroethene	0.050	2.8	nd	nd	nd	nd	-	-	-
1,1,2-Trichloroethane	0.050	0.84	nd	nd	nd	nd	-	-	-
Tetrachloroethene	0.050	5.7	nd	nd	nd	nd	-	-	-
Chlorobenzene	0.050	150	nd	nd	nd	nd	-	-	-
1,1,2,2-Tetrachloroethane	0.050	0.38	nd	nd	nd	nd	-	-	-
	(mg/kg)	(mg/kg)							
Lead	20	400	260	2900	1100	nd	-	-	-
PESTICIDES	(ug/kg)	(ug/kg)							
Aldrin	1.0	29	-	-	-	nd	-	-	nd
a-BHC	1.0	-	-	-	-	nd	-	-	nd
b-BHC	1.0	-	-	-	-	nd	-	-	nd
g-BHC (Lindane)	1.0	-	-	-	-	nd	-	-	nd
d-BHC	1.0	-	-	-	-	nd	-	-	nd
4,4'-DDD	1.0	2400	-	-	-	nd	-	-	nd
4,4'-DDE	1.0	1700	-	-	-	nd	-	-	nd
4,4'-DDT	1.0	1700	-	-	-	nd	-	-	nd
Dieldrin	1.0	30	-	-	-	nd	-	-	74
Endosulfan I	1.0	370000	-	-	-	nd	-	-	nd
Endosulfan II	1.0	-	-	-	-	nd	-	-	nd
Endosulfan sulfate	1.0	-	-	-	-	nd	-	-	nd
Endrin	1.0	18000	-	-	-	nd	-	-	nd
Endrin aldehyde	1.0	-	-	-	-	nd	-	-	nd
Heptachlor	1.0	110	-	-	-	nd	-	-	nd
Heptachlor epoxide	1.0	53	-	-	-	nd	-	-	nd
Methoxychlor	1.0	310000	-	-	-	nd	-	-	nd
Chlordane (tech.)	200	1600	-	-	-	nd	-	-	nd
Toxaphene	500	440	-	-	-	nd	-	-	nd

* Detection limit is listed in the table under the analytical category.
 † HDOH Tier I SAL is listed in the table under the analytical category.

LABORATORY ANALYTICAL RESULTS FOR SOIL SAMPLES

ANALYTE	DETECTION LIMIT	HDOH TIER I SAL †	B1	B2	B3	B4		K2	D1
PCB	(mg/kg)								
PCB-1016	0.050	1	-	-	nd	-	nd	nd	-
PCB-1221	0.050	1	-	-	nd	-	nd	nd	-
PCB-1232	0.050	1	-	-	nd	-	nd	nd	-
PCB-1242	0.050	1	-	-	nd	-	nd	nd	-
PCB-1248	0.050	1	-	-	nd	-	nd	nd	-
PCB-1254	0.050	1	-	-	nd	-	nd	nd	-
PCB-1260	0.050	1	-	-	0.214	-	0.133	0.186	-

* Detection limit is listed in the table under the analytical category.

† HDOH Tier I SAL is listed in the table under the analytical category.

LABORATORY ANALYTICAL RESULTS FOR SOIL SAMPLES

ANALYTE	DETECTION LIMIT *	HDOH TIER I SAL †	C3	C5	C6	C7	C8	E1	RP4
FUEL SCAN	(mg/kg)	(mg/kg)							
TPH-Gas	20	2000	-	-	-	-	-	-	nd
TPH-Diesel	20	5000	81	-	-	-	-	-	nd
TPH-Oil	25	5000	-	-	-	-	-	-	nd
PAHs	(mg/kg)	(mg/kg)							
Naphthalene	1.00	41	nd	-	-	-	-	-	nd
Acenaphthene	1.00	18	<1.50	-	-	-	-	-	nd
Fluoranthene	1.00	11	nd	-	-	-	-	-	nd
Benzo(a)pyrene	1.00	1.0	nd	-	-	-	-	-	nd
BTEX	(mg/kg)	(mg/kg)							
Benzene	0.050	1.7	nd	-	-	-	-	-	nd
Toluene	0.050	34	nd	-	-	-	-	-	nd
Ethylbenzene	0.050	0.050	nd	-	-	-	-	-	nd
Xylenes	0.050	23	nd	-	-	-	-	-	nd
HVOCs	(mg/kg)	(mg/kg)							
Freon	0.050	-	-	nd	nd	nd	-	-	-
Vinyl Chloride	0.050	0.022	-	nd	nd	nd	-	-	-
1,1-Dichloroethene	0.050	0.054	-	nd	nd	nd	-	-	-
Methylene Chloride	0.050	8.9	-	nd	nd	nd	-	-	-
1,2-Dichloroethene	0.050	6.3	-	nd	nd	nd	-	-	-
1,1-Dichloroethane	0.050	590	-	nd	nd	nd	-	-	-
Cis 1,2-Dichloroethene	0.050	4.3	-	nd	nd	nd	-	-	-
Chloroform	0.050	0.24	-	nd	nd	nd	-	-	-
1,1,1-Trichloroethane	0.050	770	-	nd	nd	nd	-	-	-
Carbon Tetrachloride	0.050	0.24	-	nd	nd	nd	-	-	-
1,2-Dichloroethane	0.050	0.35	-	nd	nd	nd	-	-	-
Trichloroethene	0.050	2.8	-	nd	nd	nd	-	-	-
1,1,2-Trichloroethane	0.050	0.84	-	nd	nd	nd	-	-	-
Tetrachloroethene	0.050	5.7	-	nd	nd	nd	-	-	-
Chlorobenzene	0.050	150	-	nd	nd	nd	-	-	-
1,1,2,2-Tetrachloroethane	0.050	0.38	-	nd	nd	nd	-	-	-
METALS	(mg/kg)	(mg/kg)							
Lead	20	400	45	280	nd	nd	150	-	35
PESTICIDES	(ug/kg)	(ug/kg)							
Aldrin	1.0	29	-	nd	nd	nd	nd	nd	-
a-BHC	1.0	-	-	nd	nd	nd	nd	nd	-
b-BHC	1.0	-	-	nd	nd	nd	nd	nd	-
g-BHC (Lindane)	1.0	-	-	nd	nd	nd	nd	nd	-
d-BHC	1.0	-	-	nd	nd	nd	nd	nd	-
4,4'-DDD	1.0	2400	-	nd	nd	nd	nd	nd	-
4,4'-DDE	1.0	1700	-	nd	nd	nd	nd	nd	-
4,4'-DDT	1.0	1700	-	nd	nd	nd	nd	nd	-
Dieldrin	1.0	30	-	nd	nd	nd	nd	nd	-
Endosulfan I	1.0	370000	-	nd	nd	nd	nd	nd	-
Endosulfan II	1.0	-	-	nd	nd	nd	nd	nd	-
Endosulfan sulfate	1.0	-	-	nd	nd	nd	nd	nd	-
Endrin	1.0	18000	-	nd	nd	nd	nd	nd	-
Endrin aldehyde	1.0	-	-	nd	nd	nd	nd	nd	-
Heptachlor	1.0	110	-	nd	nd	nd	nd	nd	-
Heptachlor epoxide	1.0	53	-	nd	nd	nd	nd	nd	-
Methoxychlor	1.0	310000	-	nd	nd	nd	nd	nd	-
Chlordane (tech.)	200	1600	-	nd	nd	nd	nd	5500	-
Toxaphene	500	440	-	nd	nd	nd	nd	nd	-

* Detection limit is listed in the table under the analytical category.
† HDOH Tier I SAL is listed in the table under the analytical category.

LABORATORY ANALYTICAL RESULTS FOR SOIL SAMPLES

ANALYTE	DETECTION LIMIT*	HDOH TIER I SAL †	F1	F2	F3	F4	G1	H1	H2
FUEL SCAN	(mg/kg)	(mg/kg)							
TPH-Gas	20	2000	nd	nd	nd	-	nd	nd	-
TPH-Diesel	20	5000	nd	nd	1300	-	nd	2900	nd
TPH-Oil	25	5000	50	4000	nd	-	280	nd	-
PAHs	(mg/kg)	(mg/kg)							
Naphthalene	1.00	41	nd	nd	nd	-	nd	nd	nd
Acenaphthene	1.00	18	nd	nd	nd	-	nd	nd	nd
Fluoranthene	1.00	11	nd	nd	nd	-	nd	nd	nd
Benzo(a)pyrene	1.00	1.0	nd	nd	nd	-	nd	nd	nd
BTEX	(mg/kg)	(mg/kg)							
Benzene	0.050	1.7	nd	nd	nd	-	nd	nd	nd
Toluene	0.050	34	nd	nd	nd	-	nd	nd	nd
Ethylbenzene	0.050	0.050	nd	nd	nd	-	nd	nd	nd
Xylenes	0.050	23	nd	nd	nd	-	nd	nd	nd
HVOCs	(mg/kg)	(mg/kg)							
Freon	0.050	-	nd	nd	nd	-	nd	nd	nd
Vinyl Chloride	0.050	0.022	nd	nd	nd	-	nd	nd	nd
1,1-Dichloroethene	0.050	0.054	nd	nd	nd	-	nd	nd	nd
Methylene Chloride	0.050	8.9	nd	nd	nd	-	nd	nd	nd
1,2-Dichloroethene	0.050	6.3	nd	nd	nd	-	nd	nd	nd
1,1-Dichloroethane	0.050	590	nd	nd	nd	-	nd	nd	nd
Cis 1,2-Dichloroethene	0.050	4.3	nd	nd	nd	-	nd	nd	nd
Chloroform	0.050	0.24	nd	nd	nd	-	nd	nd	nd
1,1,1-Trichloroethane	0.050	770	nd	nd	nd	-	nd	nd	nd
Carbon Tetrachloride	0.050	0.24	nd	nd	nd	-	nd	nd	nd
1,2-Dichloroethane	0.050	0.35	nd	nd	nd	-	nd	nd	nd
Trichloroethene	0.050	2.8	nd	nd	nd	-	nd	nd	nd
1,1,2-Trichloroethane	0.050	0.84	nd	nd	nd	-	nd	nd	nd
Tetrachloroethene	0.050	5.7	nd	nd	nd	-	nd	nd	nd
Chlorobenzene	0.050	150	nd	nd	nd	-	nd	nd	nd
1,1,2,2-Tetrachloroethane	0.050	0.38	nd	nd	nd	-	nd	nd	nd
	(mg/kg)	(mg/kg)							
Lead	20	400	30	70	35	-	180	2700	170
PESTICIDES		(ug/kg)							
Aldrin	1.0	29	-	-	-	nd	-	nd	-
a-BHC	1.0	-	-	-	-	nd	-	nd	-
b-BHC	1.0	-	-	-	-	nd	-	nd	-
g-BHC (Lindane)	1.0	-	-	-	-	nd	-	nd	-
d-BHC	1.0	-	-	-	-	nd	-	nd	-
4,4'-DDD	1.0	2400	-	-	-	nd	-	nd	-
4,4'-DDE	1.0	1700	-	-	-	nd	-	nd	-
4,4'-DDT	1.0	1700	-	-	-	nd	-	nd	-
Dieldrin	1.0	30	-	-	-	nd	-	nd	-
Endosulfan I	1.0	370000	-	-	-	nd	-	nd	-
Endosulfan II	1.0	-	-	-	-	nd	-	nd	-
Endosulfan sulfate	1.0	-	-	-	-	nd	-	nd	-
Endrin	1.0	18000	-	-	-	nd	-	nd	-
Endrin aldehyde	1.0	-	-	-	-	nd	-	nd	-
Heptachlor	1.0	110	-	-	-	nd	-	nd	-
Heptachlor epoxide	1.0	53	-	-	-	nd	-	nd	-
Methoxychlor	1.0	310000	-	-	-	nd	-	nd	-
Chlordane (tech.)	200	1600	-	-	-	nd	-	nd	-
Toxaphene	500	440	-	-	-	nd	-	nd	-

* Detection limit is listed in the table under the analytical category.
† HDOH Tier I SAL is listed in the table under the analytical category.

LABORATORY ANALYTICAL RESULTS FOR SOIL SAMPLES

ANALYTE	DETECTION LIMIT *	HDOH TIER I SAL †	F1	F2	F3		G1	H1	H2
PCB	(mg/kg)								
PCB-1016	0.050	1	-	-	-	-	-	nd	-
PCB-1221	0.050	1	-	-	-	-	-	nd	-
PCB-1232	0.050	1	-	-	-	-	-	nd	-
PCB-1242	0.050	1	-	-	-	-	-	nd	-
PCB-1248	0.050	1	-	-	-	-	-	nd	-
PCB-1254	0.050	1	-	-	-	-	-	nd	-
PCB-1260	0.050	1	-	-	-	-	-	0.482	-

* Detection limit is listed in the table under the analytical category.

† HDOH Tier I SAL is listed in the table under the analytical category.

LABORATORY ANALYTICAL RESULTS FOR SOIL SAMPLES

ANALYTE	DETECTION LIMIT	HDOH TIER I SAL†	I1	I1B	I2	I3	I4	I5	I6	J1	J2	J3
FUEL SCAN	(mg/kg)	(mg/kg)										
TPH-Gas	20	2000	nd	nd	nd	nd	-	-	-	nd	-	-
TPH-Diesel	20	5000	nd	1800	nd	46	-	-	-	nd	-	-
TPH-Oil	25	5000	nd	750	nd	nd	-	-	-	nd	-	-
PAHs	(mg/kg)	(mg/kg)										
Naphthalene	1.00	41	nd	nd	nd	nd	-	-	-	nd	-	-
Acenaphthene	1.00	18	nd	nd	nd	nd	-	-	-	nd	-	-
Fluoranthene	1.00	11	nd	nd	nd	nd	-	-	-	nd	-	-
Benzo(a)pyrene	1.00	1.0	nd	nd	nd	nd	-	-	-	nd	-	-
BTEX	(mg/kg)	(mg/kg)										
Benzene	0.050	1.7	nd	nd	nd	nd	-	-	-	nd	-	-
Toluene	0.050	34	nd	nd	nd	nd	-	-	-	nd	-	-
Ethylbenzene	0.050	0.050	nd	nd	nd	nd	-	-	-	nd	-	-
Xylenes	0.050	23	nd	nd	nd	nd	-	-	-	nd	-	-
PESTICIDES	(ug/kg)	(ug/kg)										
Aldrin	1.0	29	-	-	-	-	-	-	-	-	nd	38
a-BHC	1.0	-	-	-	-	-	-	-	-	-	nd	nd
b-BHC	1.0	-	-	-	-	-	-	-	-	-	nd	nd
g-BHC (Lindane)	1.0	-	-	-	-	-	-	-	-	-	nd	nd
d-BHC	1.0	-	-	-	-	-	-	-	-	-	nd	nd
4,4'-DDD	1.0	2400	-	-	-	-	-	-	-	-	nd	nd
4,4'-DDE	1.0	1700	-	-	-	-	-	-	-	-	nd	nd
4,4'-DDT	1.0	1700	-	-	-	-	-	-	-	-	nd	nd
Dieldrin	1.0	30	-	-	-	-	-	-	-	-	nd	nd
Endosulfan I	1.0	370000	-	-	-	-	-	-	-	-	nd	46
Endosulfan II	1.0	-	-	-	-	-	-	-	-	-	nd	nd
Endosulfan sulfate	1.0	-	-	-	-	-	-	-	-	-	nd	nd
Endrin	1.0	18000	-	-	-	-	-	-	-	-	nd	nd
Endrin aldehyde	1.0	-	-	-	-	-	-	-	-	-	nd	nd
Heptachlor	1.0	110	-	-	-	-	-	-	-	-	nd	nd
Heptachlor epoxide	1.0	53	-	-	-	-	-	-	-	-	nd	nd
Methoxychlor	1.0	310000	-	-	-	-	-	-	-	-	nd	nd
Chlordane (tech.)	200	1600	-	-	-	-	-	-	-	-	nd	nd
Toxaphene	500	440	-	-	-	-	-	-	-	-	nd	nd
METALS	(mg/kg)	(mg/kg)										
Arsenic	10	22	-	-	-	-	nd	nd	nd	-	-	-
Barium	50	-	-	-	-	-	nd	nd	nd	-	-	-
Cadmium	1	38	-	-	-	-	nd	nd	nd	-	-	-
Chromium	5	210	-	-	-	-	24	12	66	-	-	-
Lead	5	400	25	25	25	50	350	30	26	130	60	250
Selenium	50	390	-	-	-	-	nd	nd	nd	-	-	-
Silver	50	390	-	-	-	-	nd	nd	nd	-	-	-
Mercury	0.5	23	-	-	-	-	nd	nd	nd	-	-	-
PCBs	(mg/kg)	(mg/kg)										
PCB-1016	0.050	1	-	-	-	-	nd	nd	nd	-	-	-
PCB-1221	0.050	1	-	-	-	-	nd	nd	nd	-	-	-
PCB-1232	0.050	1	-	-	-	-	nd	nd	nd	-	-	-
PCB-1242	0.050	1	-	-	-	-	nd	nd	nd	-	-	-
PCB-1248	0.050	1	-	-	-	-	nd	nd	nd	-	-	-
PCB-1254	0.050	1	-	-	-	-	nd	nd	nd	-	-	-
PCB-1260	0.050	1	-	-	-	-	nd	nd	nd	-	-	-

* Detection limit is listed in the table under the analytical category.
† HDOH Tier I SAL is listed in the table under the analytical category.

LABORATORY ANALYTICAL RESULTS FOR MONITORING WELLS

ANALYTE	DETECTION LIMIT*	HDOH TIER I SAL †	MW1	MW3	MW4
FUEL SCAN	(mg/kg)	(mg/kg)			
TPH-Gas	20	2000	nd	nd	nd
TPH-Diesel	20	5000	1.1	nd	nd
TPH-Oil	25	5000	nd	nd	nd
PAHs	(mg/kg)	(mg/kg)			
Naphthalene	1.00	41	nd	nd	nd
Acenaphthene	1.00	18	nd	nd	nd
Fluoranthene	1.00	11	nd	nd	nd
Benzo(a)pyrene	1.00	1.0	nd	nd	nd
BTEX	(mg/kg)	(mg/kg)			
Benzene	0.050	1.7	nd	nd	nd
Toluene	0.050	34	nd	nd	nd
Ethylbenzene	0.050	0.050	nd	nd	nd
Xylenes	0.050	23	nd	nd	nd
PESTICIDES	(ug/kg)	(ug/kg)			
Aldrin	1.0	29	-	nd	nd
a-BHC	1.0	-	-	nd	nd
b-BHC	1.0	-	-	nd	nd
g-BHC (Lindane)	1.0	-	-	nd	nd
d-BHC	1.0	-	-	nd	nd
4,4'-DDD	1.0	2400	-	nd	nd
4,4'-DDE	1.0	1700	-	nd	nd
4,4'-DDT	1.0	1700	-	nd	nd
Dieldrin	1.0	30	-	nd	nd
Endosulfan I	1.0	370000	-	nd	nd
Endosulfan II	1.0	-	-	nd	nd
Endosulfan sulfate	1.0	-	-	nd	nd
Endrin	1.0	18000	-	nd	nd
Endrin aldehyde	1.0	-	-	nd	nd
Heptachlor	1.0	110	-	nd	nd
Heptachlor epoxide	1.0	53	-	nd	nd
Methoxychlor	1.0	310000	-	nd	nd
Chlordane (tech.)	200	1600	-	nd	nd
Toxaphene	500	440	-	nd	nd

* Detection limit is listed in the table under the analytical category.
 † HDOH Tier I SAL is listed in the table under the analytical category.

9.0 SUMMARY AND RECOMMENDATIONS

Kimura International has completed a Phase II ESA investigation at the subject site. The investigation included 13 soil borings, of which 3 were converted into groundwater monitoring wells. In addition, 25 shallow soil samples and 3 sediment samples were collected from various locations throughout the site. Kimura International conducted field screening, made visual observations, and reviewed soil and groundwater sample analyses to identify areas of contamination that may pose a risk to future users of the property.

Investigation activities performed under the current scope of work have confirmed that contamination from past and current operations does exist on the site. Certain small "hot spots" of contamination are present. The results of the investigation are as follows:

TABLE 11: SUMMARY AND RECOMMENDATIONS

Target Area	Findings	Recommendations
Oil-Water Separator	Tests of four soil samples collected from two borings indicate that no petroleum hydrocarbons, PAHs, HVOCs, lead, and organochlorine pesticides were found at levels above HDOH Tier I Soil Action Levels	Kimura International recommends no further action with respect to this target area.
Transformer Locations	Three soil samples were collected to assess one pole-mounted transformer north of Building h and four pole-mounted transformers west of Building F. These soil samples were found to contain low levels of Aroclor 1260. The transformer along the east boundary of the site were also investigated and soil samples were found to not have detectable levels of PCB.	Kimura International recommends that the areas of the pole-mounted transformers where surface soils have been impacted with Aroclor 1260 be investigated. The impacted soils may need to be removed.
UST Locations	Two of the UST locations adjacent to Building H were investigated and soil borings did not find any petroleum contamination that could be attributed to a release of fuel. However, one sample was found to have lead at a level above HDOH Tier I SAL. One possible UST location was discovered during sampling.	The subsurface soils in the area of boring B2 should be managed properly if removed. The suspected UST on the west side of Building B should be further investigated to determine its presence and potential contamination of subsurface soils.
AST Locations	Three ASTs are located along the old railroad tracks. Two of the ASTs are located on asphalt and a soil boring taken between them was found to have very low levels of petroleum constituents. The other AST is located next to Building E and placed over bare soil. This AST has released some diesel. The sample was found to contain lead at levels above HDOH Tier I SAL.	Building E was found to have elevated lead levels and potentially high petroleum hydrocarbons under the AST along the west side of the building. The lead levels may be attributed to lead paint from the building and further tests should be conducted to confirm this. Petroleum hydrocarbons may be associated with the fuel tank on the trailer and appears to be localized and limited to soil near the trailer. Removal of the contaminated soil is recommended.
Vehicle Service Areas	The service area for the car lot is not impacted with petroleum, solvents or metal	The Pineridge service area has visible staining from the releases of

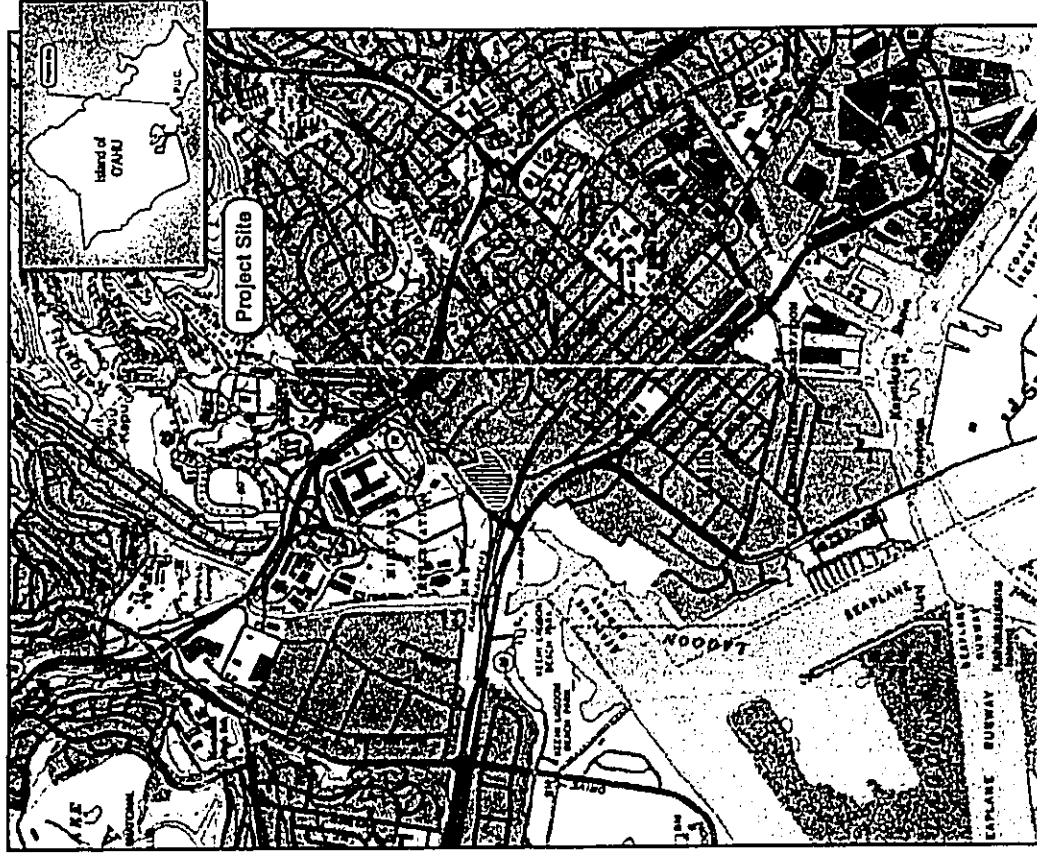
Target Area	Findings	Recommendations
	contamination and no further investigations will be needed. The Pineridge service area has visible staining due to petroleum contamination and two borings taken from the area contained levels of petroleum hydrocarbons that warrant further actions.	petroleum products. Some of the soil beneath the existing asphalt cap may also be affected. Further investigation of the impacted soil should be conducted.
Drum Storage Areas	During the site reconnaissance and fieldwork conducted by Kimura International, no drum storage areas were found.	Kimura International recommends no further action with respect to this target area.
Subsurface Petroleum Plume	The subsurface fuel oil plume that was previously investigated and found to encroach upon the site beneath the Commercial Enterprise building has been determined to still be present. Three soil borings taken along the southern and western sides of Building C were advanced to the groundwater level. One of the borings was found to have fuel oil globules present in the soil/groundwater interface and test show low levels of petroleum hydrocarbons. The plume is approximately 15 feet below ground surface and does not pose a health risk.	Contamination is present in this target area. Removal of the contamination would involve excavation of the ground beneath the existing building, which may not be feasible. It is possible that natural attenuation of the oil will occur over time and no further actions will be necessary. However, the target area may require future testing and investigation or remediation.
Chlordane Treatment	Soil samples from all of the old buildings were collected and analyzed for organochlorine pesticides. Only two of the buildings were found to have insecticides used for termite treatment in the soil. These buildings are Building A and Building A. Building A has high levels of chlordane and Building F has dieldrin present. Both insecticides are present at levels above HDOH Tier I SALs. Further actions may be necessary.	Building F and A are some of the oldest buildings on the site and ground treatment for termites with dieldrin and chlordane is suspected. One soil sample was analyzed and found to have chlordane at 5,500 ppb. This is well above the PRG of 1,600 ppb. The other had dieldrin at 74 ppb with a PRG of 30 ppb. If the building foundations are graded, then the soil must be treated as contaminated soil. The FIFRA exclusion would be waved once the treated soil is moved. Kimura International recommends that additional testing of the soil, under the building that has been treated, before demolition and grading takes place.

Kimura International recommends that these "hot spots" be further delineated and removed through the excavation and removal process for contaminated soils above the soil action levels developed by the Hawaii Department of Health. The costs of removal must include: 1) costs for additional delineation and cleanup confirmation sampling of the "hot spots", 2) analytical costs for the determination of hazardous waste constituents (TCLP analysis), 3) costs of excavation, 4) costs to transport the soil to the landfill (if acceptable) or other appropriate disposal facility, 5) costs of monitoring the environmental work during removal activities, and 6) tipping fees at the disposal sites. A letter with cost estimates for the disposal of the soil was sent on March X, 2002 (Appendix E).

10.0 REFERENCES

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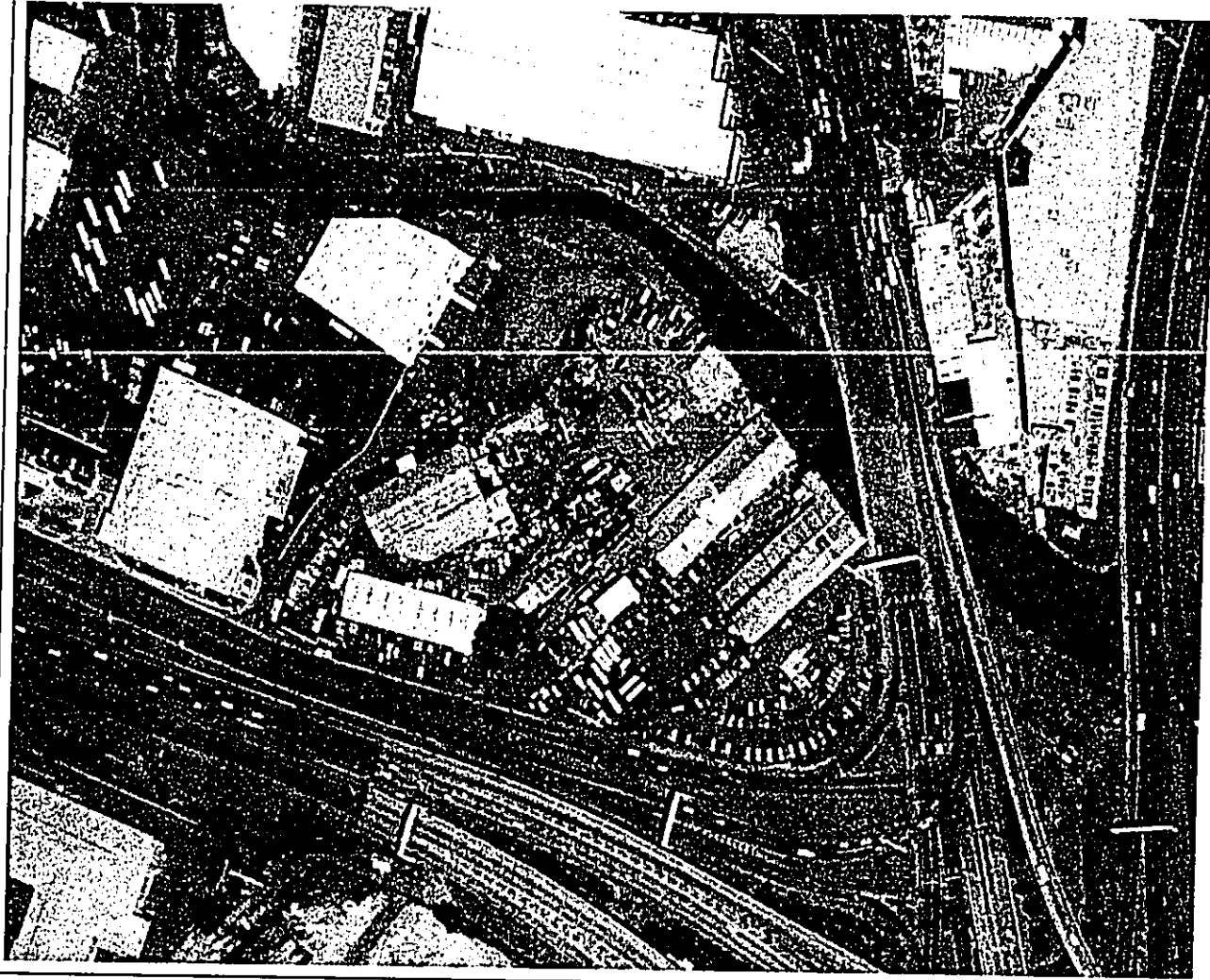
APPENDIX A:
FIGURES



April 2002
SCALE: FEET 200
N
Kimura International
Middle Street Transit Center
Location
Figure 1

JULY 11, 2002
APPENDICES

MIDDLE STREET TRANSIT CENTER
PHASE II ESA



Aerial Photo

Kimura International
Middle Street Transit Center

APPENDIX B:
PHOTOGRAPHS

MIDDLE STREET TRANSIT CENTER
PHASE II ESA

JULY 11, 2002
APPENDICES



Photo 1:
Sediment samples were collected from surface of the stream bed with glass sample jars.



Photo 2:
A slide hammer with a core sampler attachment was used to collect shallow soil samples.



Photo 3:
Soil samples were collected in stainless steel sleeves and submitted to ESN for chemical analysis.



Photo 4:
All equipment used during sampling activities were cleaned with a non-phosphate detergent prior to the initial sampling location and between subsequent sampling locations.

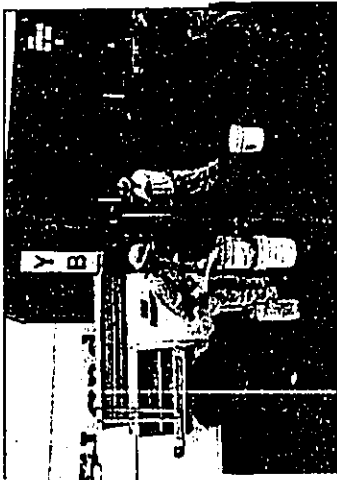


Photo 5:
ESN utilized a direct-push technology drill rig to advance deep soil borings.



Photo 6:
Groundwater monitoring wells were installed by ESN to collect groundwater samples.

PHOTOGRAPHIC DOCUMENTATION

Middle Street Transit Center



KIMURA INTERNATIONAL, INC.

PHOTOGRAPHIC DOCUMENTATION

Middle Street Transit Center



KIMURA INTERNATIONAL, INC.



Photo 7:
Groundwater quality parameters were measured
during monitoring well purging.

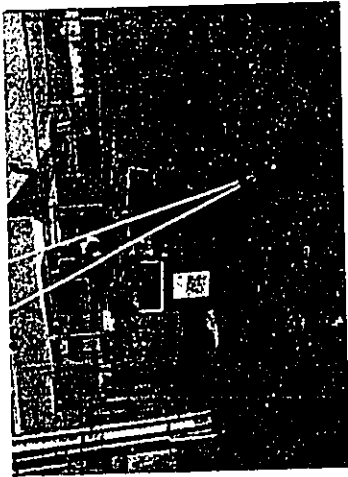


Photo 8: Gas pumps removed from the west side
of Building B.

PHOTOGRAPHIC DOCUMENTATION

Middle Street Transit Center



KIMURA INTERNATIONAL, INC.

ESN PACIFIC

THE MEGAPROBE SYSTEM DIRECT PUSH TECHNOLOGY FOR SOIL, WATER AND SOIL VAPOR SAMPLING

Overview

The MEGAPROBE is a rugged, lightweight hydraulic drive point system designed to perform sampling and monitoring services specific to the environmental industry. The MEGAPROBE carrier vehicle is a four wheel drive, one ton pickup truck with a reliable power take-off hydraulic system. One of the most versatile systems of its kind the MEGAPROBE can drive an assortment of sampling devices to fifty feet or deeper in many soil formations.

The direct push hydraulic unit consists of a rear-mounted, dual ram configuration mounted in conjunction with a hydraulic hammer that is capable of producing high-frequency impact energy. A 5,000 pound static reaction weight and 15,000 pound pullback capacity provide ample force to overcome most common geologic conditions. The low profile mast is only eleven feet high when fully extended and the framework of the machine is fully articulated to allow for a full range of positioning, including up to a 20 degree angle for boring underneath structures.

The MEGAPROBE's low profile and articulated boom provide for easy access when sampling under canopies, adjacent to structures and inside buildings. Hand held portable equipment is also available where truck access is not possible.

Soil Sampling

The MEGAPROBE obtains discrete soil samples using a retractable piston sampler. The sampler consists of a standard split spoon with a piston assembly added to allow for discrete sampling intervals. Upon reaching the desired depth, the piston is unlocked and the sampler advanced into the soil as the piston retracts. Samples are collected in standard retainer sleeves made of stainless steel, brass or clear acrylic. Samples are obtained at any interval specified in a workplan.

Groundwater Sampling

The MEGAPROBE provides for high quality groundwater sampling using a tool similar to a HydroPunch™ or via direct pumping to the surface. In areas of low hydraulic conductivity, small diameter sampling tubes can be implanted using the MEGAPROBE and sampled at a later date. The sampling tools are pushed directly into the aquifer in a shielded position. The sampling ports are then unsheathed to expose them to groundwater. Clean sample tubing or ballars are used to move the water sample to the surface.

APPENDIX C: LABORATORY RESULTS AND CHAIN-OF-CUSTODY

JULY 11, 2002
APPENDICES

MIDDLE STREET TRANSIT CENTER
PHASE II ESA

Environmental Services Network

ESN PACIFIC

Soil Vapor Sampling

The MEGAPROBE is the ideal tool for performing deep soil vapor surveys in difficult soil conditions. The drive probes are custom, high strength steel tubes with a uniform diameter machined the full length of the probe. The soil vapor collection system begins with a detachable tip held by the leading rod, which shields the sampling tube during the driving process. Vapor is collected through a continuous, inert 1/8" nylon tube connected to the surface. Once the desired sampling depth is reached the entire drive string is raised slightly opening a clear path for vapor. After sampling the probe can be pushed deeper for multiple depth vapor profiling.

Soil vapor is withdrawn from the nylon tubing using a small calibrated syringe connected via an on-off valve. The first three dead volumes of the sample tube are discarded to flush the tube and fill it with in-situ soil vapor. The next twenty cc's of gas are withdrawn in the syringe, plugged and immediately transferred to a mobile lab for analysis within minutes of collection. Additional soil vapor samples may be collected and stored in gas-tight containers as desired.

Vapor Wells

The MEGAPROBE provides a low cost alternative for installing multiple high quality vapor wells. Each individual well is installed by driving to the desired depth and then placing a vapor inlet tip attached to an inert, continuous length of 1/8" nylon tubing down the hollow center of the rod. Clean silica sand is poured through the rod around the vapor tip and then a hydrated granular bentonite grout is used to seal the annular space of the borehole as the rod is withdrawn. Multiple wells can be placed in either a cluster or in the same borehole as specified by the workplan. Each well or cluster of wells will be completed at the top with sample fittings, labels and covers to the client's specifications.

Accessory Equipment

The MEGAPROBE sampling systems are fully equipped with the equipment necessary to operate unsupported in the field. Full provision has been made for power, water, decontamination of sampling equipment and work site cleanup.

ESN PACIFIC

ANALYTICAL PROCEDURES

SAMPLE PREPARATION

Waters

Separate water aliquots are extracted for TPH, PAH and volatile aromatics (EPA 602) analyses by liquid-liquid extraction using a modified EPA Method 3510.

Soils

Soil samples are extracted with methanol for volatile chlorinated hydrocarbon compounds (EPA 8021B), with freon 113 for volatile aromatic hydrocarbon compounds (EPA 8021B), fuel compounds (EPA 8015M) and for PAH's (EPA 8100). All extracts are then hand-shaken and sonicated. PCB's are extracted by hand shaking with hexane followed by sonication.

GAS CHROMATOGRAPHY

Volatile Chlorinated Hydrocarbons

Water samples and soil extracts are analyzed on a gas chromatograph equipped with a capillary column, photoionization detector (PID) and Hall electrolytic conductivity detector following EPA Methods 601/8021B and 602/8021B.

Volatile Aromatic Hydrocarbons (BTEX), Semivolatile hydrocarbons (PAH) & Total Fuel Hydrocarbons (TFH)

The soil extract is injected on-column into a gas chromatograph equipped with capillary columns, photoionization (PID) and flame ionization detectors (FID).

PCB's/Pesticides

PCB's are analyzed on a gas chromatograph using a capillary column with an ECD detector per EPA protocols.

TOTAL RECOVERABLE HYDROCARBONS

Extracts are cleaned with silica gel and measured on a BUCK 404 Infrared Analyzer following EPA 418.1 protocols.

Environmental Services Network

Environmental Services Network

ESN PACIFIC

ABBREVIATIONS

MDL: Method Detection Limit
 ND: Not Detected above detection limit.
 PQL: Practical Quantitation Limit
 MS/MSD: Matrix Spike/Matrix Spike Duplicate samples
 LCS/LCSD: Laboratory Control Sample/Laboratory Control Sample Duplicate
 RPD: Relative Percent Difference
 RSD: Relative Standard Deviation
 CCV: Continuous Calibration Verification standard

DATA QUALIFIERS

DO: Surrogate spike Diluted Out
 MI: Matrix Interference prevents quantifying surrogate spike
 DFOK: Reported result calculated from Dilution Factor (XX = numerical value)
 EST: Concentration exceeded calibration range, reported value is an estimated quantity
 CON1: Analyte detected in method blank, sample concentration not significantly higher as in method blank (<10%)
 CON2: Analyte detected in method blank, analyte concentration in sample significantly higher as in method blank (>10%)
 CONF1: Second column confirmation, RPD between results less than 35%. Highest result reported.
 CONF2: Second column confirmation, RPD between results less than 35%. Lowest result reported.
 CONF3: Second column confirmation, RPD between results more than 35%. Lowest result reported.
 CONF4: Second column confirmation, RPD between results more than 35%. Highest result reported.
 DETCONF1: Components in bold print have been confirmed using a second detector (HALL/PCID).
 DETCONF2: RPD between results less than 35%.
 UNK: RPD between results more than 35%.
 DOUT1: Not identified as a typical product.
 DOUT2: RPD for duplicates outside acceptable limits (65%-135%). Reanalysis did not improve result. Matrix probably nonhomogeneous.
 MSOUT1: RPD for duplicates outside acceptable limits (65%-135%) as a result of analyte concentration near the MDL/PQL.
 MSOUT2: MS/MSD recovery outside acceptable limits (65%-135%). Reanalysis did not improve result.
 MSOUT3: MS/MSD RPD outside acceptable limits (65%-135%). Reanalysis did not improve result.
 MSOUT4: MS/MSD recovery or RPD outside acceptable limits (65%-135%). Reanalysis did not improve result. Matrix interference suspected.

ESN SEATTLE CHEMISTRY LABORATORY
 (206) 867-8872, fax (206) 867-4804

ESN Job Number: 820206-3
 Client: ESN PACIFIC
 Client Job Name: KAMURA - MIDDLE ST.
 Client Job Number: 02020-0078

Analytical Results	MTH BLK		LCS		KS-3		SS-E-1		SS-F-4	
	Reporting	Soil	Reporting	Soil	Reporting	Soil	Reporting	Soil	Reporting	Soil
Matrix	02/08/02	02/08/02	02/08/02	02/08/02	02/08/02	02/08/02	02/08/02	02/08/02	02/08/02	02/08/02
Date analyzed	02/08/02	02/08/02	02/08/02	02/08/02	02/08/02	02/08/02	02/08/02	02/08/02	02/08/02	02/08/02
Limits	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Aldrin	nd	nd	107%	nd	nd	nd	nd	nd	nd	nd
p-BHC	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-BHC	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
p-BHC (Urbane)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-BHC	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
4,4'-DDE	nd	nd	86%	nd	nd	nd	nd	nd	nd	nd
4,4'-DDT	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Dieldrin	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endosulfan I	nd	nd	98%	nd	nd	nd	nd	nd	nd	nd
Endosulfan II	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endosulfan Sulfate	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endrin	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endrin Aldehyde	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Heptachlor	nd	nd	79%	nd	nd	nd	nd	nd	nd	nd
Heptachlor Epoxide	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Methoxychlor	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chlordane (tech.)	200	nd	nd	nd	210	nd	nd	0.000	nd	nd
Toxaphene	500	nd	nd	nd	nd	nd	nd	nd	nd	nd
Surrogate recoveries:										
Terachloro-nonylene	85%	85%	85%	85%	107%	107%	86%	86%	77%	77%

Data Qualifiers and Analytical Comments
 nd - not detected at listed reporting limits
 na - not analyzed
 C - co-elution with sample peaks
 M - matrix interference
 J - estimated value
 Results reported on dry-weight basis
 Acceptable Recovery limits: 65% TO 135%
 Acceptable RPD limit: 35%

Environmental Services Network

ESN NORTHWEST CHEMISTRY LABORATORY

KIMURA-MIDDLE ST PROJECT
Hawaii
ESN Pacific
Client Project #D202040078

QA/QC Data - Total Metals EPA-7000 Series Analyses

	Matrix Spikes			Matrix Spikes Duplicate			RPD (%)
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	
Lead	125	137	110	125	135	108	1.47
Cadmium	12.5	13.7	110	12.5	13.3	106	2.96
Chromium	125	118	94	125	124	99	4.96
Arsenic	125	129	103	125	113	90	13.22

Laboratory Control Sample

	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Lead	125	109	87
Cadmium	12.5	12.5	100
Chromium	125	148	118
Arsenic	125	136	109

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Dean Phillips

ESN NORTHWEST CHEMISTRY LABORATORY

KIMURA-MIDDLE ST PROJECT
Hawaii
ESN Pacific
Client Project #D202040078

Heavy Metals in Soil by EPA-7000 Series

Sample Number	Date Analyzed	Lead (Pb) EPA 7420 (mg/kg)	Cadmium (Cd) EPA 7130 (mg/kg)	Chromium (Cr) EPA 7190 (mg/kg)	Arsenic (As) EPA 7061 (mg/kg)	Silver (Ag) EPA 7760 (mg/kg)	Barium (Ba) EPA 7080 (mg/kg)	Selenium (Se) EPA 7741 (mg/kg)	Mercury (Hg) EPA 7471 (mg/kg)
Method Blank	2/14/02	nd	nd	nd	nd	nd	nd	nd	nd
SS-14	2/14/02	360	nd	24	nd	nd	nd	nd	nd
SS-15	2/14/02	30	nd	12	nd	nd	nd	nd	nd
SS-16	2/14/02	26	nd	66	nd	nd	nd	nd	nd
KS-3	2/14/02	61	nd	21	nd	nd	nd	nd	nd
KS-3 Dup	2/14/02	66	nd	21	nd	nd	nd	nd	nd
Method Detection Limits		5	1	5	10	50	50	50	0.5

nd Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Dean Phillips

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9804

ESN Job Number: S20130-1
Client: ESN PACIFIC
Client Job Name: KOMURA - MIDDLE ST.
Client Job Number: D201280064

Matrix	Date extracted	Date analyzed	MTH BLK		LCS		SS-01		SS-B4		SS-C7		SS-C8	
			Reporting	Soil	Reporting	Soil	Reporting	Soil	Reporting	Soil	Reporting	Soil	Reporting	Soil
			Limits	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02
Aldrin	1.0	nd	nd	81%	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
α-BHC	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
β-BHC	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
γ-BHC (Lindane)	1.0	nd	64%	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
δ-BHC	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
4,4'-DDD	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
4,4'-DDE	1.0	nd	nd	105%	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
4,4'-DDT	1.0	nd	nd	92%	nd	74	nd	nd	nd	nd	nd	nd	nd	nd
Dieldrin	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endosulfan I	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endosulfan II	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endosulfan Sulfate	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endrin	1.0	nd	nd	85%	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endrin Aldehyde	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Heptachlor	1.0	nd	nd	103%	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Heptachlor Epoxide	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Methoxychlor	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chlordane (tech)	200	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Toxaphene	500	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Surrogate recoveries:				120%		120%		114%		97%		80%		84%
Decachlorobiphenyl														

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
C - co-elution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9804

ESN Job Number: S20130-1
Client: ESN PACIFIC
Client Job Name: KOMURA - MIDDLE ST.
Client Job Number: D201280064

Matrix	Date extracted	Date analyzed	SS-MS1		SS-MS2		SS-SB1		SS-SB2		SS-SB3		SS-SB4	
			Reporting	Soil	Reporting	Soil	Reporting	Soil	Reporting	Soil	Reporting	Soil	Reporting	Soil
			Limits	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02
Aldrin	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
α-BHC	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
β-BHC	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
γ-BHC (Lindane)	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
δ-BHC	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
4,4'-DDD	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
4,4'-DDE	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
4,4'-DDT	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Dieldrin	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endosulfan I	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endosulfan II	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endosulfan Sulfate	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endrin	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Endrin Aldehyde	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Heptachlor	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Heptachlor Epoxide	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Methoxychlor	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chlordane (tech)	200	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Toxaphene	500	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Surrogate recoveries:														
Decachlorobiphenyl														

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
C - co-elution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

ESN NORTHWEST CHEMISTRY LABORATORY

KIMURA-MIDDLE ST. PROJECT
 Hawaii
 ESN Pacific
 Client Project #D201280064

Heavy Metals in Soil by EPA-7000 Series

Sample Number	Date Analyzed	Lead (Pb)	Cadmium (Cd)	Chromium (Cr)	Arsenic (As)	Silver (Ag)	Barium (Ba)	Selenium (Se)	Mercury (Hg)
		EPA 7420 (mg/kg)	EPA 7130 (mg/kg)	EPA 7190 (mg/kg)	EPA 7061 (mg/kg)	EPA 7760 (mg/kg)	EPA 7080 (mg/kg)	EPA 7741 (mg/kg)	EPA 7471 (mg/kg)
Method Blank	1/30/02	nd	nd	nd	nd	nd	nd	nd	nd
SS-KS-1	1/30/02	87	nd	63	nd	nd	nd	nd	nd
SS-KS-1 Dup	1/30/02	77	nd	65	nd	nd	nd	nd	nd
SS-KS-2	1/30/02	79	nd	63	nd	nd	nd	nd	nd
SS-SB-6	1/30/02	55	nd	63	nd	nd	nd	nd	nd
SS-SB-3	1/30/02	100	nd	56	nd	nd	nd	nd	nd
SS-SB-5	1/30/02	100	nd	57	nd	nd	nd	nd	nd
SS-SB-2	1/30/02	110	nd	65	nd	nd	nd	nd	nd
SS-SB-4	1/30/02	91	nd	53	nd	nd	nd	nd	nd
SS-SB-1	1/30/02	74	nd	40	nd	nd	nd	nd	nd
Method Detection Limits		5	1	5	10	50	50	50	0.5

nd Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Don Phillips

ESN SEATTLE CHEMISTRY LABORATORY
 (425) 957-9872, fax (425) 957-9804
 ESN Job Number: S20130-1
 Client: ESN PACIFIC
 Client Job Name: KIMURA - MIDDLE ST.
 Client Job Number: D201280064

Analytical Results	MS		MSD		RPD
	SS-SB5	SS-SB6	SS-C7	SS-C7	
3081 (P.EST), 100/1g	Soil	Soil	Soil	Soil	Soil
Matrix	Reporting	Reporting	Reporting	Reporting	Reporting
Date collected	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02
Date analyzed	02/01/02	02/01/02	02/01/02	02/01/02	02/01/02
Aldrin	1.0	nd	70%	81%	14%
d-BHC	1.0	nd	nd	nd	nd
g-BHC	1.0	nd	nd	nd	29%
g-BHC (Undaria)	1.0	nd	65%	91%	nd
g-BHC	1.0	nd	nd	nd	nd
4,4'-DDE	1.0	nd	nd	nd	nd
4,4'-DDD	1.0	nd	nd	nd	nd
4,4'-DDT	1.0	nd	nd	nd	nd
Dieldrin	1.0	nd	79%	103%	26%
Endosulfan I	1.0	nd	nd	nd	nd
Endosulfan II	1.0	nd	nd	nd	nd
Endosulfan Sulfate	1.0	nd	nd	nd	nd
Endrin	1.0	nd	74%	97%	27%
Endrin Aldehyde	1.0	nd	nd	nd	nd
Heptachlor	1.0	nd	85%	111%	28%
Heptachlor Epoxide	1.0	nd	nd	nd	nd
Methoxychlor	1.0	nd	nd	nd	nd
Chlorane (Tech.)	200	nd	nd	nd	nd
Toxaphene	500	nd	nd	nd	nd
Surrogate recoveries:					
Decachlorobiphenyl	113%	98%	96%	118%	

Data Qualifiers and Analytical Comments
 nd - not detected at listed reporting limits
 na - not analyzed
 C - co-elution with sample peaks
 M - matrix interference
 J - estimated value
 Results reported on dry-weight basis
 Acceptable Recovery limits: 65% TO 135%
 Acceptable RPD limit: 35%

ESN PACIFIC

ESN NORTHWEST CHEMISTRY LABORATORY

KIMURA-MIDDLE ST. PROJECT
Hawaii
ESN Pacific
Client Project #D201280064

QA/QC Data - Total Metals EPA-7000 Series Analyses

	Sample Number: SS-KS-1				RPD
	Matrix Spikes		Matrix Spike Duplicates		
	Spiked Conc. (mg/L)	Measured Conc. (mg/L)	Spiked Conc. (mg/L)	Measured Conc. (mg/L)	
Lead	125	122	125	118	3.33
Cadmium	12.5	12.3	12.5	11.0	11.16
Chromium	125	125	125	120	4.08

Laboratory Control Sample			
	Spiked Conc. (mg/L)	Measured Conc. (mg/L)	Spike Recovery (%)
Lead	125	102	82
Cadmium	12.5	12.8	102
Chromium	125	126	101

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 33%

ANALYSES PERFORMED BY: Dawn Phillips

Kimura International
Middle St.

ESN Pacific #D201280064

TPH ANALYSES OF SOILS BY EPA 8161-MOD.

SAMPLE NUMBER	DATE ANALYZED	TPH ANALYSIS CS-CO (mg/kg)	TPH ANALYSIS C12-C14 (mg/kg)	TPH OIL CS-CO (mg/kg)	TPH OIL C12-C14 (mg/kg)	SURROGATE RECOVERY (%)	FLAGS
SS-SB-6	2/1/02	nd	nd	nd	nd	100%	
SS-SB-5	2/1/02	nd	nd	nd	nd	104%	
SS-SB-3	2/1/02	nd	nd	nd	nd	111%	
SS-SB-2	2/1/02	nd	nd	nd	nd	81%	
SS-SB-4	2/1/02	nd	nd	120	120	84%	
SS-H-1	2/1/02	nd	nd	nd	nd	124%	
SS-SB-1	2/1/02	nd	nd	nd	nd	86%	
SS-B-3	2/1/02	nd	nd	970	970	113%	
DETECTION LIMITS		20	20	20	20	79%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (CFBP) 65% TO 135%

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added Measured Conc. % Recovery

500 470 94.0%

500 462 92.4%

500 478 95.6%

500 403 80.6%

RPD 8.6%

ACCEPTABLE RECOVERY LIMITS 65% TO 135%

LABORATORY CERTIFICATION #1827A

ANALYSES PERFORMED BY: E. Young

DATA REVIEWED BY: U. Baumgartner, Ph.D.

Environmental Services Network

ESN PACIFIC

Kimura International
Middle St.

ESN Project #D201280064

HYDROCARBON ANALYSES OF SOILS BY EPA 8021B

SAMPLE DESCRIPTION DATE ANALYZED	Blank 1/31/02	SS-C-7 1/31/02	SS-H-1 1/31/02	SS-B-3 1/31/02
FREON 12 (DCDFM)	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd
1,1 DICHLOROETHENE	nd	nd	nd	nd
METHYLENE CHLORIDE	nd	nd	nd	nd
TR. 1,2 DICHLOROETHENE	nd	nd	nd	nd
1,1 DICHLOROETHANE	nd	nd	nd	nd
CIS 1,2 DICHLOROETHENE	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd
1,1,1 TRICHLOROETHANE (TCA)	nd	nd	nd	nd
CARBON TETRACHLORIDE	nd	nd	nd	nd
1,2 DICHLOROETHANE	nd	nd	nd	nd
TRICHLOROETHENE (TCE)	nd	nd	nd	nd
1,1,2 TRICHLOROETHANE	nd	nd	nd	nd
TETRACHLOROETHENE (PCE)	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd
1,1,2,2 TETRACHLOROETHANE	nd	nd	nd	nd
FLAGS				
SURROGATE RECOVERY (%)	100%	131%	110%	125%
DETECTION LIMITS (mg/kg)	0.05	0.05	0.05	0.05
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (4-BFB): 65%, 135%				

QA/QC Data - EPA 8021B Analyses

	Matrix Spike			Matrix Spike Duplicate			Spiked Conc. (mg/kg)	Spiked Recovery (%)	Acceptable Recovery Limits (%)
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spiked Recovery (%)			
1,2 DICHLOROETHENE	0.500	0.485	97.0%	0.500	0.496	99.2%	0.500	2.2%	65%-135%
TRICHLOROETHENE (TCE)	0.500	0.616	123.2%	0.500	0.535	107.0%	0.500	14.1%	65%-135%
TETRACHLOROETHENE (PCE)	0.500	0.527	105.4%	0.500	0.568	113.6%	0.500	7.5%	65%-135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: U. Baumgartner, Ph.D.
DATA REVIEWED BY: E. Young

Environmental Services Network

ESN PACIFIC

Kimura International
Middle St.

ESN Project #D201280064

PAH ANALYSES OF SOILS BY EPA 8160

SAMPLE NUMBER	DATE ANALYZED	NAPHTHALENE (mg/kg)	ACENAPHTHENE (mg/kg)	FLUORANTHENE (mg/kg)	BENZO(a)PYRENE (mg/kg)	DETECTION LIMIT (mg/kg)	SURROGATE RECOVERY (%)	FLAGS
Blank		nd	nd	nd	nd			
SS-SB-6	2/1/02	nd	nd	nd	nd	1.00	100%	
SS-SB-3	2/1/02	nd	nd	nd	nd	1.00	114%	
SS-SB-5	2/1/02	nd	nd	nd	nd	1.00	99%	
SS-SB-2	2/1/02	nd	nd	nd	nd	1.00	103%	
SS-SB-4	2/1/02	nd	nd	nd	nd	1.00	84%	
SS-H-1	2/1/02	nd	nd	nd	nd	1.00	89%	
SS-SB-1	2/1/02	nd	nd	nd	nd	1.00	93%	
SS-B-3	2/1/02	nd	nd	nd	nd	1.00	95%	
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-FBP): 65% TO 135%								

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	10.00	10.00	10.00	10.00
Measured Conc.	7.74	7.66	7.76	7.50
% Recovery	77.4%	76.6%	77.6%	75.0%
Spike Added	10.00	10.00	10.00	10.00
Measured Conc.	9.07	9.06	9.25	9.18
% Recovery	90.7%	90.6%	92.5%	91.8%
RPD	15.8%	17.0%	17.8%	20.1%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: E. Young
DATA REVIEWED BY: U. Baumgartner, Ph.D.

Environmental Services Network

ESN PACIFIC

Kimura International
Middle St.

ESN Project #0201280064

PCB ANALYSES OF SOILS BY EPA 8082

SAMPLE NUMBER	DATE ANALYZED	PCB-1016 (mg/kg)	PCB-1221 (mg/kg)	PCB-1232 (mg/kg)	PCB-1242 (mg/kg)	PCB-1248 (mg/kg)	PCB-1254 (mg/kg)	PCB-1260 (mg/kg)	DETECTION LIMIT (mg/kg)	SURROGATE RECOVERY (%)	FLAGS
Blank	2/7/02	nd	nd	nd	nd	nd	nd	nd	0.050	98%	
SS-H-1	2/7/02	nd	nd	nd	nd	nd	nd	0.682	0.050	84%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (ICMST) 65% - 135%

QA/QC Data - PCB Analyses - SOILS

	Matrix Spike			Matrix Spike Duplicate			RPD (%)	Acceptable Recovery Limits	FLAGS
	Spike Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spike Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)			
PCB 1260	0.500	0.398	79.6%	0.500	0.398	79.6%	0.9%	65%-135%	

CA-DORIS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: U. Baumgartner, Ph.D.
DATA REVIEWED BY: E. Young

Environmental Services Network

ESN PACIFIC

Kimura International
Middle St.

ESN Project #0201280064

PCB ANALYSES OF SOILS BY EPA 8082

SAMPLE NUMBER	DATE ANALYZED	PCB-1016 (mg/kg)	PCB-1221 (mg/kg)	PCB-1232 (mg/kg)	PCB-1242 (mg/kg)	PCB-1248 (mg/kg)	PCB-1254 (mg/kg)	PCB-1260 (mg/kg)	DETECTION LIMIT (mg/kg)	SURROGATE RECOVERY (%)	FLAGS
Blank	1/31/02	nd	nd	nd	nd	nd	nd	nd	0.050	100%	
SS-KS-1	1/31/02	nd	nd	nd	nd	nd	nd	nd	0.050	89%	
SS-KS-2	1/31/02	nd	nd	nd	nd	nd	nd	0.084	0.050	91%	
SS-K-2	1/31/02	nd	nd	nd	nd	nd	nd	0.186	0.050	78%	
SS-K-1	1/31/02	nd	nd	nd	nd	nd	nd	0.133	0.050	95%	
SS-SB-6	1/31/02	nd	nd	nd	nd	nd	nd	nd	0.050	104%	
SS-SB-3	1/31/02	nd	nd	nd	nd	nd	nd	nd	0.050	99%	
SS-SB-5	1/31/02	nd	nd	nd	nd	nd	nd	nd	0.050	102%	
SS-SB-2	1/31/02	nd	nd	nd	nd	nd	nd	nd	0.050	92%	
SS-SB-4	1/31/02	nd	nd	nd	nd	nd	nd	nd	0.050	80%	
SS-SB-1	1/31/02	nd	nd	nd	nd	nd	nd	nd	0.050	91%	
SS-B-3	1/31/02	nd	nd	nd	nd	nd	nd	0.214	0.050	97%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (ICMST) 65% - 135%

QA/QC Data - PCB Analyses - SOILS

	Matrix Spike			Matrix Spike Duplicate			RPD (%)	Acceptable Recovery Limits	FLAGS
	Spike Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spike Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)			
PCB 1260	0.500	0.398	79.6%	0.500	0.343	78.6%	3.9%	65%-135%	

CA-DORIS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: U. Baumgartner, Ph.D.
DATA REVIEWED BY: E. Young

Environmental Services Network

ESN PACIFIC

Kimura International
Middle St.

ESN Project #D201280064

BTEX ANALYSES OF SOILS BY EPA 8021B

SAMPLE NUMBER	DATE ANALYZED	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYLBENZENE (mg/kg)	XYLENES (mg/kg)	DETECTION LIMIT (mg/kg)	SURROGATE RECOVERY (%)	FLAGS
Blank	2/4/02	nd	nd	nd	nd	0.050	100%	
SS-SB-6	2/4/02	nd	nd	nd	nd	0.050	100%	
SS-SB-3	2/4/02	nd	nd	nd	nd	0.050	99%	
SS-SB-5	2/4/02	nd	nd	nd	nd	0.050	83%	
SS-SB-2	2/4/02	nd	nd	nd	nd	0.050	99%	
SS-SB-4	2/4/02	nd	nd	nd	nd	0.050	111%	
SS-H-1	2/4/02	nd	nd	nd	nd	0.050	84%	
SS-SB-1	2/4/02	nd	nd	nd	nd	0.050	127%	
SS-B-3	2/4/02	nd	nd	nd	nd	0.050	92%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (4-BFB): 65% TO 135%

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	1,000	1,000	1,000	2,000
Measured Conc.	0.874	0.897	0.958	1.881
% Recovery	87.4%	89.7%	95.8%	94.1%
Spike Added	1,000	1,000	1,000	2,000
Measured Conc.	0.925	0.964	1.081	1.913
% Recovery	92.5%	96.4%	108.1%	95.6%
RPD	5.7%	7.2%	12.1%	1.7%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: E. Young
DATA REVIEWED BY: U. Baumgartner, Ph.D.

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Environmental Services Network

ESN PACIFIC

Kimura International
Middle St.

ESN Project #D201280064

TOTAL METAL ANALYSES OF SOILS

SAMPLE NUMBER	DATE ANALYZED	Lead (Pb) EPA 7420 (mg/kg)	FLAGS
Blank	2/1/02	nd	
SS-C-7	2/1/02	nd	
SS-C-8	2/1/02	150	
SS-H-1	2/1/02	2700	
SS-B-3	2/1/02	1100	
SS-C-7 Dup	2/1/02	nd	
DETECTION LIMITS		20	

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	250	297	118.8%
Measured Conc.	250	282	112.8%
% Recovery			5.2%
Spike Added	250	282	112.8%
Measured Conc.	250	282	112.8%
% Recovery			5.2%
RPD			5.2%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: U. Baumgartner, Ph.D.
DATA REVIEWED BY: E. Young

Environmental Services Network

ESH SEATTLE CHEMISTRY LABORATORY
 (425) 857-9872, fax (425) 857-9804

ESH Job Number: S20215-1
 Client: ESN PACIFIC
 Client Job Name: F20212

Analytical Results	MS		SS-J2		SS-A 1-2		SS-A 2-2		SS-A 1-1		SS-A 2-1	
	Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
8081(PEST), ppb/kg												
Date extracted	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01
Date analyzed	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01	02/19/01
	Limits	Limits	Limits	Limits	Limits	Limits	Limits	Limits	Limits	Limits	Limits	Limits
Aldrin	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
β-BHC	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
γ-BHC	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
δ-BHC	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
γ-BHC (Lindane)	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
4,4'-DDE	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
4,4'-DDD	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
4,4'-DDE	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
4,4'-DDT	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
Dieldrin	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
Endosulfan I	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
Endosulfan II	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
Endosulfan Sulfate	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
Endrin	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
Endrin Aldehyde	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
Heptachlor	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
Heptachlor Epoxide	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
Methoxychlor	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
Chlordane (tech)	200	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
Tempene	500	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	100%
Surrogate recoveries:												
Tetrachloro-m-xylene		69%	78%	63%	83%	96%	100%	127%	107%			
Decachlorobiphenyl				67%	74%	81%	104%	110%				

Data Qualifiers and Analytical Comments
 nd - not detected at listed reporting limits
 ns - not analyzed
 C - co-elution with sample peaks
 M - matrix interference
 J - estimated value
 Results reported on dry-weight basis
 Acceptable Recovery limits: 65% TO 135%
 Acceptable RPD limit: 35%

ESH SEATTLE CHEMISTRY LABORATORY
 (425) 857-9872, fax (425) 857-9804
 ESN Job Number: S20215-1
 Client: ESN PACIFIC
 Client Job Name: F20212

Analytical Results	MSD	
	Matrix	Soil
8081(PEST), ppb/kg		
Date extracted	02/19/01	02/19/01
Date analyzed	02/19/01	02/19/01
	Limits	Limits
Aldrin	1.0	105%
β-BHC	1.0	105%
γ-BHC	1.0	105%
δ-BHC	1.0	105%
γ-BHC (Lindane)	1.0	105%
4,4'-DDD	1.0	105%
4,4'-DDE	1.0	105%
4,4'-DDT	1.0	105%
Dieldrin	1.0	105%
Endosulfan I	1.0	105%
Endosulfan II	1.0	105%
Endosulfan Sulfate	1.0	105%
Endrin	1.0	105%
Endrin Aldehyde	1.0	105%
Heptachlor	1.0	105%
Heptachlor Epoxide	1.0	105%
Methoxychlor	1.0	105%
Chlordane (tech)	200	105%
Tempene	500	105%

Surrogate recoveries:
 Tetrachloro-m-xylene 120%
 Decachlorobiphenyl 105%

Data Qualifiers and Analytical Comments
 nd - not detected at listed reporting limits
 ns - not analyzed
 C - co-elution with sample peaks
 M - matrix interference
 J - estimated value
 Results reported on dry-weight basis
 Acceptable Recovery limits: 65% TO 135%
 Acceptable RPD limit: 35%

ESN PACIFIC

Kimura International
Middle Street

ESN Project #F20212

TOTAL METAL ANALYSES OF SOILS

SAMPLE NUMBER	DATE ANALYZED	Lead (Pb) EPA 7420 (mg/kg)	FLAGS
Blank	2/20/02	nd	
SS-I1	2/20/02	25	
SS-I1B	2/20/02	25	
SS-I3	2/20/02	50	
SS-C6	2/20/02	nd	
SS-I2	2/20/02	25	
SS-C5	2/20/02	280	
SS-J3	2/20/02	250	
SS-J1	2/20/02	130	
SS-J2	2/20/02	60	
SS-B1	2/20/02	260	
DETECTION LIMITS		20	

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added Measured Conc. % Recovery	250 319 127.6%
Spike Added Measured Conc. % Recovery	250 324 129.6%
RPD	1.6%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: U. Baumgartner, Ph.D.
DATA REVIEWED BY: E. Young

Environmental Services Network

ESN PACIFIC

Kimura International
Middle Street

ESN Project #F20212

TPH ANALYSES OF WATERS BY EPA BOLL-MOD.

SAMPLE NUMBER	DATE ANALYZED	TPH-DIESEL C12-C24 (mg/L)	TPH-OIL C20-C40 (mg/L)	SUBSTRATE RECOVERY (%)	FLAGS
Blank	2/20/02	nd	nd	100%	
SM-I1	2/20/02	0.60	1.1	87%	
DETECTION LIMITS		0.60	1.0		

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2 FBPT): 65% TO 135 %

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added Measured Conc. % Recovery	1515 1643 108.4%
Spike Added Measured Conc. % Recovery	1515 1401 92.5%
RPD	1.5%

ACCEPTABLE RECOVERY LIMITS 65% TO 135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: E. Young
DATA REVIEWED BY: U. Baumgartner, Ph.D.

Environmental Services Network

ESN PACIFIC

Kimura International
Middle Street

ESN Project #F20212

BTEX ANALYSES OF SOILS BY EPA 8021B

SAMPLE NUMBER	DATE ANALYZED	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYLBENZENE (mg/kg)	XYLENES (mg/kg)	DETECTION LIMIT (mg/kg)	SURROGATE RECOVERY (%)	FLAGS
Blank	2/21/02	nd	nd	nd	nd	0.050	100%	
SS-11	2/21/02	nd	nd	nd	nd	0.050	122%	
SS-11B	2/21/02	nd	nd	nd	nd	0.050	110%	
SS-13	2/21/02	nd	nd	nd	nd	0.050	118%	
SS-12	2/21/02	nd	nd	nd	nd	0.050	94%	
SS-11	2/21/02	nd	nd	nd	nd	0.050	105%	
SS-B1	2/21/02	nd	nd	nd	nd	0.050	102%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (4-BFB): 65% TO 135%

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	1.000	1.000	1.000	2.000
Measured Conc.	0.915	1.047	1.010	1.694
% Recovery	91.5%	104.7%	101.0%	84.7%
Spike Added	1.000	1.000	1.000	2.000
Measured Conc.	0.977	1.002	0.963	1.881
% Recovery	97.7%	100.2%	96.3%	94.0%
RPD	6.5%	4.4%	4.8%	10.5%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: E. Young
DATA REVIEWED BY: U. Baumgartner, Ph.D.

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Environmental Services Network

ESN PACIFIC

Kimura International
Middle Street

ESN Project #F20212

PAH ANALYSES OF SOILS BY EPA 8100

SAMPLE NUMBER	DATE ANALYZED	NAPHTHALENE (mg/kg)	ACENAPHTHENE (mg/kg)	FLUORANTHENE (mg/kg)	BENZO(a)PYRENE (mg/kg)	DETECTION LIMIT (mg/kg)	SURROGATE RECOVERY (%)	FLAGS
Blank	2/19/02	nd	nd	nd	nd	1.00	100%	
SS-11	2/19/02	nd	nd	nd	nd	1.00	92%	
SS-11B	2/19/02	nd	nd	nd	nd	1.00	80%	
SS-13	2/19/02	nd	nd	nd	nd	1.00	99%	
SS-12	2/20/02	nd	nd	nd	nd	1.00	98%	
SS-11	2/19/02	nd	nd	nd	nd	1.00	88%	
SS-B1	2/19/02	nd	nd	nd	nd	1.00	91%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-FBP): 65% TO 135%

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	10.00	10.00	10.00	10.00
Measured Conc.	9.35	9.30	9.68	9.07
% Recovery	93.5%	93.0%	96.8%	90.7%
Spike Added	10.00	10.00	10.00	10.00
Measured Conc.	8.86	8.86	9.29	9.27
% Recovery	88.6%	88.6%	92.9%	92.7%
RPD	5.4%	4.8%	4.1%	2.2%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: E. Young
DATA REVIEWED BY: U. Baumgartner, Ph.D.

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Kimura International
Middle Street

ESN Project #20212

PAH ANALYSES OF WATERS BY EPA 8100

SAMPLE NUMBER	DATE ANALYZED	NAPHTHALENE (mg/L)	ACENAPHTHENE (mg/L)	FLUORANTHENE (mg/L)	BENZO(a)PYRENE (mg/L)	DETECTION LIMIT (mg/L)	SURROGATE RECOVERY (%)	FLAGS
Blank	2/20/02	nd	nd	nd	nd	0.0002	94%	
GW-1	2/20/02	nd	nd	nd	nd	0.0002	73%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-FBP): 65% TO 135%

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	0.0100	0.0100	0.0100	0.0100	0.0100
Measured Conc.	0.0088	0.0091	0.0096	0.0096	0.0096
% Recovery	88.0%	91.0%	96.0%	96.0%	96.0%
Spike Added	0.0100	0.0100	0.0100	0.0100	0.0100
Measured Conc.	0.0081	0.0090	0.0087	0.0087	0.0087
% Recovery	81.0%	90.0%	87.0%	87.0%	87.0%
RPD	8.3%	12.9%	9.8%	9.8%	9.8%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: E. Young
DATA REVIEWED BY: U. Baumgartner, Ph.D.

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Environmental Services Network

ESN PACIFIC

Kimura International
Middle Street

ESN Project #20212

MBTEX ANALYSES OF WATERS BY EPA 8021B

SAMPLE NUMBER	DATE ANALYZED	MBE (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYLBENZENE (mg/L)	XYLENES (mg/L)	DETECTION LIMIT (mg/L)	SURROGATE RECOVERY (%)	FLAGS
Blank	2/20/02	nd	nd	nd	nd	nd	0.0005	100%	
GW-1	2/20/02	nd	nd	nd	nd	nd	0.0005	92%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (4-BFB): 65% TO 135%

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	0.0303	0.0303	0.0303	0.0303	0.0606
Measured Conc.	0.0278	0.0396	0.0403	0.0407	0.0743
% Recovery	90.8%	130.7%	133.0%	134.3%	122.9%
Spike Added	0.0303	0.0303	0.0303	0.0303	0.0606
Measured Conc.	0.0304	0.0388	0.0373	0.0395	0.0758
% Recovery	100.3%	128.1%	123.1%	130.4%	125.1%
RPD	10.0%	2.0%	7.7%	3.0%	1.7%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: E. Young
DATA REVIEWED BY: U. Baumgartner, Ph.D.

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Environmental Services Network

ESN PACIFIC

Kimura International
MIDDLE STREET

ESH Project #202128

PAH ANALYSES OF SOILS BY EPA 8100

SAMPLE NUMBER	DATE ANALYZED	NAPHTHALENE (mg/kg)	ACENAPHTHENE (mg/kg)	FLUORANTHENE (mg/kg)	BENZO(A)PYRENE (mg/kg)	DETECTION LIMIT (mg/kg)	SURROGATE RECOVERY (%)	FLAGS
Blank	2/19/02	nd	nd	nd	nd	1.00	100%	
SS-RP4	2/19/02	nd	nd	nd	nd	1.00	96%	DF 5
SS-B2	2/19/02	nd	nd	nd	nd	1.00	107%	
SS-A1-2	2/19/02	nd	nd	nd	nd	1.00	94%	
SS-A2-2	2/19/02	nd	nd	nd	nd	1.00	92%	
SS-A1-1	2/19/02	nd	nd	nd	nd	1.00	82%	
SS-A2-1	2/19/02	nd	nd	nd	nd	1.00	90%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-FBP): 65% TO 135%

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	10.00	10.00	10.00	10.00
Measured Conc.	9.35	9.30	9.68	9.07
% Recovery	93.5%	93.0%	96.8%	90.7%
Spike Added	10.00	10.00	10.00	10.00
Measured Conc.	8.86	8.86	9.25	9.27
% Recovery	88.6%	88.6%	92.5%	92.7%
RPD	54%	48%	41%	22%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA DOHS ELAP CERTIFICATION #1867A
ANALYSES PERFORMED BY: E. Young
DATA REVIEWED BY: U. Baumgartner, Ph.D.

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Environmental Services Network

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Kimura International
MIDDLE STREET

ESH Project #202128

TPH ANALYSES OF SOILS BY EPA 8015-MOD.

SAMPLE NUMBER	DATE ANALYZED	TPH-C12 (mg/kg)	TPH-DIESEL (mg/kg)	TPH-OIL (mg/kg)	SURROGATE RECOVERY (%)	FLAGS
Blank	2/20/02	nd	nd	nd	100%	
SS-RP4	2/20/02	nd	nd	nd	92%	DF 3
SS-B2	2/20/02	nd	nd	500	96%	
SS-A1-2	2/20/02	nd	nd	500	90%	
SS-A2-2	2/20/02	nd	nd	500	103%	
SS-A1-1	2/20/02	nd	nd	500	96%	
SS-A2-1	2/20/02	nd	nd	500	85%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-FBP): 65% TO 135%

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	500	500	500	500
Measured Conc.	501	445	343	483
% Recovery	100.2%	89.0%	68.6%	96.6%
Spike Added	500	500	500	500
Measured Conc.	483	483	483	483
% Recovery	96.6%	96.6%	96.6%	96.6%
RPD	37%	0.2%	12.8%	12.8%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA DOHS ELAP CERTIFICATION #1867A
ANALYSES PERFORMED BY: E. Young
DATA REVIEWED BY: U. Baumgartner, Ph.D.

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MIDDLE STREET

ESN Project #720128

TPH ANALYSES OF WATERS BY EPA 8015-MOD

SAMPLE NUMBER	DATE ANALYZED	TPH GAS (mg/L)	TPH-DIESEL C12-C24 (mg/L)	TPH OIL COD-C40 (mg/L)	SURROGATE RECOVERY (%)	FLAGS
Blank	2/20/02	nd	nd	nd	100%	
MW3	2/20/02	nd	nd	nd	100%	
MW4	2/20/02	nd	nd	nd	84%	
DETECTION LIMITS						
		0.20	0.60	1.0		
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-FBP): 65% TO 135%						
QA/QC DATA - MATRIX SPIKE ANALYSES						
Spike Added		1515	1515	1515		
Measured Conc.		1443	1391	1359		
% Recovery		108.4%	91.9%	89.4%		
Spike Added		1515	1515	1515		
Measured Conc.		1516	1401	1356		
% Recovery		100.8%	92.5%	89.5%		
RPD		1.5%	0.7%	1.3%		
ACCEPTABLE RECOVERY LIMITS: 65% TO 135%						

CA DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: E. Young
DATA REVIEWED BY: U. Baumgartner, Ph.D.

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Environmental Services Network

**ESN
PACIFIC**

Kimura International
MIDDLE STREET

ESN Project #720128

PAH ANALYSES OF WATERS BY EPA 8100

SAMPLE NUMBER	DATE ANALYZED	NAPHTHALENE (mg/L)	ACENAPHTHENE (mg/L)	FLUORANTHENE (mg/L)	BENZO(a)PYRENE (mg/L)	DETECTION LIMIT (mg/L)	SURROGATE RECOVERY (%)	FLAGS
Blank	2/20/02	nd	nd	nd	nd	0.0002	94%	
MW3	2/20/02	nd	nd	nd	nd	0.0002	104%	
MW4	2/20/02	nd	nd	nd	nd	0.0002	80%	
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-FBP): 65% TO 135%								

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	0.0100	0.0100	0.0100	0.0100	
Measured Conc.	0.0088	0.0910	0.0096	0.0096	
% Recovery	88.0%	910.0%	96.0%	96.0%	
Spike Added	0.0100	0.0100	0.0100	0.0100	
Measured Conc.	0.0081	0.0800	0.0067	0.0067	
% Recovery	81.0%	800.0%	87.0%	87.0%	
RPD	8.3%	12.9%	9.8%	9.8%	

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: E. Young
DATA REVIEWED BY: U. Baumgartner, Ph.D.

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Environmental Services Network

ESN PACIFIC

Kimura International
MIDDLE STREET

ESN Project #F20212B

TOTAL METAL ANALYSES OF SOILS

SAMPLE NUMBER	DATE ANALYZED	Lead (Pb) EPA 7420 (mg/kg)	FLAGS
Blank	2/20/02	nd	
SS-RP4	2/20/02	35	
SS-B2	2/20/02	2900	DF 10
SS-A1-2	2/20/02	55	
SS-A2-2	2/20/02	130	
SS-A1-1	2/20/02	30	
SS-A2-1	2/20/02	nd	

DETECTION LIMITS

20 mg/kg

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added Measured Conc.	250
% Recovery	319
	127.6%
Spike Added Measured Conc.	250
% Recovery	324
	129.6%
RPD	1.6%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: U. Baumgartner, Ph.D.
DATA REVIEWED BY: E. Young

Environmental Services Network

ESN PACIFIC

Kimura International
MIDDLE STREET

ESN Project #F20212B

HYOC ANALYSES OF SOILS BY EPA 8021B

SAMPLE DESCRIPTION DATE ANALYZED	Blank 2/20/02	SS-B2 2/20/02	SS-A1-2 2/20/02	SS-A2-2 2/20/02	SS-A1-1 2/20/02	SS-A2-1 2/20/02
FREON 12 (DCDFM)	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd
1,1 DICHLOROETHENE	nd	nd	nd	nd	nd	nd
METHYLENE CHLORIDE	nd	nd	nd	nd	nd	nd
TR. 1,2 DICHLOROETHENE	nd	nd	nd	nd	nd	nd
1,1 DICHLOROETHANE	nd	nd	nd	nd	nd	nd
CIS 1,2 DICHLOROETHENE	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd
1,1,1 TRICHLOROETHANE (TCA)	nd	nd	nd	nd	nd	nd
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd
1,2 DICHLOROETHANE	nd	nd	nd	nd	nd	nd
TRICHLOROETHENE (TCE)	nd	nd	nd	nd	nd	nd
1,1,2 TRICHLOROETHANE	nd	nd	nd	nd	nd	nd
TETRACHLOROETHENE (PCE)	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd
1,1,2,2 TETRACHLOROETHANE	nd	nd	nd	nd	nd	nd
FLAGS						
SURROGATE RECOVERY (%)	113%	132%	120%	131%	122%	102%
DETECTION LIMITS (mg/kg)	0.05	0.05	0.05	0.05	0.05	0.05
ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (4-BFB):	65% - 135%					

QA/QC Data - EPA 8021B Analyses

	Matrix Spike			Matrix Spike Duplicate			RPD	Acceptable Recovery Limits
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)		
1,2 DICHLOROETHENE	0.500	0.520	103.9%	0.500	0.547	109.4%	6.1%	65%-135%
TRICHLOROETHENE (TCE)	0.500	0.596	119.2%	0.500	0.589	117.7%	1.2%	65%-135%
TETRACHLOROETHENE (PCE)	0.500	0.567	113.4%	0.500	0.606	121.3%	6.8%	65%-135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: U. Baumgartner, Ph.D.
DATA REVIEWED BY: E. Young

Environmental Services Network

ESN PACIFIC

Kimura International
MIDDLE STREET

ESN Project #F20212B

MBTEX ANALYSES OF WATERS BY EPA 8021B

SAMPLE NUMBER	DATE ANALYZED	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYLBENZENE (mg/L)	XYLENES (mg/L)	DETECTION LIMIT (mg/L)	SURROGATE RECOVERY (%)	FLAGS
Blank		nd	nd	nd	nd	0.0005	122%	
MW3	2/21/02	nd	nd	nd	nd	0.0005	125%	
MW4	2/21/02	nd	nd	nd	nd	0.0005	69%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (4-BFB): 65% TO 135%

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	0.0303	0.0303	0.0303	0.0606
Measured Conc.	0.0396	0.0403	0.0407	0.0746
% Recovery	130.7%	133.0%	134.3%	123.1%
Spike Added	0.0303	0.0303	0.0303	0.0606
Measured Conc.	0.0388	0.0373	0.0395	0.0758
% Recovery	128.1%	123.1%	130.4%	125.1%
RPD	2.0%	7.7%	3.0%	1.6%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: E. Young
DATA REVIEWED BY: U. Baumgartner, Ph.D.

U

Environmental Services Network

ESN PACIFIC

Kimura International
MIDDLE STREET

ESN Project #F20212B

BTEX ANALYSES OF SOILS BY EPA 8021B

SAMPLE NUMBER	DATE ANALYZED	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYLBENZENE (mg/kg)	XYLENES (mg/kg)	DETECTION LIMIT (mg/kg)	SURROGATE RECOVERY (%)	FLAGS
Blank	2/22/02	nd	nd	nd	nd	0.050	100%	
SS-RP4	2/21/02	nd	nd	nd	nd	0.050	86%	
SS-B2	2/22/02	nd	nd	nd	nd	0.050	90%	
SS-A1-2	2/22/02	nd	nd	nd	nd	0.050	104%	
SS-A2-2	2/22/02	nd	nd	nd	nd	0.050	120%	
SS-A1-1	2/22/02	nd	nd	nd	nd	0.050	108%	
SS-A2-1	2/22/02	nd	nd	nd	nd	0.050	109%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (4-BFB): 65% TO 135%

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	1.000	1.000	1.000	2.000
Measured Conc.	0.915	1.047	1.010	1.694
% Recovery	91.5%	104.7%	101.0%	84.7%
Spike Added	1.000	1.000	1.000	2.000
Measured Conc.	0.977	1.002	0.963	1.881
% Recovery	97.7%	100.2%	96.3%	94.0%
RPD	6.5%	4.4%	4.8%	10.5%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: E. Young
DATA REVIEWED BY: U. Baumgartner, Ph.D.

U

Environmental Services Network

ESN PACIFIC

Kimura International
Middle Street

ESN Project #0202040078

PCB ANALYSES OF SOILS BY EPA 8082

SAMPLE NUMBER	DATE ANALYZED	PCB-1016 (mg/kg)	PCB-1221 (mg/kg)	PCB-1232 (mg/kg)	PCB-1242 (mg/kg)	PCB-1248 (mg/kg)	PCB-1254 (mg/kg)	PCB-1260 (mg/kg)	DETECTION LIMIT (mg/kg)	SURROGATE RECOVERY (%)	FLAGS
Blank	2/7/02	nd	nd	nd	nd	nd	nd	nd	0.050		
SS-14	2/7/02	nd	nd	nd	nd	nd	nd	nd	0.050	98%	
SS-16	2/7/02	nd	nd	nd	nd	nd	nd	nd	0.050	83%	
SS-15	2/7/02	nd	nd	nd	nd	nd	nd	nd	0.050	92%	
SS-3	2/7/02	nd	nd	nd	nd	nd	nd	nd	0.050	107%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (TCMX): 65% - 135%

QA/QC Data - PCB Analyses - SOILS

	Matrix Spike			Matrix Spike Duplicate			RPD (%)	Acceptable Recovery Limits	FLAGS
	Spike Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spike Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)			
PCB 1260	0.900	0.448	89.5%	0.900	0.914	102.7%	13.7%	65%-135%	

CA DOHS-ELAP CERTIFICATION #1887A

ANALYSES PERFORMED BY: U. Baumgartner, Ph.D.

DATA REVIEWED BY: E. Young

Environmental Services Network

ESN PACIFIC

Kimura International
Middle Street

ESN Project #0202040078

BTEX ANALYSES OF SOILS BY EPA 8021B

SAMPLE NUMBER	DATE ANALYZED	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYLBENZENE (mg/kg)	XYLENES (mg/kg)	DETECTION LIMIT (mg/kg)	SURROGATE RECOVERY (%)	FLAGS
Blank	2/6/02	nd	nd	nd	nd	0.050	100%	
SS-H-2	2/7/02	nd	nd	nd	nd	0.050	114%	
SS-F3	2/6/02	nd	nd	nd	nd	0.050	115%	
SS-G1	2/6/02	nd	nd	nd	nd	0.050	117%	
SS-F1	2/6/02	nd	nd	nd	nd	0.050	119%	
SS-C3	2/7/02	nd	nd	nd	nd	0.050	114%	
SS-F2	2/7/02	nd	nd	nd	nd	0.050	122%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (4-BFB): 65% TO 135%

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	1.000	1.000	1.000	2.000
Measured Conc.	0.937	0.899	1.061	1.821
% Recovery	93.7%	89.9%	106.1%	91.0%
Spike Added	1.000	1.000	1.000	2.000
Measured Conc.	0.900	0.903	1.009	1.822
% Recovery	90.0%	90.3%	100.9%	91.1%
RPD	4.1%	0.4%	5.1%	0.1%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA DOHS-ELAP CERTIFICATION #1887A

ANALYSES PERFORMED BY: E. Young

DATA REVIEWED BY: U. Baumgartner, Ph.D.

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Middle Street

ESN Project #D202040078

TOTAL METAL ANALYSES OF SOILS

SAMPLE NUMBER	DATE ANALYZED	Lead (Pb) EPA 7420 (mg/kg)	FLAGS
Blank	2/8/02	nd	
SS-H-2	2/8/02	170	
SS-F3	2/8/02	35	
SS-G1	2/8/02	180	
SS-F1	2/8/02	30	
SS-C3	2/8/02	45	
SS-F2	2/8/02	70	

DETECTION LIMITS

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	250
Measured Conc.	199
% Recovery	79.6%
Spike Added	250
Measured Conc.	209
% Recovery	83.6%
RPD	4.9%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: U. Baumgartner, Ph.D.
DATA REVIEWED BY: E. Young

ES

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Middle Street

ESN Project #D202040078

PAN ANALYSES OF SOILS BY EPA 8100

SAMPLE NUMBER	DATE ANALYZED	NAPHTHALENE (mg/kg)	ACENAPHTHENE (mg/kg)	FLUORANTHENE (mg/kg)	BENZO(a)PYRENE (mg/kg)	DETECTION LIMIT (mg/kg)	SURROGATE RECOVERY (%)	FLAGS
Blank	2/8/02	nd	nd	nd	nd	100	100%	
SS-H-2	2/8/02	nd	nd	nd	nd	100	91%	
SS-F3	2/8/02	nd	nd	nd	nd	100	111%	
SS-G1	2/7/02	nd	nd	nd	nd	100	95%	
SS-F1	2/8/02	nd	nd	nd	nd	100	94%	
SS-C3	2/7/02	nd	<1.50	nd	nd	100	114%	DP 5
SS-F2	2/7/02	nd	nd	nd	nd	100	88%	

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-FBP): 65% TO 135%

QA/QC DATA - MATRIX SPIKE ANALYSES

Spike Added	1000	1000	1000	1000
Measured Conc.	849	858	802	1172
% Recovery	84.9%	85.8%	80.2%	117.2%
Spike Added	1000	1000	1000	1000
Measured Conc.	891	911	801	1278
% Recovery	89.1%	91.1%	80.1%	127.8%
RPD	4.8%	6.0%	0.1%	8.7%

ACCEPTABLE RECOVERY LIMITS: 65% TO 135%

CA-DOHS-ELAP CERTIFICATION #1887A
ANALYSES PERFORMED BY: E. Young
DATA REVIEWED BY: U. Baumgartner, Ph.D.

ES

Environmental Services Network

DeCar
CHAIN-OF-CUSTODY RECORD

TURNAROUND TIME: 5-DAY

CLIENT: <u>Kimura International - City & County of Honolulu</u>					DATE: <u>2/4/02</u> PAGE <u>1</u> OF <u>1</u>				
ADDRESS: <u>1600 Kapiolani Blvd, Suite 1610</u>					ESN PROJECT #: <u>D202070078</u>				
PHONE: <u>944-8848</u> FAX: <u>941-8999</u>					LOCATION: <u>Middle Street</u>				
CLIENT PROJECT #:					PROJECT MANAGER: <u>Bryce Hatake</u>				
					COLLECTOR: <u>Bryce/Virgil</u> DATE OF COLLECTION: <u>2/4/02</u>				

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES												FIELD NOTES	Total Number Of Containers Laboratory Note Number
					ES/18 VIOC	ES/18 BTO	ES/18 MMB	ES/18 MMB	ES/18 BTO	ES/18 BTO	ES/18 BTO	ES/18 BTO	ES/18 BTO	ES/18 BTO	ES/18 BTO	ES/18 BTO		
SS-H2	1:15	09:30	S	SS SLEAVE	X	X	X	X	X	X	X	X	X	X	X	X	X	
SS-E1		07:45	S														X	
SS-F3		1:45			X	X	X	X	X	X	X	X	X	X	X	X		
SS-G1		3:25			X	X	X	X	X	X	X	X	X	X	X	X		
SS-I4		10:00											X				X	
SS-I6		10:20											X				X	
SS-I5		10:35											X				X	
SS-F1		1:15			X	X	X	X	X	X	X	X	X	X	X	X		
SS-C3		3:45					X	X	X	X	X	X	X	X	X	X		
SS-F4		2:10															X	
SS-F2		2:40			X	X	X	X	X	X	X	X	X	X	X	X		
KS-3		11:45	Soil	6 glass bottles									X	X	X	X	X	

RELINQUISHED BY (Signature): <u>Bryce Hatake</u> DATE/TIME: <u>2/4/02 4:40</u>	RECEIVED BY (Signature): <u>[Signature]</u> DATE/TIME: <u>2/4/02 4:15 PM</u>	SAMPLE RECEIPT TOTAL NUMBER OF CONTAINERS: <u>13</u> CHAIN OF CUSTODY SEALS Y/N/N/A: <u>N/A</u> SEALS INTACT? Y/N/N/A: <u>N/A</u> RECEIVED GOOD COND./COLD: <u>Y</u> NOTES: <u>2.4°C</u>	LABORATORY NOTES:
RELINQUISHED BY (Signature):	RECEIVED BY (Signature):		

CHAIN-OF-CUSTODY RECORD

TURNAROUND TIME: 5 days

CLIENT: <u>Kimura International</u>					DATE: <u>2/13/02</u> PAGE <u>1</u> OF <u>1</u>				
ADDRESS: <u>1600 Kapiolani Blvd, Suite 1610</u>					TEG PROJECT #: <u>F202120000</u>				
PHONE: <u>944-8848</u> FAX: <u>941-8999</u>					LOCATION: <u>Middle Street</u>				
CLIENT PROJECT #:					PROJECT MANAGER: <u>Bryce Hatake</u>				
					COLLECTOR: <u>F2SN</u> DATE OF COLLECTION: <u>2/15/02</u>				

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES												FIELD NOTES	Total Number Of Containers Laboratory Note Number
					ES/18 VIOC	ES/18 BTO	ES/18 MMB	ES/18 MMB	ES/18 BTO	ES/18 BTO	ES/18 BTO	ES/18 BTO	ES/18 BTO	ES/18 BTO	ES/18 BTO	ES/18 BTO		
MW4		3:20	GW	VOA + Amber	X	X	X	X	X	X	X	X	X	X	X	X	5	
MW3		2:30	GW	VOA + Amber	X	X	X	X	X	X	X	X	X	X	X	X	4	
SS-RP4	5-6	1:55	Soil	SS Sleeve	X	X	X	X	X	X	X	X	X	X	X	X	1	
SS-O2	5-5.5	11:05			X	X	X	X	X	X	X	X	X	X	X	X	1	
SS-A1-2	65-7	10:15			X	X	X	X	X	X	X	X	X	X	X	X	1	
SS-A2-2	5-5.5	10:45			X	X	X	X	X	X	X	X	X	X	X	X	1	
SS-A1-1	15-2	9:35			X	X	X	X	X	X	X	X	X	X	X	X	1	
SS-A2-1	25-3	10:30			X	X	X	X	X	X	X	X	X	X	X	X	1	

RELINQUISHED BY (Signature): <u>Bryce Hatake</u> DATE/TIME: <u>2/13/02 3:30</u>	RECEIVED BY (Signature): <u>Kawak</u> DATE/TIME: <u>2-13 3:30</u>	SAMPLE RECEIPT TOTAL NUMBER OF CONTAINERS: <u>12</u> CHAIN OF CUSTODY SEALS Y/N/N/A: <u>N</u> SEALS INTACT? Y/N/N/A: <u>N/A</u> RECEIVED GOOD COND./COLD: <u>Y</u> NOTES:	LABORATORY NOTES:
RELINQUISHED BY (Signature):	RECEIVED BY (Signature):		

ESN MEGAPROBE FIELD LOG

DATE: 12/02/02
 ESN PROJECT # 210212
 ESN OPERATORS: Dave + Adam
 ON SITE AT: 120 START TIME: 1600 OFF SITE TIME: 1700
 SITE NAME/LOCATION: 625 Middle St. Acorn

PAGE 1 of 2
 CLIENT: First Choice
 Client Project #
 Client Rep: Wesley
 LUNCH BREAK: 12:00-12:30

WELL INFO	BORING #	TIME INTERVAL	LITHOLOGY	FIELD NOTES	ODOR	SLEEVE
Well # 131	10:45	0-2.5	slimy gravel	reservoir tank	N	SS
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 132	11:00	0-3.5	clay gravel gravel fill			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 133	11:00	0-3.0	clay gravel gravel fill			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 134	11:00	0-3.0	clay gravel gravel fill			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 135	10:15	0-11.5	clay gravel gravel fill			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 136	11:05	7.5-10.5	reservoir gravel			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 137	11:15	10.5-11.5	applesilk fill gravel	applesilk		
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 138	11:20	9.0-11.5	clay gravel gravel fill			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 139	11:40	7.5-13.0	reservoir gravel			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 140	11:50	7.5-13.0	reservoir gravel			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 141	12:55	15.0	Hydrate to 15.5			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 142	12:55	15.0	Hydrate to 15.5			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 143	15:30	4.0-6.0	Hydrate to 4.0			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 144	15:40	6.0-7.0	5.114 gravel / coarsest 5.114 gravel			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 145	15:50	3.0-5.5	red concrete fully gravel with gravel			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						

DOWN TIME: _____ DOWN TIME REASON: _____

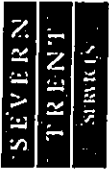
ESN MEGAPROBE FIELD LOG

DATE: 2-13-01
 ESN PROJECT # 120212
 ESN OPERATORS: Robert Adams
 ON SITE AT: 815 START TIME: 900 OFF SITE TIME: 930
 SITE NAME/LOCATION: Middle St.

PAGE 1 of 2
 CLIENT: First Choice
 Client Project #
 Client Rep: Wesley
 LUNCH BREAK: 4:30-5:00

WELL INFO	BORING #	TIME INTERVAL	LITHOLOGY	FIELD NOTES	ODOR	SLEEVE
Well # 810	10:15	0-3	brown silty fill			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 811	10:10	0-3	brown silty clay/gravel			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 812	11:0	4.5-8.5	prepave to 4.5 ft			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 813	11:5	8.0-10.5	prepave to 8.0 ft			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 814	12:0	11.5-15.5	prepave to 11.5 ft			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 815	12:10	11.5-15.5	prepave to 11.5 ft			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 816	12:20	11.5-15.5	prepave to 11.5 ft			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 817	12:30	11.5-15.5	prepave to 11.5 ft			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 818	12:40	11.5-15.5	prepave to 11.5 ft			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 819	12:50	11.5-15.5	prepave to 11.5 ft			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						
Well # 820	13:00	11.5-15.5	prepave to 11.5 ft			
Temp. well:						
Water depth:						
Screen used:						
Riser used:						
Bailer used:						
Filter used:						

DOWN TIME: _____ DOWN TIME REASON: _____



STL Seattle
 5755 8th Street East
 Tacoma, WA 98424
 Tel: 253 922 2310
 Fax: 253 922 5047
 www.stl.com

TRANSMITTAL MEMORANDUM

DATE: April 17, 2002
 TO: Uwe Baumgartner
 ESN Pacific, Inc.
 1818 Kaihā Street
 Honolulu, HI 96819
 PROJECT: D204080182 Kimura-Middle Street
 REPORT NUMBER: 105143
 TOTAL NUMBER OF PAGES: 13

Enclosed are the test results for one sample received at STL Seattle on April 10, 2002.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Terri Howard
 Project Manager

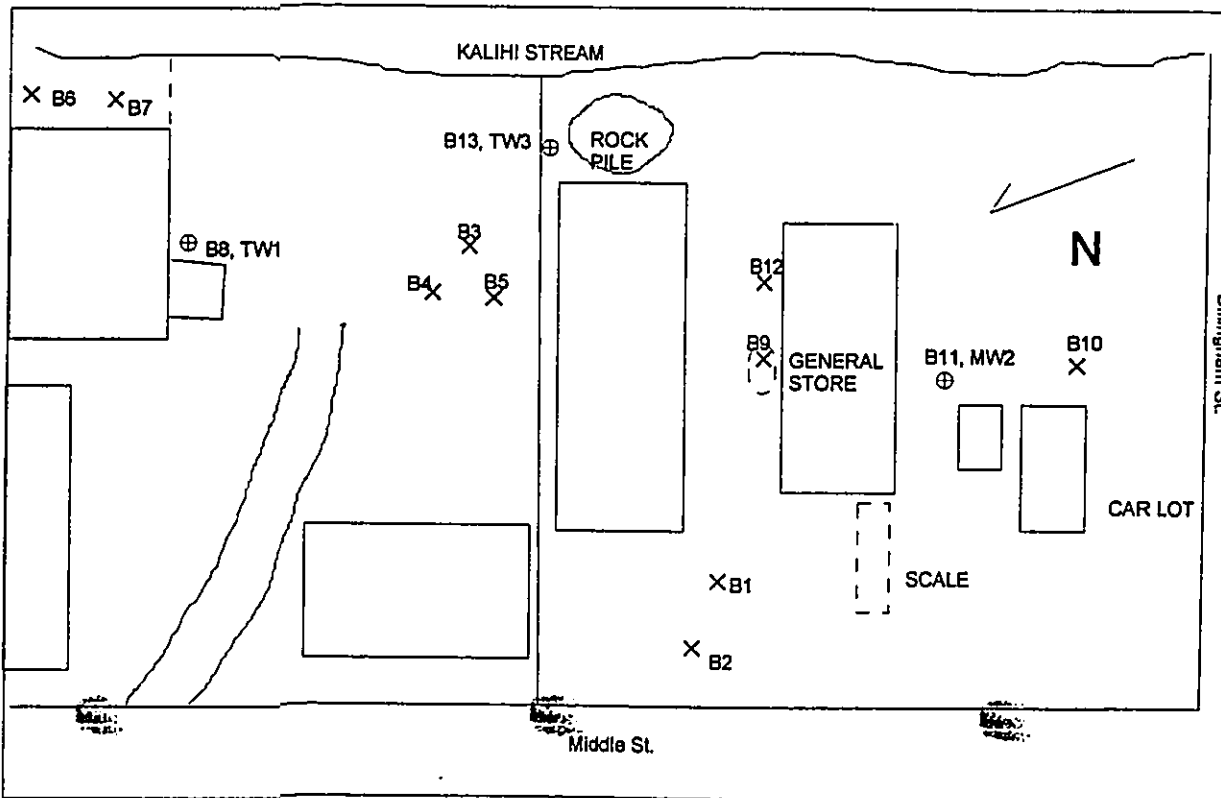
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ESN Pacific Boring Location Map
 Client: Kimura Int.
 Location: 625 Middle Street area
 Date: 2/11/02 - 2/12/02

*(Map not to any scale)

Lithology: silty clay with gravel fill/ saprolites/ basalt



STL Seattle

Sample Identification:

Lab. No. 105143-1
Client ID SS-E2
Date/Time Sampled 04-08-02
Matrix solid

* - Sampling time not specified for this sample

STL Seattle

Client Name ESN Pacific, Inc.
Project Name D204080192 Kimura-Middle Street
Date Received 04-10-02

Sample Preparation Information for Toxicity Characteristic Leaching Procedure (TCLP) EPA Method 1311

Client Sample ID SS-E2
Lab ID 105143-01

% Solids: 100
No. of Extractions: 1
Type of Extraction(s): rotary
Extraction Fluid: #1
Date Filtered: 04-12-02

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J 2

J 3

STL Seattle

Client Name: ESN Pacific, Inc.
 Client ID: SS-E2
 Lab ID: 105143-01
 Date Received: 4/10/2002
 Date Prepared: 4/15/2002
 Date Analyzed: 4/16/2002
 % Solids: -
 Dilution Factor: 1

TCLP Organochlorine Pesticides and PCBs by USEPA Methods 8081A/8082

Surrogate	% Recovery	Flags	Recovery Limits
Tetrachloro-m-xylene	80.6		Low 70 High 122
Decachlorobiphenyl	87.2		Low 64 High 130

Analyte	Result (mg/L)	PQL	MDL	Flags
Chlordane (technical)	ND	0.005	0.0018	

STL Seattle

Client Name: ESN Pacific, Inc.
 Client ID: SS-E2
 Lab ID: 105143-01
 Date Received: 4/10/2002
 Date Prepared: 4/12/2002
 Date Analyzed: 4/16/2002
 % Solids: -
 Dilution Factor: 2000

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits
Tetrachloro-m-xylene	-	X8	Low 54 High 129
Decachlorobiphenyl	-	X8	Low 54 High 140

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Aldrin	ND	1850	797	
alpha-BHC	ND	1850	574	
beta-BHC	ND	1850	782	
delta-BHC	ND	1850	709	
gamma-BHC (Lindane)	ND	1850	706	
Chlordane (technical)	53000	18500	2600	C1
4,4'-DDD	ND	3700	359	
4,4'-DDE	ND	3700	425	
4,4'-DDT	ND	3700	479	
Dieldrin	ND	3700	606	
Endosulfan I	ND	1850	787	
Endosulfan II	ND	3700	714	
Endosulfan sulfate	ND	3700	672	
Endrin	ND	3700	667	
Endrin aldehyde	ND	3700	753	
Heptachlor	ND	1850	636	
Heptachlor epoxide	ND	1850	675	
Methoxychlor	ND	18500	2550	
Endrin ketone	ND	3700	519	
Toxaphene	ND	185000	11600	

STL Seattle

Lab ID: Method Blank - FE1477
 Date Received: 4/15/2002
 Date Prepared: 4/16/2002
 Date Analyzed: 4/16/2002
 % Solids
 Dilution Factor 1

TCLP Organochlorine Pesticides and PCBs by USEPA Methods 8081A/8082

Surrogate	% Recovery	Flags	Recovery Limits
			Low High
Tetrachloro-m-xylene	74.8		70 122
Decachlorobiphenyl	84.3		64 130

Analyte	Result (ug/L)	PQL	MDL	Flags
Chlordane (technical)	ND	5	1.6	

0 6

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID: FE1477
 Date Prepared: 4/15/2002
 Date Analyzed: 4/16/2002
 QC Batch ID: PE1477

Organochlorine Pesticides and PCBs by USEPA Methods 8081A/8082

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
Chlordane (technical)	0	12.5	10	80.3	9.51	76.1	-5.4	

0 7

STL Seattle

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:
Lab ID:
Date Prepared:
Date Analyzed:
QC Batch ID:

SS-E2
105143-01
4/15/2002
4/18/2002
PE1477

Organochlorine Pesticides and PCBs by USEPA Methods 8081A/8082

Compound Name	Sample Result (mg/L)	Spike Amount (mg/L)	MS Result (mg/L)	MS % Rec.	MSD Result (mg/L)	MSD % Rec.	RPD	Flag
Chlordane (technical)	0	0.025	0.0209	83.5	0.0211	84.4	1.1	

STL Seattle

Lab ID:
Date Received:
Date Prepared:
Date Analyzed:
% Solids
Dilution Factor

Method Blank - PE1476
4/12/2002
4/15/2002
1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Tetrachloro-m-xylene	103		54	129
Decachlorobiphenyl	97.8		54	140

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	Flags	MDL
Aldrin	ND		1	0.431
alpha-BHC	ND		1	0.311
beta-BHC	ND		1	0.423
delta-BHC	ND		1	0.384
gamma-BHC (Lindane)	ND		1	0.382
Chlordane (technical)	ND		10	1.41
4,4'-DDD	ND		2	0.194
4,4'-DDE	ND		2	0.23
4,4'-DDT	ND		2	0.259
Dieldrin	ND		2	0.328
Endosulfan I	ND		2	0.426
Endosulfan II	ND		2	0.385
Endosulfan sulfate	ND		2	0.364
Endrin	ND		2	0.361
Endrin aldehyde	ND		2	0.408
Heptachlor	ND		1	0.344
Heptachlor epoxide	ND		1	0.365
Methoxychlor	ND		10	1.38
Endrin ketone	ND		2	0.281
Toxaphene	ND		100	6.27

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID: PE1478
 Date Prepared: 4/12/2002
 Date Analyzed: 4/15/2002
 QC Batch ID: PE1478

Organochlorine Pesticides by USEPA Method 8081A

Compound Name	Blank Result (ug/kg)	Spike Amount (ug/kg)	BS Result (ug/kg)	BS % Rec.	BSD Result (ug/kg)	BSD % Rec.	RPD	FIQ
Aldrin	0	25	20.3	81.3	18.8	78.7	-2	
gamma-BHC (Lindane)	0	25	19.5	78.1	19.1	76.3	-2.3	
4,4'-DDT	0	50	48.8	97.6	47.8	95.3	-2.4	
Dieldrin	0	50	46.7	93.3	45.5	91.1	-2.4	
Endrin	0	50	47.5	95	46.2	92.4	-2.8	
Heptachlor	0	25	21.8	87.2	21.7	86.6	-0.69	

STL Seattle
 5155 9th Street East
 Tacoma, WA 98424
 Tel: 253 922 2310
 Fax: 253 922 6047
 www.stlsc.com



TCLP Regulatory Limits

Analyte	Maximum Contaminant Level (mg/L)
METALS	
Arsenic	5.0
Barium	100
Cadmium	1.0
Chromium	5.0
Lead	5.0
Selenium	1.0
Silver	5.0
Mercury	0.2
CHLORINATED PESTICIDES	
gamma-BHC (Lindane)	0.4
Chlordane (technical)	0.03
Endrin	0.02
Heptachlor	0.008
Heptachlor Epoxide	0.008
Methoxychlor	10
Toxaphene	0.5
CHLORINATED HERBICIDES	
2,4-D	10
Silvex (2,4,5-TP)	1.0
SEMI-VOLATILE ORGANICS	
1,4-Dichlorobenzene	7.5
2-Methylphenol	200
3,4-Dibutylphenol	200
Hexachloroethane	3.0
Nitrobenzene	2.0
Hexachlorobutadiene	0.5
2,4,6-Trichlorophenol	2.0
2,4,5-Trichlorophenol	400
2,4-Dinitrotoluene	0.13
Hexachlorobenzene	0.13
Pentachlorophenol	100
Pyridine	5.0
VOLATILE ORGANICS	
Vinyl Chloride	0.2
1,1-Dichloroethane	0.7
Chloroform	6.0
1,2-Dichloroethane	0.5
2-Butanone (MEK)	200
Carbon Tetrachloride	0.5
Trichloroethene	0.5
Benzene	0.5
Tetrachloroethene	0.7
Chlorobenzene	100

PERSONAL COMMUNICATION

CONVERSATION WITH: Mr. Mike Medeiros
ORGANIZATION: U.S. Army, Department of Public Works
ADDRESS:
PHONE NUMBER: Cell # - 864-0886
KIMURA INTERNATIONAL STAFF: Bryce Hataoka
DATE: January 22, 2002

NOTES:

The location of the 24-inch force main follows the old railroad line (easement). The sewer line is under high pressure and runs from Fort Shafter to the Sand Island Treatment Plant. It enters the property just mauka of Building F at about 3 feet below ground surface (bgs). It travels across the property along the demolished building just outside of the foundation and past Building G. It drops down approximately 12 to 15 feet bgs at the end of the building before it continues under Kaihii Stream then on to the Sand Island Treatment Plant. The sewer line is a 24-inch cast iron pipe that has recently been lined internally. The depth of the pipeline should protect the pipe from any planned shallow soil sampling.

MIDDLE STREET TRANSIT CENTER
PHASE II ESA

JULY 11, 2002
APPENDICES

**APPENDIX E:
STANDARD OPERATING PROCEDURES**

MIDDLE STREET TRANSIT CENTER
PHASE II ESA

JULY 11, 2002
APPENDICES

**HEADSPACE ANALYSIS PROCEDURE
STANDARD OPERATING PROCEDURES**

The following presents the basic methodology for conducting field screening of soil sample vapor. The screening is performed using a Photo Vac, Inc. MicroTip Model MP-100 photoionization detector (PID). This detector is non-discriminatory and measures the total concentration of airborne ionizable gases and vapors. It is used for relative quantification of organic compound presence. This detector serves as a useful tool in screening soil samples in the field. The basic method for field screening of a soil sample using the detector is as follows:

- 1) Approximately one cubic inch of soil sample is removed from the ground or sampling device, and placed in a sealable polyethylene bag with a capacity of approximately 500 milliliters.
- 2) The sample is crushed through the walls of the bag to provide greater surface area for vapor off-gassing.
- 3) Off-gassing of the sample is allowed for approximately five minutes at ambient air temperature.
- 4) The detector probe is inserted into the bag and allowed to draw out the vapors. The probe should not be in direct contact with the sample.
- 5) The readings should be observed and the sustained value will be recorded unless there is moisture interference. In this case, the initial peak reading will be recorded before moisture interference causes the reading to diminish.
- 6) The detector probe is withdrawn from the bag and cleaned. Ambient air is allowed to pass through the system until zero or background level is attained.
- 7) Sample identification, depth of the sample, and readings are recorded in the field log book.

**MONITORING WELL PREPARATION
STANDARD OPERATING PROCEDURES**

Once at the project site, the sampler shall do the following:

- 1) Open the wellhead traffic cover or stand pipe. A standard or phillips screw driver or hollow hex key may be needed.
 - 2) Remove any water in the traffic box.
 - 3) Note any staining on well casing material.
 - 4) Unlock and open the casing cap or plug.
 - 5) Be aware of odors, oncoming traffic, slopes or other hazardous conditions that may be present at the project site. A photoionization detector (PID) may be used to assist in the determination of proper personal equipment (PPE).
 - 6) Don necessary PPE and conduct periodic ambient air monitoring as needed.
 - 7) Measure and sound well prior to sampling.
 - 8) Measure and note the inner diameter of the well casing.
 - 9) Use water level probe or other suitable method to determine the static water level, total depth of the well, and the presence and depth of any immiscible liquids. Lower the probe slowly to prevent splashing and agitation of the liquid.
 - 10) Record the time of measurement, equipment used, point of reference, depth to water, well depth, and presence and depth to any immiscible liquids. Measurements will be recorded to the nearest 1/100th (0.01) of a foot.
 - 11) Decontaminate measuring equipment in accordance with standard protocols.
- Each monitoring well will then be purged, depending upon the sampling objective.

**MONITORING WELL PURGING
STANDARD OPERATING PROCEDURES**

Bailers, portable pumps, and other means may be used to purge monitoring wells. Consideration will be given to availability of electricity, well diameter, and purge volume. The equipment will either be disposable or be capable of decontamination between uses.

The quantity of standing water will be removed from the casing prior to sampling will be a minimum of three casing volumes. Clearance of turbidity, stabilization of water quality parameters, or other indicators that a sufficient purge volume has been removed may be substituted.

Three casing volumes can be determined using the following formula:

$$PV = 0.1224 \times d^2 \times h$$

PV = purge volume in gallons (3 casing volumes)
d = inside diameter of well casing (inches)
h = height of standing water in the casing (feet)

If the recovery rate of the well is sufficient, three well volumes will be evacuated. Where slow recharging wells are encountered, the three casing volume minimum evacuation requirement may need to be waived. In these situations, any samples to be analyzed for volatile organic constituents must be collected as soon as possible. All other samples will be collected after sufficient volume has recharged to the well. For sites with multiple wells, all wells will be sampled as the same recharge percentage.

During purging, the volume of water removed will be determined by collecting it in a container of known volume (e.g. 5 gallon pail).

The well is to be purged by one of the following methods:

Pump: When a pump is used for purging, the purge procedures below will be followed:

- 1) Measure depth to water.
- 2) Select a dedicated bladder pump.
- 3) Attach pump to a PTFE-coated stainless steel cable.
- 4) Lower pump slowly until it contacts the water surface and continue to lower it until the pump intake is at the bottom of the screened interval.
- 5) Begin purge, directing the discharge into pails or drums.

**MONITORING WELL PURGING (CONTINUED)
STANDARD OPERATING PROCEDURES**

Bailer: Bottom emptying PTFE-coated or PVC bailers with double check valves will be used for purging. Use of disposable or dedicated equipment will minimize potential cross-contamination between wells. Any equipment to be re-used must be thoroughly decontaminated between wells following the procedures contained herein.

The purging process will proceed as follows:

- 1) Measure depth to water.
- 2) Select clean or new bailer.
- 3) Attach bailer to a clean, new length of rope to allow for water level draw down during sampling.
- 4) Lower bailer slowly until it contacts the water surface.
- 5) Allow bailer to sink just below the water surface and fill with minimal surface disturbance.
- 6) Slowly raise bailer to surface. Do not allow bailer to contact ground.
- 7) Pour purged water into drums or pails.
- 8) Continue with above procedures until the desired volume has been purged.

Sampling personnel will record the following information during purging of the well:

- 1) Depth to water.
- 2) Type of purging equipment used including lines used to lower equipment into the well. This will be recorded for each well.
- 3) Date and time purge initiated and completed.
- 4) Physical properties of evacuated water (color, odor, turbidity, presence of free-phase petroleum, heavy phase organic compounds, iridescent sheens, spots, etc.)
- 5) Intake depth (if pump is used).
- 6) Volumes purged.
- 7) Decontamination and cleaning procedures for equipment used to sample more than one well.

The information will be recorded in the field notes.

During purging and prior to sampling, the groundwater temperature, pH, and electrical conductivity will be measured and recorded in the field notes. Measurements will be recorded prior to purging and after evacuation of each purge volume.

**MONITORING WELL PURGING (CONTINUED)
STANDARD OPERATING PROCEDURES**

All instruments to be used for field measurements will be calibrated (with reference solutions or internal standards) at the start of each field day. Calibration information will be recorded along with other sampling data on the sample data sheets. The following information is to be recorded:

- 1) The make, model, and serial number of the equipment used.
- 2) The source and traceability of the standards used for calibration.
- 3) The name of the person performing the calibration, the date and time, and a notation as to whether it was a routine check or one required by malfunction.

**CONVENTIONAL MONITORING WELL SAMPLING
STANDARD OPERATING PROCEDURES**

As soon as possible after purging, sample collection is to be completed (in certain instances where free product or high levels of contamination are suspected, a recharge period of up to 48 hours between purging and sampling may be allowed). If free product is detected in the well at a thickness of greater than 0.25 inches following purging, no groundwater sample will be collected for analysis unless needed for analytical purposes defined in advance by the Project Manager.

When a pump is used for sample collection, it will be operated in a continuous manner to prevent pulsating samples that are aerated in the outflow line or upon discharge. The pumping rate when volatile organics are being collected will not exceed 100 ml/minute. Higher rates may cause an increased loss of volatile organics.

When a bailer is used, it will be lowered to just below water surface, allowed to fill, and then withdrawn. Samples will be dispensed directly from the pump or bailer (bottom check valve) into the appropriate containers.

Sampling personnel must wear a new, clean pair of gloves at each sampling location and for each sample.

**GROUNDWATER SAMPLE FILTRATION
STANDARD OPERATING PROCEDURES**

The samples collected for dissolved metals will be filtered through a 0.45-micron membrane filter. The samples will be filtered at the staging area within 3 hours after collection, or by the testing laboratory. They will be preserved after filtration.

**EQUIPMENT DECONTAMINATION
STANDARD OPERATING PROCEDURES**

Decontamination of all field equipment must be performed prior to use. All decontamination will be performed on site. Wherever possible, dedicated or disposable sampling equipment will be used in order to minimize decontamination requirements.

In general, decontamination of all field equipment will follow a standard three step procedure. First, all loose dirt, debris and gross contamination will be physically removed by brush, pressure washer, or other mechanical means. The second step will consist of a washing with a detergent or fresh water solution (Liquinox, Alconox, or TSP). The detergent wash will be followed by two fresh water rinses. Following rinsing, equipment shall be placed on a clean surface and allowed to air dry. Note that the decontamination solution will have to be characterized and disposed of properly.

Loose soil generated during cleaning will be consolidated at the end of each day and placed with other material for disposition. Decontamination waters will be placed on an impervious surface and allowed to evaporate, or containerized for proper disposal.

In certain situations, job specifications may require alternative decontamination procedures involving solvent washes, additional rinses, or other steps. It is the responsibility of the project manager to know and understand the decontamination requirements for a given project.

Appendix D

**Environmental Noise Assessment
D.L. Adams Associates, Ltd.**

Project No. 02-02

**ENVIRONMENTAL NOISE ASSESSMENT
MIDDLE STREET TRANSIT CENTER
HONOLULU, HAWAII**

August 2002

Prepared for
Kimura International, Inc.
Honolulu, Hawaii

CONTENTS

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Tables

1	FHWA Recommended Equivalent Hourly Sound Levels Based on Land Use
2	Measurement Locations and Sound Pressure Levels
3	Projected Future Peak Hour Traffic Noise Level Increases

Figures

1	Project Location and Study Area
2	Proposed Expansion Scheme
3	Maximum Permissible Sound Levels for Various Zoning Districts
4	Locations of Noise Measurements
5	Proposed Transit Center Area Zoning
6	Typical Sound Levels From Construction Equipment

1.0 SUMMARY

- 1.1 A study was conducted to assess the noise impact due to a proposed transit center expansion. This proposed expansion will contain a parking garage, Handi-Van facility, commercial space, and parking for Handi-Vans and articulated buses.
- 1.2 The project area and vicinity are currently exposed to daytime ambient noise levels of 52 to 72 dBA, with the dominant noise sources being traffic on Kamehameha Highway, H-1 Freeway, and Middle Street. Other noise sources include wind, birds, and flyovers by both large and small aircraft.
- 1.3 Traffic noise levels, due to the project, are not expected to significantly increase along the existing roadways in the vicinity of the project.
- 1.4 The dominant noise sources during project construction will probably be earth moving equipment, such as bulldozers and diesel powered trucks, assuming pile driving equipment will not be required. Noise from construction activities will occur on the subject property. Noise from construction activities should be short term and must comply with State noise regulations.
- 1.5 Predicted traffic noise level increases due to the project for the year 2025 along local roadways in the vicinity of the completed project were determined to be less than 0.4 dB, which is below the threshold of perceptible change in noise level for most people and not considered significant.

2.0 PROJECT DESCRIPTION

The proposed project calls for a 10.35-acre expansion of the existing 14-acre Kalihi-Palama bus center. The expansion project site, adjacent to the current bus center, is located in downtown Honolulu on Middle Street, between North King and Kamehameha Highway, as shown on Figure 1. The proposed expansion, scheme shown in Figure 2, will involve constructing a parking garage, an 18,000 sf Handi-Van Facility, 16,000 sf of commercial space, and parking for Handi-Vans and Articulated Buses.

3.0 NOISE STANDARDS

Various local and federal agencies have established guidelines and standards for assessing environmental noise impacts and set noise limits as a function of land use. A brief description of common acoustic terminology used in these guidelines and standards is presented in Appendix A.

3.1 U.S. Federal Highway Administration (FHWA)

The FHWA defines four land use categories and assigns corresponding maximum hourly equivalent sound levels, L_{eq} , for traffic noise exposure [Reference 1], which are listed in Table 1. For example, Category B, defined as picnic and recreation areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals, has a corresponding maximum exterior L_{eq} of 67dBA and a maximum interior L_{eq} of 52 dBA. These limits are viewed as design goals, and all projects meeting these limits are deemed in conformance with FHWA noise standards.

3.2 Hawaii Department of Transportation (HDOT)

The HDOT has adopted FHWA's design goals for traffic noise exposure in its noise analysis and abatement policy [Reference 2]. According to the policy, a traffic noise impact occurs when the predicted traffic noise levels approach or exceed FHWA's design goals or when the predicted traffic noise levels substantially exceed the existing noise levels. The policy also states that approach means at least 1 dB less than FHWA's design goals and substantially exceed the existing noise levels means an increase of at least 15dB.

3.3 U.S. Environmental Protection Agency (EPA)

The U.S. EPA has identified a range of yearly day-night equivalent sound levels, L_{dn} , sufficient to protect public health and welfare from the effects of environmental noise [Reference 3]. The EPA has established a goal to reduce exterior environmental noise to an L_{dn} not exceeding 65 dBA and a future goal to further reduce exterior environmental noise to an L_{dn} not exceeding 55 dBA. Additionally, the EPA states that these goals are not intended as regulations as it has no authority to regulate noise levels, but rather they are intended to be viewed as levels below which the general population will not be at risk from any of the identified effects of noise.

3.4 State of Hawaii, Department of Health, Community Noise Control

The State of Hawaii Department of Health Community Noise Control Statute [Reference 4] defines three classes of zoning districts and specifies corresponding maximum permissible sound levels due to stationary noise sources such as air-conditioning units, exhaust systems, generators, compressors, pumps, etc., and equipment related to agricultural, construction, and industrial activities. These levels are enforced by the State Department of Health (DOH) for any location at or beyond the property line and shall not be exceeded for more than 10% of the time during any 20-minute period. The specified noise limits which apply are a function of the zoning and time of day as shown in Figure 3. With respect to

mixed zoning districts, the statute specifies that the primary land use designation shall be used to determine the applicable zoning district class and the maximum permissible sound level.

4.0 EXISTING ACOUSTICAL ENVIRONMENT

Ambient noise level measurements were conducted on February 7, 2002 to assess the existing acoustical environment at the project site and in the surrounding areas as illustrated in Figure 4. Noise level measurements were taken using Larson-Davis Laboratories, Model 800B and Model 824 Sound Level Meters. The results, presented in Table 2, expressed in terms of equivalent sound levels, L_{eq} , and in units of A-weighted decibels, were obtained.

Presently, traffic is the dominant noise source at the measurement locations. Other noise sources include flyovers from small and large aircraft, birds, wind, and light industrial noise from on-site shops as well as shops located on the adjacent Kalihi-Palama Bus Facility. Traffic volume and vehicle mix were also recorded during the measurements at Locations 2 and 4.

The project site, due to the proximity to Honolulu International Airport, is exposed to a significant amount of aircraft noise. The Honolulu International Airport Master Plan Update and Noise Compatibility Program indicates that the area is exposed to an average annual day-night aircraft noise level (L_{dn}) which is between 60 and 65 [Reference 5].

5.0 POTENTIAL NOISE IMPACT DUE TO THE PROJECT AND NOISE MITIGATION

5.1 Project Construction Noise

Development of project areas will involve excavation, grading, and construction of new buildings and infrastructure. The various construction phases of the project may generate significant amounts of noise but, due to their proximity to the project site, residences are not likely to be impacted by the project construction noise. The closest residences are located mauka of the existing Kalihi-Palama bus center, as shown in Figure 5. Industrial use areas surround the project site and are not expected to be impacted by project construction noise. The actual noise levels produced during construction will be a function of the methods employed during each stage of the construction process. Typical ranges of construction equipment noise are shown in Figure 6.

In cases where construction noise exceeds, or is expected to exceed the State's "maximum permissible" property line noise levels [Reference 5], a permit must be obtained from the DOH to allow the operation of vehicles, construction equipment, power tools, etc., which emit noise levels in excess of the "maximum permissible" levels. Specific permit restrictions for construction activities are:

"No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels . . . before 7:00 a.m. and after 6:00 p.m. of the same day, Monday through Friday."

"No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels . . . before 9:00 a.m. and after 6:00 p.m. on Saturday."

"No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels on Sundays and on holidays."

The use of pile drivers, hoe rams, jack hammers 25 lbs. or larger, high pressure sprayers, and chain saws may be restricted to 9:00 a.m. to 5:30 p.m., Monday through Friday. The State DOH requires additional information is required when pile drivers or hoe rams are used. This additional information includes the number of pile drivers and/or hoe rams to be used, the number of piles to be driven, duration of the pile driving or hoe ram operations, and the name and on-site telephone number of the person responsible for responding to noise complaints. Notification of the surrounding affected areas will be required. In addition, a public information meeting may be required to provide the surrounding community with information pertaining to the pile driving noise. This requirement is subject to the duration of such operations and the extent of the impact area. Pile driving may impact noise sensitive areas within 470 feet of the pile driving activity.

5.2 Project Generated Traffic Noise

Measured traffic noise levels along with traffic volume and vehicle mix counts obtained during the measurements were used to calibrate the FHWA's Traffic Noise Prediction Model [Reference 6]. The noise model, together with the traffic data [Reference 7], was then used to calculate the peak hour traffic noise levels with and without the project. The results are presented in Table 2.

From the results of Table 2, predicted traffic noise level increases for the year 2025, with and without the project, were calculated and are presented in Table 3. As can be seen, the predicted maximum traffic noise level increase along the assessed roadways due to the project is 0.4 dB, which is below the threshold of change in noise level that is perceptible to most people with normal hearing.

Industrial land uses along Middle Street and Kamehameha Highway are already exposed to traffic noise, and the minor increase in traffic noise level due to project development is not considered to be significant.

5.3 Noise Due to On-Site Equipment

Noise from pumps, AHU s, compressors, condensing units, and other on-site equipment must be addressed during the design phase of the project. Noise at the property line from on-site equipment must be at a level of 70 dBA or less in order to be within the State s maximum permissible sound limit. If on-site equipment exceeds this limit, mitigation in the form of barriers, enclosures, silencers, etc. should be included in the design.

6.0 REFERENCES:

1. *Department of Transportation, Federal Highway Administration Procedures for Abatement of Highway Traffic Noise*, Title 23, CFR, Chapter 1, Subchapter J, Part 772, 38 FR 15953, June 19, 1973; Revised at 47 FR 29654, July 8, 1982.
2. *Noise Analysis and Abatement Policy*, Department of Transportation, Highways Division, State of Hawaii, June 1977.
3. *Toward a National Strategy for Noise Control*, U.S. Environmental Protection Agency, April 1977.
4. Chapter 46, *Community Noise Control*, Department of Health, State of Hawaii, Administrative Rules, Title 11, September 23, 1996.
5. *Honolulu International Airport Master Plan Update and Noise Compatibility Program*, U.S. Department of Transportation, State of Hawaii, 1989.
6. *Federal Highway Administration's Traffic Noise Model*, FHWA-RD-77-108; U.S. Department of Transportation, December 1978
7. *Peak Hour Traffic Data*, Julian Ng, Inc., August 10, 2002.

TABLE 1
Federal Highways Administration Recommended Equivalent Hourly Sound Levels Based
On Land Use [Reference 1]

Activity Category	$L_{eq(1h)}$	Noise Reduction Exterior-to-Interior
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	---	Undeveloped Land
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

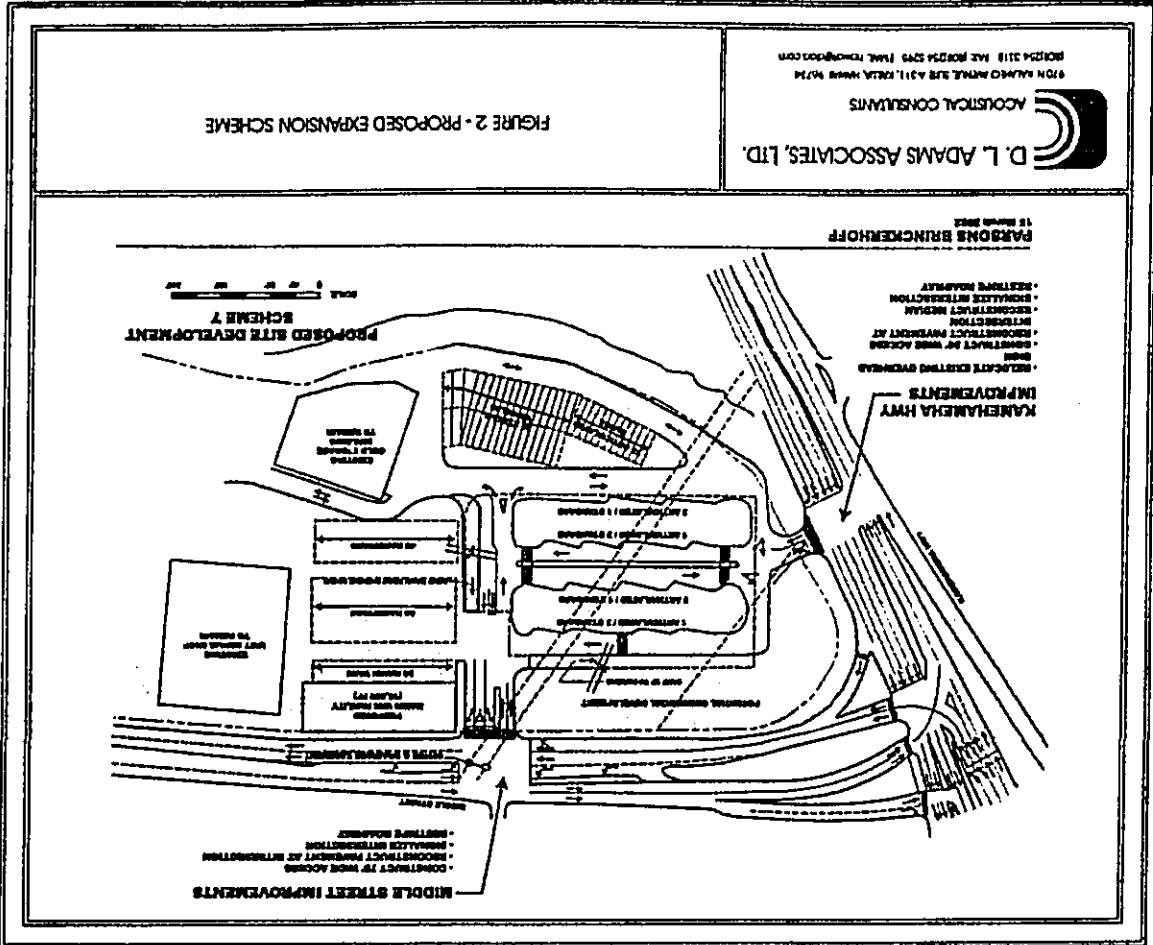
TABLE 2
Measurement Locations and Equivalent Sound Levels

Measurement Location	Time of Measurement	Duration of Measurement	Equivalent Sound Level (L_{eq} in dBA)
1	11:06 AM	15 Minutes	59.9
2	11:10 AM	15 Minutes	71.9
3	11:28 AM	10 Minutes	60.1
4	11:35 AM	15 Minutes	69.9
5	11:55 AM	10 Minutes	52.6

TABLE 3
Peak Hour Traffic Noise Levels and Predicted Noise Level Increases
(L_{eq} in dBA)

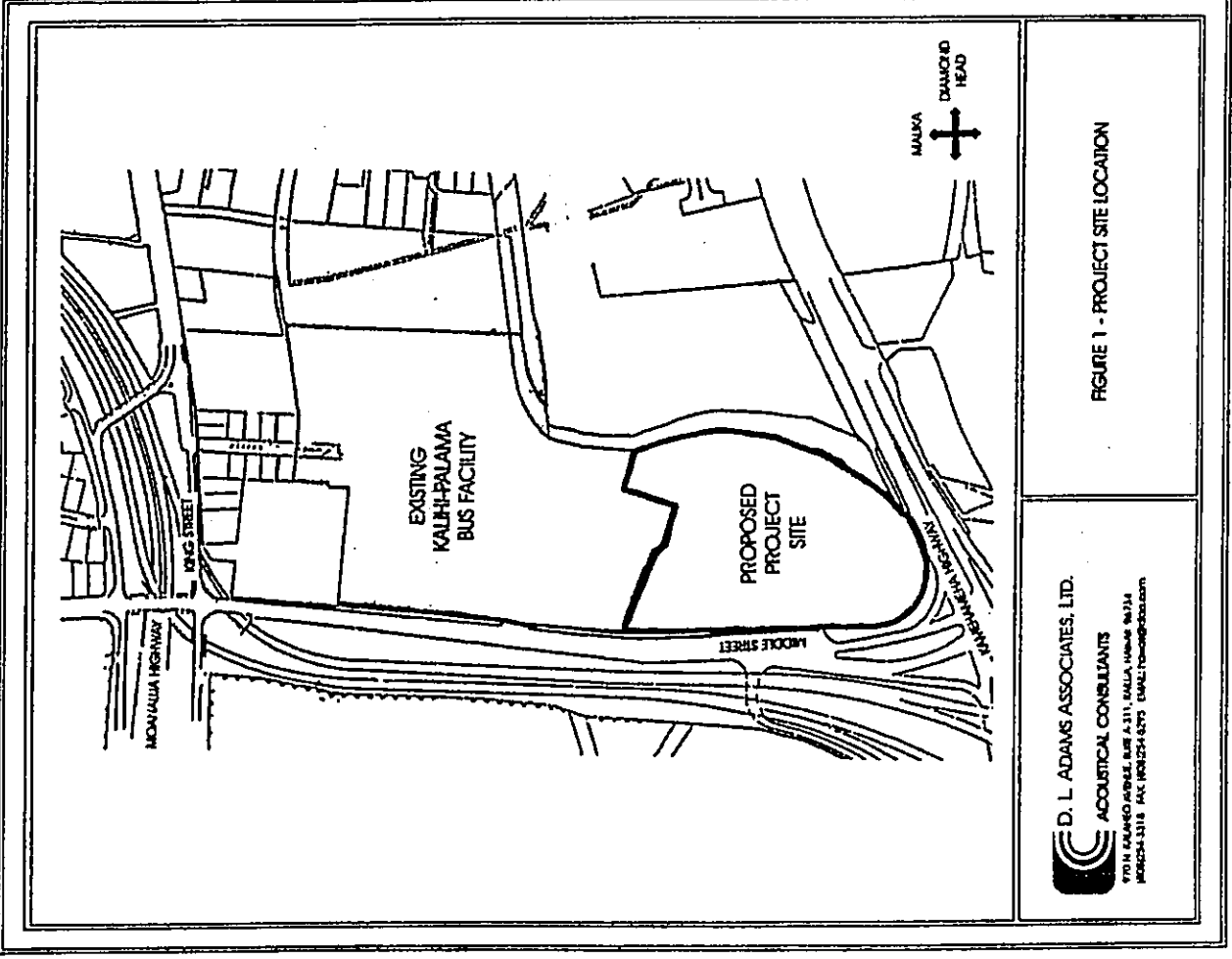
MEASUREMENT LOCATION 2 (38 feet from centerline of Middle Street)	Existing		Predicted Year 2025 Without Proposed Project		Predicted Year 2025 With Proposed Project	
	AM	PM	AM	PM	AM	PM
Peak Traffic Noise Level	72.1	72.5	73.2	73.6	73.5	74.0
Predicted Year 2025 Increase Above Existing	---	---	1.1	1.1	1.4	1.5
Predicted Year 2025 Increase Due to Project	---	---	---	---	0.3	0.4

MEASUREMENT LOCATION 4 (62 feet from centerline of Kamehameha Hwy)	Existing		Predicted Year 2025 Without Proposed Project		Predicted Year 2025 With Proposed Project	
	AM	PM	AM	PM	AM	PM
Peak Traffic Noise Level	72.2	72.5	73.3	73.6	73.4	73.7
Predicted Year 2025 Increase Above Existing	---	---	1.1	1.1	1.2	1.2
Predicted Year 2025 Increase Due to Project	---	---	---	---	0.1	0.1



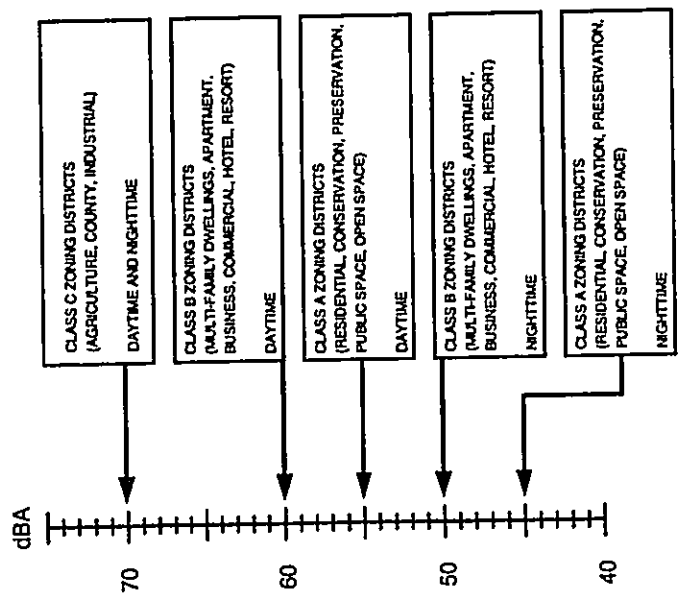
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FIGURE 2 - PROPOSED EXPANSION SCHEME



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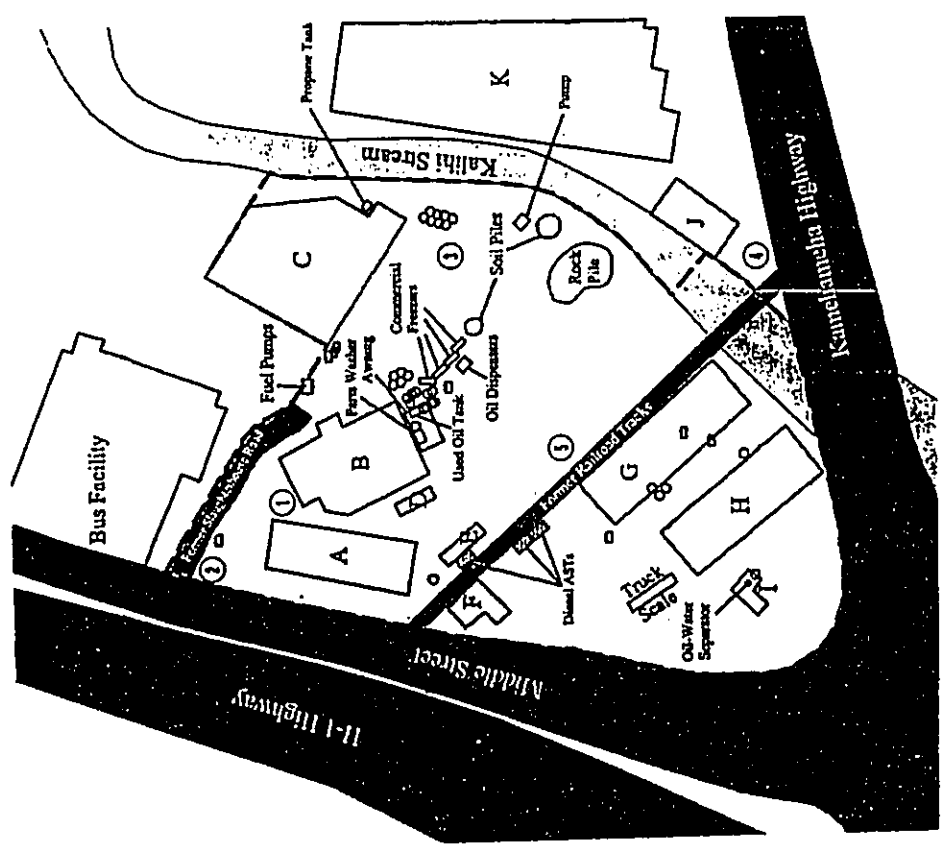
FIGURE 1 - PROJECT SITE LOCATION



NOTE: SOUND LEVELS INDICATED BY ZONING DISTRICT ARE THE "MAXIMUM PERMISSIBLE" SOUND LEVELS DUE TO EXCESSIVE NOISE SOURCES SUCH AS STATIONARY MECHANICAL EQUIPMENT AND EQUIPMENT RELATED TO AGRICULTURAL, CONSTRUCTION AND INDUSTRIAL ACTIVITIES THAT SHALL NOT BE EXCEEDED FOR MORE THAN 1% OF THE TIME WITHIN ANY 30-MINUTE PERIOD DURING THE TIME PERIOD SHOWN.
 (DAYTIME 7:00 A.M. TO 10:00 P.M., NIGHTTIME 10:00 P.M. TO 7:00 A.M.)

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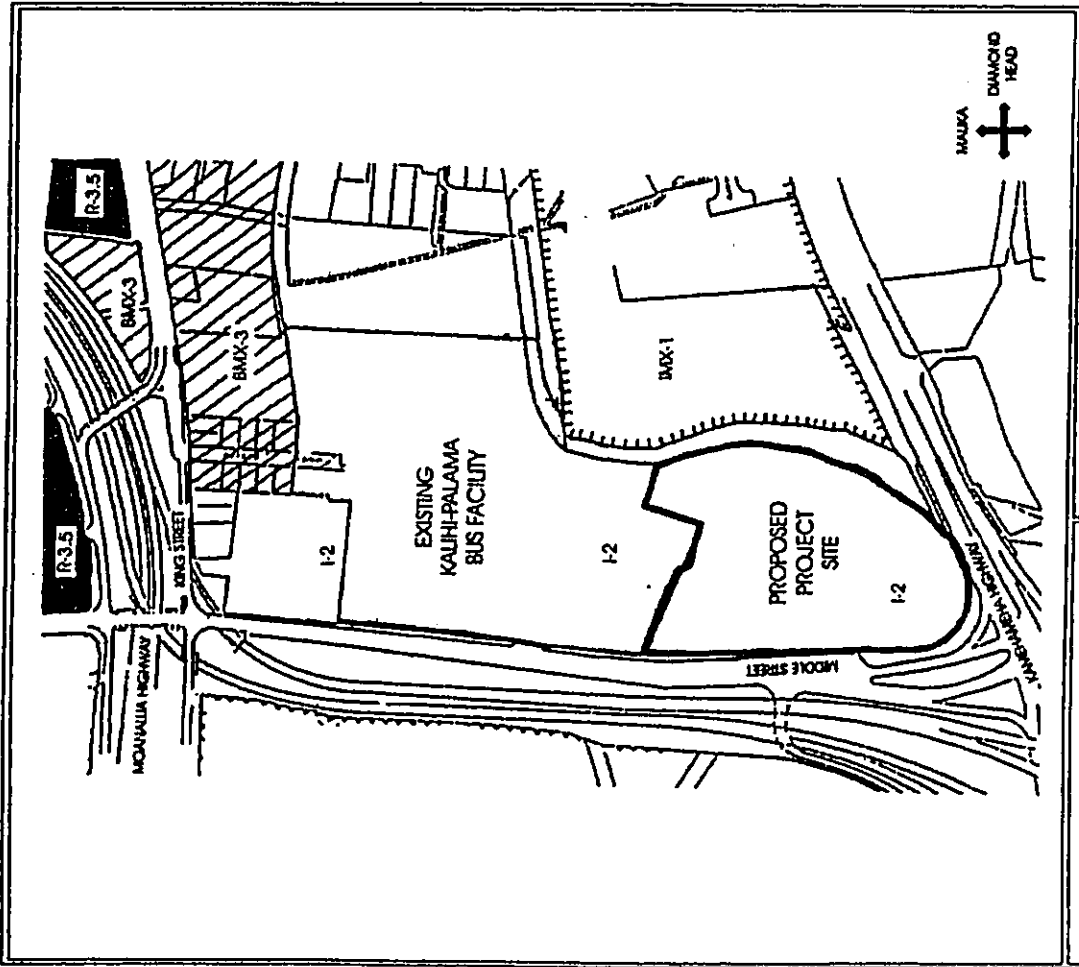
FIGURE 3 - STATE OF HAWAII MAXIMUM PERMISSIBLE SOUND LEVELS FOR VARIOUS ZONING DISTRICTS



① MEASUREMENT LOCATION

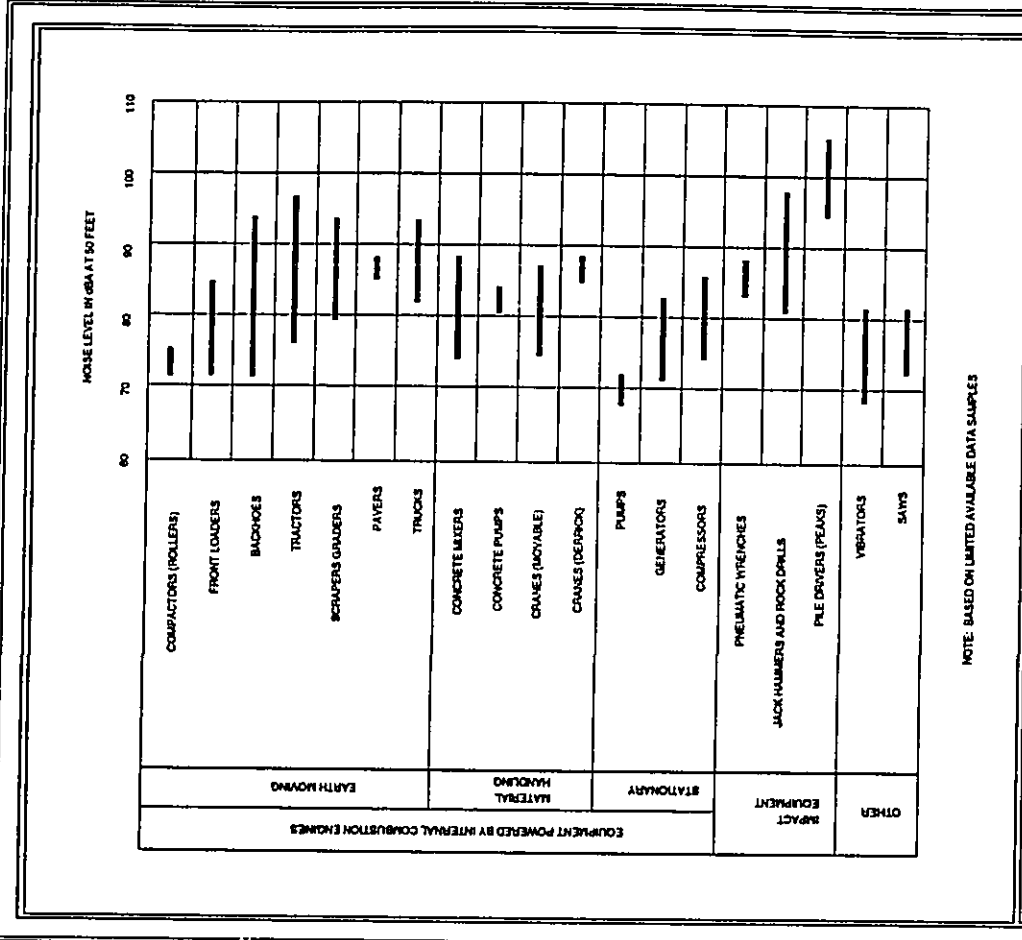
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FIGURE 4 - LOCATIONS OF NOISE MEASUREMENTS



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FIGURE 5 - PROJECT SITE SURROUNDING AREA ZONING



NOTE: BASED ON LIMITED AVAILABLE DATA SAMPLES

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FIGURE 6 - TYPICAL SOUND LEVELS FROM CONSTRUCTION EQUIPMENT

APPENDIX A
ACOUSTICAL TERMINOLOGY

Sound Pressure Level

Sound or noise consists of minute fluctuations in atmospheric pressure capable of evoking the sense of hearing. It is measured in terms of decibels (dB) using precision instruments known as sound level meters. Noise is defined as "unwanted" sound.

Technically, sound pressure level (SPL) is defined as:

$$SPL = 20 \log (P/P_{ref}) \text{ dB}$$

where P is the sound pressure fluctuation (above or below atmospheric pressure) and P_{ref} is the reference pressure, 20 micropascals, which is approximately the lowest sound pressure that can be detected by the human ear. For example, if P is 20 micropascals, then $SPL = 0 \text{ dB}$, or if P is 200 micropascals, then $SPL = 20 \text{ dB}$. The relation between sound pressure in micropascals and sound pressure level in decibels (dB) is shown in Figure A-1.

The sound pressure level that results from a combination of noise sources is not the arithmetic sum of the individual sound levels, but rather the logarithmic sum. For example, two sound levels of 50 dB produce a combined level of 53 dB, not 100 dB; two sound levels of 40 and 50 dB produce a combined level of 50.4 dB.

Human sensitivity to changes in sound pressure level is highly individualized. Sensitivity to sound depends on frequency content, time of occurrence, duration, and psychological factors such as emotions and expectations. However, in general, a change of 1 or 2 dB in the level of a sound is difficult for most people to detect. A 3 dB change is commonly taken as the smallest perceptible change and a 5 dB change corresponds to a noticeable change in loudness. A 10 dB increase or decrease in sound level corresponds to an approximate doubling or halving of loudness, respectively.

A-Weighted Sound Level

The human ear is more sensitive to sound in the frequency range of 250 Hertz (Hz) and higher, than in frequencies below 250 Hz. Due to this type of frequency response, a frequency weighting system, was developed to emulate the frequency response of the human ear. This system expresses sound levels in units of A-weighted decibels (dBA). A-weighted sound levels de-emphasizes the low frequency portion of the spectrum of a signal. The A-weighted level of a sound is a good measure of the loudness of that sound. Different sounds having the same A-weighted sound level are perceived as being about equally loud. Typical values of the A-weighted sound level of various noise sources are shown in Figure A-1.

Appendix A
Acoustical Terminology (Continued)

Statistical Sound Levels

The sound levels of long-term noise producing activities, such as traffic movement, aircraft operations, etc., can vary considerably with time. In order to obtain a single number rating of such a noise source, a statistically-based method of expressing sound or noise levels developed. It is known as the Exceedence Level, L_n . The Exceedence Level, L_n , represents the sound level which is exceeded for n% of the measurement time period. For example, $L_{10} = 60 \text{ dBA}$ indicates that for the duration of the measurement period, the sound level exceeded 60 dBA 10% of the time. Commonly used Exceedence Levels include L_1 , L_{10} , L_{50} , and L_{90} , which are widely used to assess community and environmental noise. Figure A-2 illustrates the relationship between selected statistical noise levels.

Equivalent Sound Level

The Equivalent Sound Level, L_{eq} , represents a constant level of sound having the same total acoustic energy as that contained in the actual time-varying sound being measured over a specific time period. L_{eq} is commonly used to describe community noise, traffic noise, and hearing damage potential. It has units of dBA and is illustrated in Figure A-2.

Day-Night Equivalent Sound Level

The Day-Night Equivalent Sound Level, L_{dn} , is the Equivalent Sound Level, L_{eq} , measured over a 24-hour period. However, a 10 dB penalty is added to the noise levels recorded between 10 pm and 7 am to account for people's higher sensitivity to noise at night when the background noise level is typically lower. The L_{dn} is a commonly used noise descriptor in assessing land use compatibility, and is widely used by federal and local agencies and standards organizations. Qualitative descriptions, as well as local examples of L_{dn} , are shown in Figure A-3.



FIGURE A-1 - THE RELATION BETWEEN SOUND PRESSURE P AND SOUND PRESSURE LEVEL SPL. ALSO SHOWN ARE TYPICAL VALUES OF A-WEIGHTED SOUND LEVELS OF VARIOUS NOISE SOURCES.

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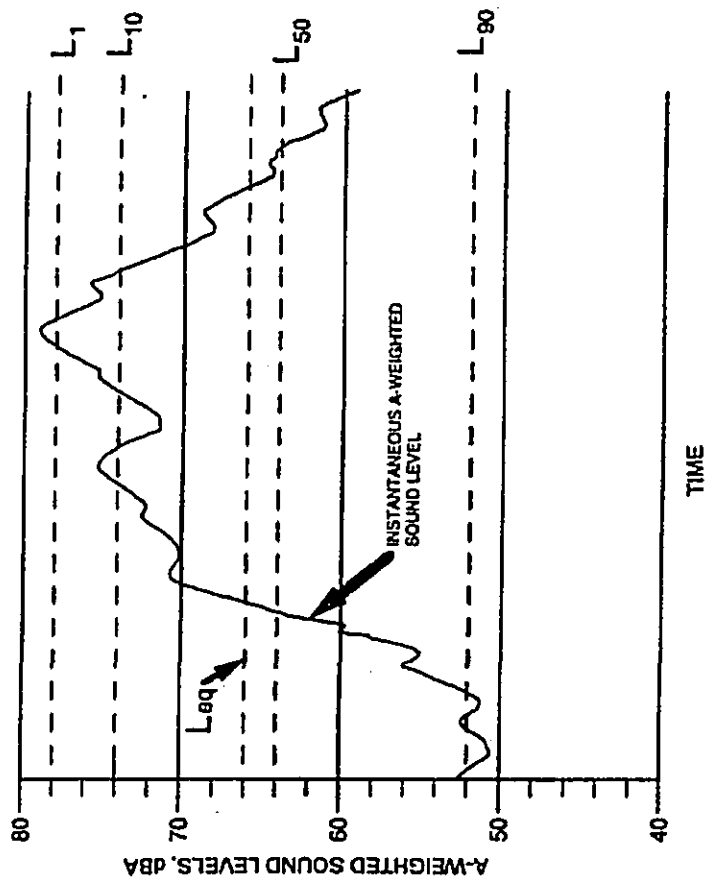


FIGURE A-2 - COMPARISON OF AN INSTANTANEOUS SOUND LEVEL AND THE CORRESPONDING STATISTICAL SOUND LEVELS

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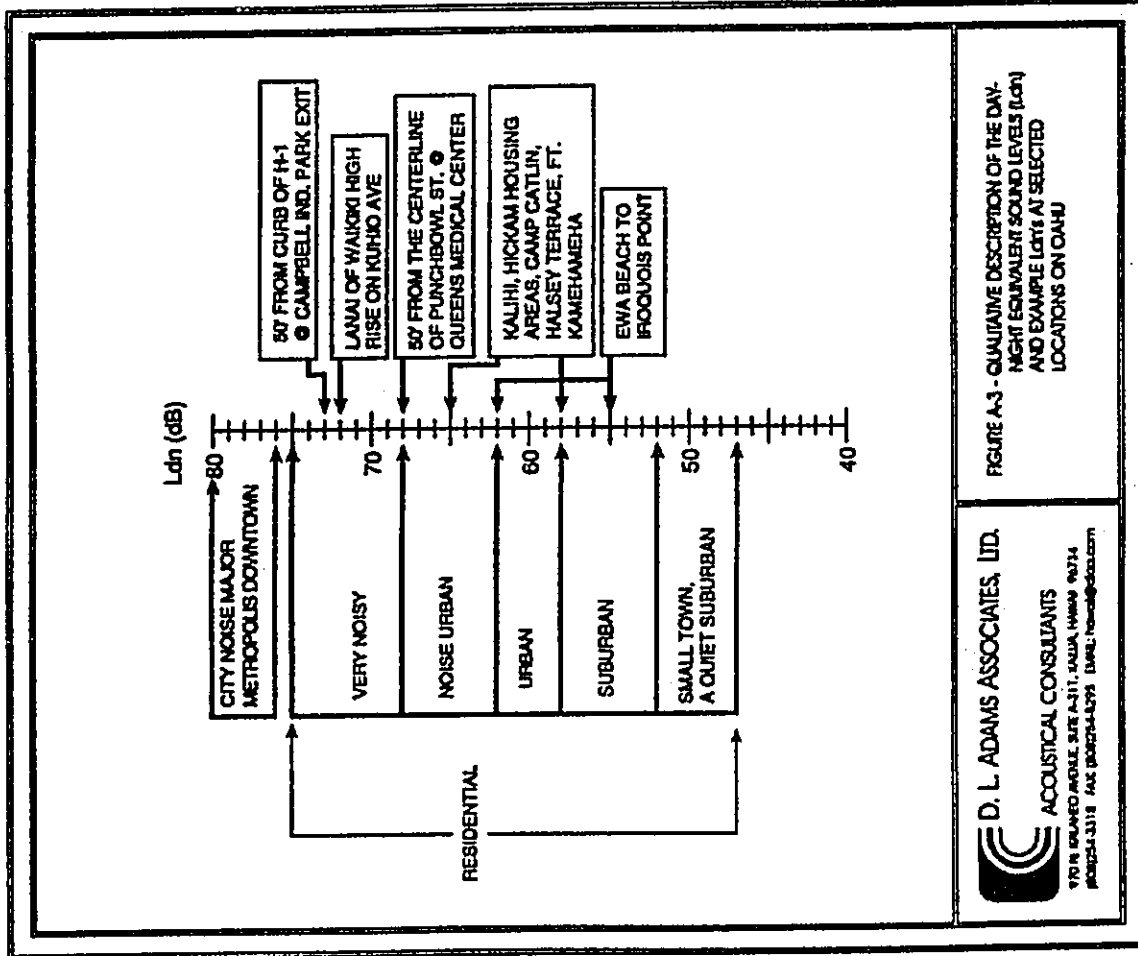


FIGURE A-3 - QUALITATIVE DESCRIPTION OF THE DAY-NIGHT EQUIVALENT SOUND LEVELS (Ldn) AND EXAMPLE LOTS AT SELECTED LOCATIONS ON OAHU

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Appendix E

**Botanical Resources Study
Char & Associates**

CHAR & ASSOCIATES

Botanical/Environmental Consultants

4471 Puu Panini Ave.
Honolulu, Hawaii 96816
(808) 734-7828

15 February 2002

Kimura International, Inc.
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

Attention: Glenn T. Kimura

SUBJECT Middle Street Transit Center Environmental Assessment
Botanical Resources Study

Dear Mr. Kimura:

An assessment was made of the botanical resources on the proposed Middle Street Transit Center. The City and County of Honolulu has prepared a preliminary plan to develop a major transportation center and a related mixed-use complex on Middle Street between North King Street and Kamehameha Highway. The proposed plan calls for the expansion of the existing Kalihi-Palama bus center onto an adjacent 10.35-acre makai parcel.

A field survey of the 10.35-acre project site was conducted on 15 January 2002. The primary objectives of the survey were to:

- 1) provide a general description of the vegetation on the site;
- 2) search for threatened and endangered species as well as species of concern; and
- 3) identify areas of potential environmental problems or concerns and propose appropriate mitigation measures.

The plant names used in this report follow Wagner et al. (1990) and Wagner and Herbst (1999) for the naturalized species. The few name changes are those recorded in the Hawaii Biological Survey series (Evenhuis and Eldredge, editors, 1999-2000). The names for cultivated and landscape plants are in accordance with St. John (1973).

Description of the Vegetation

The majority of the 10.35-acre site is actively in use and supports warehouses surrounded by pavement. Ruderal or weedy roadside vegetation is found on the unpaved areas and soil and rubble piles scattered throughout the site. Swollen fingergrass (Chloris barbata), bristly foxtail (Setaria verticillata), Spanish needle or beggar's tick (Bidens pilosa), and Trianthema portulacastrum are the most abundant components of the vegetation. Other species occurring here occasionally include wiregrass (Eleusine indica), spiny amaranth (Amaranthus spinosus), field bindweed (Ipomoea obscura), castor bean (Ricinus communis), hairy merremia (Merremia aegyptia), etc. Woody components are few and include a kiawe sapling (Prosopis pallida), koa haole shrubs (Leucaena leucocephala), and 'opiuma (Pithecellobium dulce) and Chinese banyan (Ficus microcarpa) trees.

Landscape plantings are found next to Kalihi Stream and a large cargo facility building. A medium-sized tiger's claw tree (Erythrina variegata) and smaller trees of kumquat (Fortunella japonica), a Citrus species, and chicle (Manilkara zapota) are found here. A garden supports plantings of banana (Musa X paradisiaca), chili peppers (Capsicum annum cultivars), ti leaf (Cordyline fruticosa), eggplant (Solanum melongena), etc.

The banks of Kalihi Stream, which border one side of the property, are well-defined. No wetlands occur on the property. The vegetation is dominated by weedy species such as Trianthema, Spanish needle, Guinea grass (Panicum maximum), castor bean, lion's ear (Leonotis nepetifolia), and false mallow (Malvastrum coromandelianum). A few wetland indicator species (Reed 1997) occur here, but occupy less than 10 percent of the total plant cover; these are barnyard rice (Echinochloa crus-galli), umbrella sedge (Cyperus involucratus, formerly C. alternifolius), water hyssop (Bacopa monnieri), and kipukai (Heliotropium curassavicum). Soils along the stream are fill land; broken concrete slabs and pilings, gravel, old asphalt, rusted metal, glass, etc. are commonly encountered.

Discussion

The vegetation on the 10.35-acre project site is composed almost exclusively of introduced, weedy species common to disturbed areas throughout the islands. Two native species are found along the stream. These are the water hyssop (Bacopa monnieri) and kipukai (Heliotropium curassavicum); both are indigenous, that is, they are native to Hawai'i and elsewhere. None of the plants observed on the parcel are threatened and endangered species or species of

concern (U.S. Fish and Wildlife Service 1999a, 1999b; Wagner et al. 1999). No trees on the City and County's list of exceptional trees occur on the site (Ord. 79-91, 81-32).

Kalihi Stream is well-defined by its high banks. There are no overflow areas where water is ponded and supports wetland vegetation, wetland hydrology, and hydric soils.

Given these findings, the proposed project is not expected to have a significant negative impact on the botanical resources. There are no botanical reasons to impose any restrictions, conditions, or impediments to the proposed use of the site.

Please do not hesitate to contact me should you have any questions regarding the report.

Sincerely,

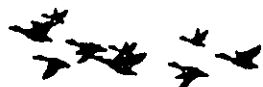

Winona P. Char

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Appendix F

**Wildlife Survey
Tim J. Ohashi**



**Wildlife Survey
Middle Street Transit Center
Kalihi, Oahu, Hawaii**

**Prepared for:
Kimura International, Inc.
1600 Kapiolani Blvd., Ste. 1610
Honolulu, Hawaii 96814**

**Prepared by:
Tim J. Ohashi
Certified Wildlife Biologist
P.O. Box 786
Volcano, Hawaii 96785**

June 15, 2002

1.0 Introduction

A field survey was conducted on December 22, 2001 to assess the wildlife resources found on 4.188 ha (10.35 acres) of the proposed site for the expansion of the Middle Street Transit Center in Kalihi, Oahu, Hawaii. The objectives of the survey were to provide a brief record of wildlife on and adjacent to the site and to determine whether the project would adversely impact any important wildlife resources in the area.

2.0 Study Area

The project site is located along Kalihi Stream, within the apex of the intersection of two major traffic corridors, Kamehameha Highway and Middle Street (Figure 1). The site is about 3 m (10 ft) above msl and within 450 m (0.28 mi) of the Keehi Lagoon. The site falls within Ripperton and Hosaka's (1942) vegetation zone B which is characterized by annual rainfall of 25.4-50.8 cm (20-40 in) with a southwest origin. Kalihi Stream is adjacent to the project site and is about 15 m wide and channelized along the site (Figure 2). It appeared that vegetation clearing along the stream embankment was a regular occurrence. There were castor bean (*Ricinus communis*) shrubs, weeds such as spiny amaranth (*Amaranthus spinosus*) and swollen finger grass (*Chloris barbata*), and a milo (*Thespesia populnea*) tree along the bank. The stream in this location is classified as riverine, tidal, unconsolidated bottom, (RIUB) according to the wetland classification system developed by (Cowardin et al. 1979). The flow of water is perennial.

The site and surrounding area is highly urbanized, with industrial and commercial use. The project site is being used as a truck and heavy equipment depot (Figure 3). Virtually no vegetation other than wayside weeds and an opiuma tree (*Pithecellobium dulce*) were on site.

3.0 Method

A brief assessment of the site was made beginning at 10:10 hrs. and ending at 10:40 hrs. The site and adjacent Kalihi Stream canal were covered on foot. All wildlife seen were recorded.

4.0 Results and Discussions

Non-native birds, common to the lowlands of Oahu, were found at the site. The birds identified during the site visit are listed below in taxonomic order as presented in Pratt et al. (1987) The number following the species is the number of individuals counted on site and along the stream canal.

Black crowned night heron (*Nycticorax nycticorax*) 1
Lesser golden plover (*Pluvialis dominica*) 1
Spotted dove (*Streptopelia chinensis*) 3
Zebra dove (*Geopelia striata*) 14
Red vented bulbul (*Pnycnonotus cafer*) 1
Common myna (*Acridotheres tristis*) 5
Japanese white eye (*Zosterops japonicus*) 5
House sparrow (*Passer domesticus*) 3

The black-crowned night heron is indigenous, but it was not observed on the project site. It occurred in the stream canal about 150 m north of the site. The lesser golden plover was observed flying over the project site toward the shoreline. Most of the zebra doves were feeding along the stream bank. The remaining birds were found in the opiuma tree on site.

One feral cat (*Felis catus*) was seen. No mongoose (*Herpestes auropunctatus*), rats (*Rattus* spp) or mice (*Mus musculus*) were observed but they are also expected in the area.

5.0 Conclusion and Summary

The terrestrial habitat is not suitable for native forest birds. There are no native trees. The stream channel is regularly maintained for flood control and provides little habitat for waterbirds, although one black-crowned night heron was seen in the stream canal north of the site, and more could use the stream at night. Based on the survey results, the action to expand the transit center to the project site, will not likely adversely impact any native species or species of concern nor any threatened or endangered species.

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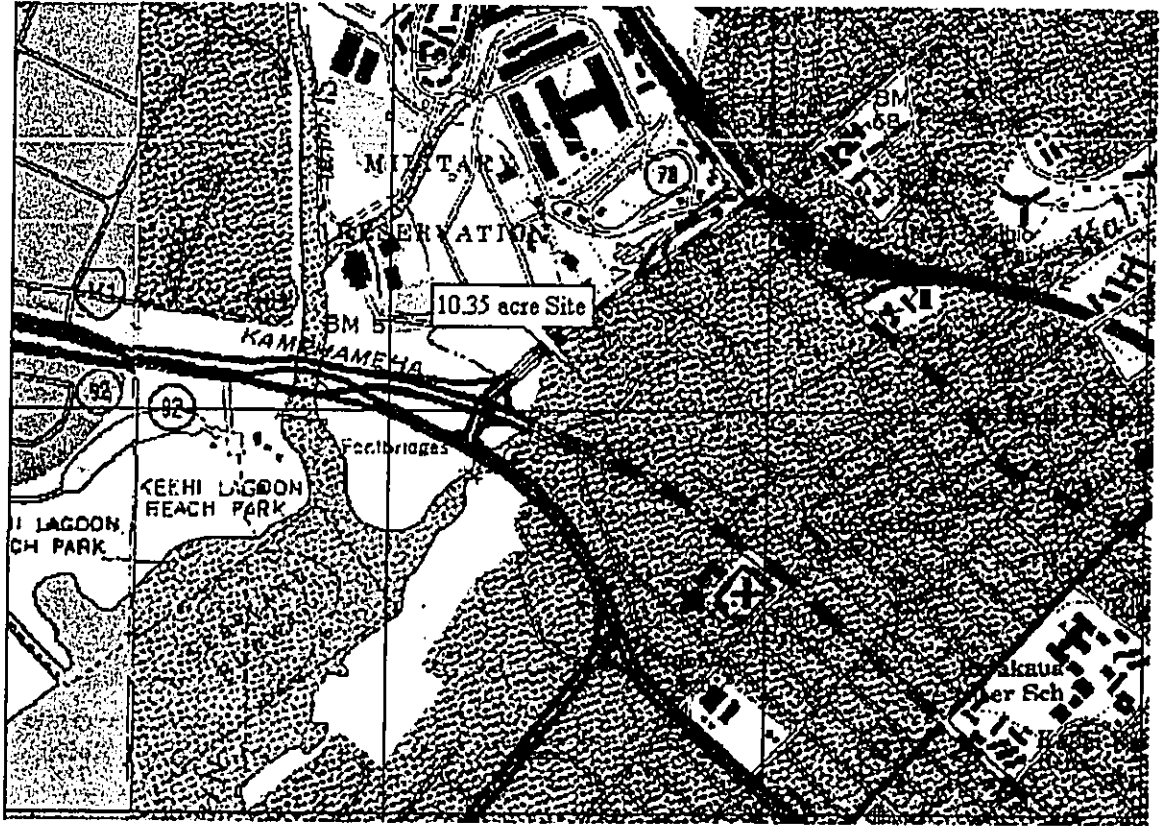


Figure 1 Location of Middle Street Transit Center Expansion, Kalihi, Oahu, Hawaii. Scale 1:24,000



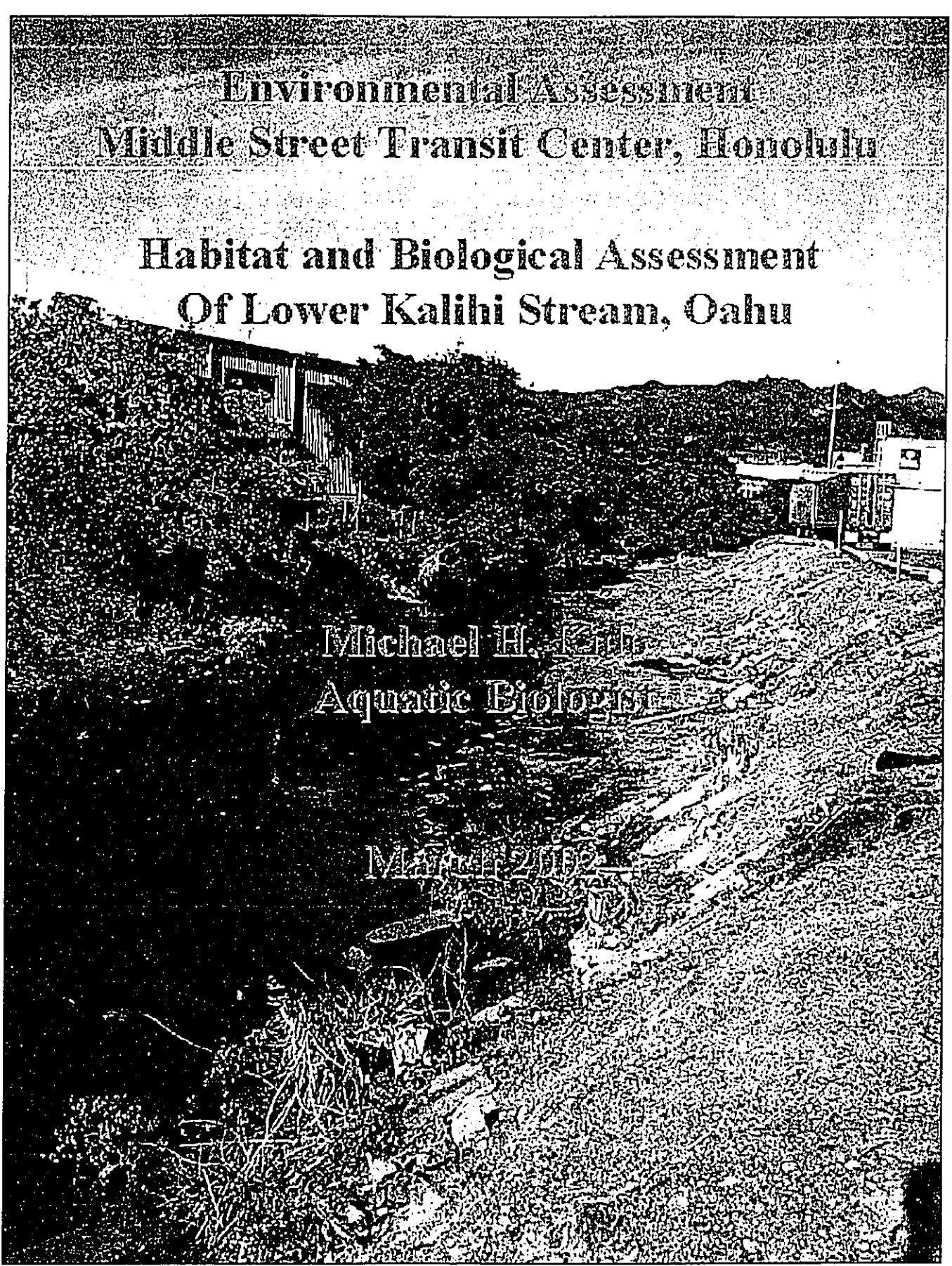
Figure 2 Kalihi Stream canal facing south, project site is the right midground showing gravel pile and heavy equipment. Note channelization of stream and absence of riparian vegetation, Kalihi, Oahu, Hawaii. December 2001



Figure 3 The site of Middle Street Transit Center expansion project is currently a truck depot with little or no wildlife habitat. Kalihi, Oahu, Hawaii. December 2001

Appendix G

Habitat and Biological Assessment of Lower Kalihi Stream, Oahu
Michael H. Kido



Environmental Assessment
Middle Street Transit Center, Honolulu

Habitat and Biological Assessment
Of Lower Kalihi Stream, Oahu

Michael H. Kohn
Aquatic Biologist

March 2009

**Middle Street Transit Center Environmental Assessment:
Potential Impacts to Lower Kalihi Stream Biota**

Michael H. Kido

EXECUTIVE SUMMARY

The City and County of Honolulu proposes to expand their existing Kalihi-Palama bus center (14 acres) into an adjacent makai 10.35 acre parcel to develop a major transportation center and mixed-use complex on the property. As part of the Environmental Assessment for the project, this study was focused on evaluating habitat condition and biological integrity of a segment of lower Kalihi Stream which flows directly adjacent (eastern side) to the existing City bus center so as to identify potential environmental impacts related to the proposed development.

As a result of this study, Lower Kalihi Stream on leeward Oahu joins an expanding list of biologically "Impaired" streams and or stream segments located in urbanized areas of the State of Hawaii. The segment of lower Kalihi Stream studied and potentially impacted by the proposed development has the distinction of exhibiting some of the worst habitat (24.8 % of reference) of any Hawaiian stream system thus far studied. The most obvious problems in the habitat were related to the near complete removal of a vegetative riparian zone, heavy siltation of the stream bottom, large volumes of trash in / around the stream and the extreme modification of banks / stream channel. Despite these shortcomings, no less than four native fish and invertebrate species were found in the site no doubt due in large part to its proximity to the ocean as most of these were estuarine species. Closeness to the ocean appears to be a significant factor buffering a total loss of biological integrity from the stream as evidenced by the 30.9 % of reference rating obtained through application of the Hawaii Stream Bioassessment Protocol. Given the highly degraded state of habitat it is unlikely that any recovery of the stream-related elements of biotic integrity will take place in the foreseeable future. The situation is compounded by the severe impairment of ecological function detected in the site with key functional elements supporting primary algal and secondary invertebrate production (e.g. natural rock substrate, riparian buffers, mix of algal species, etc.) missing or severely altered.

Given the high level of impairment of habitat and biological integrity determined in the segment of lower Kalihi Stream adjacent to the proposed development site, it is unlikely that "responsible" construction activities undertaken in the proposed development project will have any appreciable impact on the aquatic biota. The term "responsible" implies that certain "common sense" restrictions / guidelines are followed, which will provide for eliminating as much as is practicable any deposition of sediment, construction materials, chemicals, or other foreign materials into the stream both during and after completion of the project. In addition, the landowners have an excellent opportunity as a result of this Project to improve habitat / biotic integrity in the stream site over the long term, through the removal of existing stockpiles of trash and junk in and around the stream and through the establishment of a permanent vegetated riparian buffered strip between commercial areas and the stream environment.

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**A Habitat and Biological Assessment of Lower Kalihi Stream, Oahu:
Middle Street Transit Center Environmental Assessment**

Michael H. Kido

PROJECT BACKGROUND

The City and County of Honolulu proposes to expand their existing Kalihi-Palama bus center (14 acres) into an adjacent makai 10.35 acre parcel to develop a major transportation center and mixed-use complex on the property (Fig. 1). Lower Kalihi Stream flows directly adjacent (eastern side) to the existing City Bus Center and the proposed expansion site entering Keehi Lagoon just makai of Kam Highway (Fig. 1) (Photo1). As part of the Environmental Assessment for the project, this study was focused on evaluating habitat condition / biological integrity of stream and riparian areas of this segment of lower Kalihi Stream so as to identify potential environmental impacts of the development on the stream's biota and ecological function.

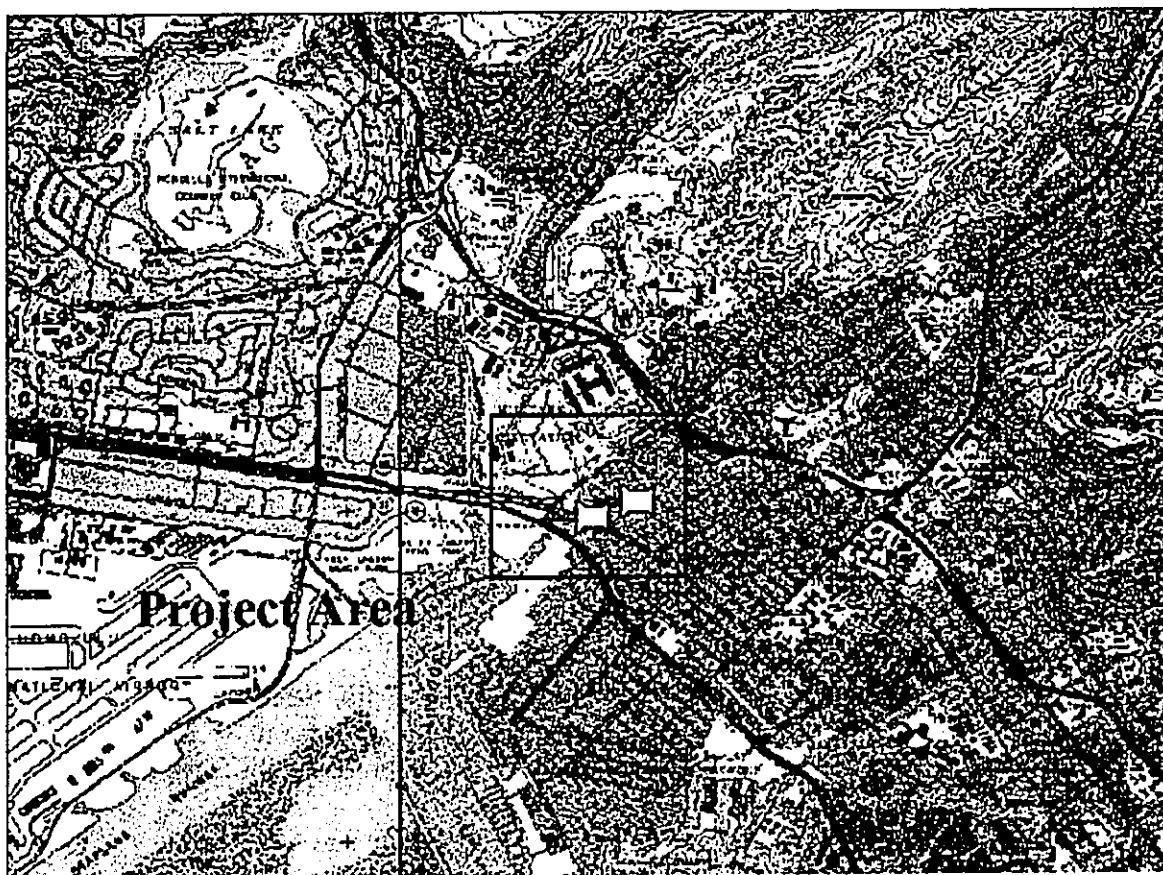


Figure 1. Project area in Honolulu near N. King and Kam Hwy adjacent to lower Kalihi Stream.

Previous Studies on Kalihi Stream

Timbol and Maciolek (1978) probably surveyed this lower segment of Kalihi Stream as part of the 1978 Statewide Inventory of Streams as their protocol was generally to sample near stream mouths. At the time, they determined Kalihi Stream to be continuously

flowing, channelized with at least one diversion withdrawing water, and rated it as having "low environmental and biological quality" with potential restrictions for health and safety reasons. The Hawaii Stream Assessment (1990), which compiled available biological information for streams, rated Kalihi Stream as having "Moderate" levels of biological resources with four native estuarine species reported in addition to the native 'o'opu-nakea (*Awaous guamensis*). Five introduced aquatic species (not specified) were also reported in the HSA (1990) and all observations were from unspecified surveys conducted in 1989.

MATERIALS AND METHODS

Scope of Work and Project Objectives

The primary purpose of this study was to conduct a habitat and biological assessment of lower Kalihi Stream reaches adjacent to the development area using the Hawaii Stream Bioassessment Protocol (HSBP) (Kido 2002). The HSBP evaluates the "health" or "biological integrity" of the stream as well as the condition of the habitat. In lower Kalihi Stream, the objectives of the assessment would be to:

1. Develop a species list of fish, macroinvertebrates, and macroalgae inhabiting the stream system;
2. Evaluate and compare condition and species composition of the riparian area adjacent to the study stream reach;
3. Assess stream habitat quality in the study reach;
4. Evaluate the "biotic integrity" of the stream environment as compared to Hawaiian stream "reference" standards;
5. Evaluate the relative level of instream primary and secondary productivity.

Based upon these data an evaluation of potential impacts of the development project was made and recommendations for mitigative and remediation actions were suggested.

The Hawaii Stream Bioassessment Protocol (HSBP) (Version 3.01)

Evaluations of stream habitat and biological quality at study sites on a scale from "Excellent" to "Very Poor", provides valuable information useful in evaluating impact or change in condition over time. The Hawaii Stream Bioassessment Protocol (HSBP) (Version 2.01) (Kido 2002) was developed especially for this purpose and used in this study. The HSBP is a "first generation" methodology for assessment and monitoring of Hawaiian streams utilizing a standardized "multimetric" approach (e.g. Karr 1981). The HSBP evaluates both habitat and biological quality of the study stream reach. Protocols used in the study involve biological sampling of streams to score ten "metrics" (or measures) which provide ecological insight from the individual, population, and community levels of organization for the native macrofauna (Table 1). The raw data was then used to calculate the Hawaii Stream Index of Biotic Integrity (HS-IBI) which rates biological quality in comparison to reference Hawaiian stream conditions on a scale from 0 % (< 39 % is impaired) to 100 % (Excellent) (Table 2).

Table 1. Native Hawaiian stream macrofaunal assemblage.

Taxa	Hawaiian Name	Status
Teleostei; Perciformes; Gobioidei		
Eleotridae - <i>Eleotris sandwicensis</i>	'o'opu-akupa	endemic
Gobiidae - <i>Awaous guamensis</i>	'o'opu-nakea	indigenous
<i>Lentipes concolor</i>	'o'opu-alamo'o	endemic
<i>Sicyopterus stimpsoni</i>	'o'opu-nopili	endemic
<i>Stenogobius hawaiiensis</i>	'o'opu-naniha	endemic
Arthropoda; Crustacea; Decapoda;		
Atyidae - <i>Atyoida bisulcata</i>	'opae-kala'ole	endemic
Palaemonidae - <i>Macrobrachium grandimanus</i>	'opae-oeha'a	endemic
Mollusca; Gastropoda; Neritidae		
<i>Neritina granosa</i>	hihiwai	endemic
<i>Theodoxus vespertinus</i>	hapawai	endemic
<i>Theodoxus cariosus</i>	hapawai	endemic

Table 2. HS-IBI ratings, integrity classes, and class attributes.

HS-IBI Score as % of Reference	Integrity Class	Attributes
90 - 100 %	Excellent	Comparable to reference conditions with minimal human disturbance; all expected native macrofauna present with alien <i>M. lar</i> either absent or in very low numbers; robust 'o'opu populations meeting density and size-class expectations including those for sensitive 'o'opu species (i.e. 'o'opu-nopili and/or 'o'opu-alamo'o); no disease or parasites observed on 'o'opu species.
79 - 89 %	Good	All expected native macrofauna present; Alien <i>M. lar</i> present but in low proportionate abundance (< 10 %) compared to natives; total expected 'o'opu population densities generally attained but sensitive 'o'opu densities and/or size classes may be somewhat below expectations; < 1 % of 'o'opu individuals with external symptoms of disease but no incidence of external leeches.
69 - 78 %	Fair	Most expected native macrofaunal species present; Alien <i>M. lar</i> present in substantial proportionate abundance (> 10 %) compared to natives; total 'o'opu population and sensitive species densities / size classes below expectations; < 2 % of 'o'opu individuals with external symptoms of disease but no incidence of external leeches.
59 - 68 %	Poor	Few expected native macrofaunal species present; Alien <i>M. lar</i> as or more abundant than native species but other alien species absent or rare; total 'o'opu population and sensitive species densities / size classes well below expectations; < 10 % of 'o'opu individuals with external symptoms of disease but no incidence of external leeches.
40 - 58 %	Very Poor	Only one or two expected native macrofaunal species present and if present in very low abundance; Alien aquatic species dominate the community and may include tolerant fish species (e.g. Poeciliidae); between 2 % - 10 % of 'o'opu individuals with external symptoms of disease and / or incidence of external leeches.
< 39 %	Impaired	Native aquatic macrofaunal species absent; Only alien species present including <i>M. lar</i> and tolerant fish species; > 11 % of 'o'opu individuals with external symptoms of disease and / or attached leeches.

Table 3. Habitat metrics for the HSBP (*FPOM / CPOM = fine/coarse particulate organic matter).

Metric	Optimal	Suboptimal	Marginal	Poor
1. Habitat Availability	≥ 80% of eleven possible habitat types present for slope gradient type (low, med, high)	51% - 79% of eleven possible habitat types present	26% - 30% of eleven possible habitat types present	≤ 25% of eleven possible habitat types present
Points	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Substrate Embeddedness	Gravel, cobble, and boulder particles 0% - 10 % surrounded by fine sediment	Gravel, cobble, and boulder particles 11% - 25 % surrounded by fine sediment	Gravel, cobble, and boulder particles 26% - 74 % surrounded by fine sediment	Gravel, cobble, and boulder particles ≥ 75% surrounded by fine sediment
Points	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. FPOM / CPOM Characterization	FPOM / CPOM localized covering ≤ 10% of sq m quadrat	FPOM / CPOM obvious covering 11% - 25% of sq m quadrat	FPOM / CPOM widespread covering 26% - 50% of sq m quadrat	FPOM / CPOM dominant covering ≥ 51% of sq m quadrat
Points	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Velocity-Depth Combinations	≥ 80% of seven possible flow regimes present for slope gradient type (low, med, high)	51% - 79% of seven possible flow regimes present	26% - 30% of seven possible flow regimes present	≤ 25% of seven possible flow regimes present
Points	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Status	Ratio of stream width to bank-full width ≥ 80 %	Ratio of stream width to bank-full width 79% - 65%	Ratio of stream width to bank-full width 64% - 50%	Ratio of stream width to bank-full width ≤ 49%
Points	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	≤ 8 % of channel altered	10% - 23% of channel altered	24% - 44% of channel altered	≥ 45% of channel altered
Points	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Bank Stability	≤ 8 % of stream bank unstable	10% - 23% of bank unstable	24% - 44% of bank unstable	≥ 45% of bank unstable
Points	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Riparian Vegetation Zone Width	≥ 80% of riparian zone covered by trees/shrubs	51% - 79% of riparian zone covered by trees/shrubs	26% - 30% of riparian zone covered by trees/shrubs	≤ 25% of riparian zone covered by trees/shrubs
Points	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
9. Percent Riparian Understory Coverage	≥ 80% of riparian zone covered by understory plants	51% - 79% of riparian zone covered by understory plants	26% - 30% of riparian zone covered by understory plants	≤ 25% of riparian zone covered by understory plants
Points	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
10. Boulder / Cobble vs. Soil Presence	Boulder / Cobble substrate dominant feature of streambed; 0 % to 10 % of bottom affected by soil deposition	Boulder / Cobble substrate common feature of streambed; 11 % to 25 % of bottom affected by soil deposition	Boulder / Cobble substrate marginal feature of streambed; 27% to 50 % of bottom affected by soil deposition	Boulder / Cobble substrate rare feature of streambed; greater than 51 % of bottom affected by soil deposition
Points	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

The HSBP also evaluates stream habitat quality for various characteristics which support communities of native aquatic organisms such as riparian zones, the vegetated areas adjacent to streams, because of their ability to buffer the stream environment from land-based degradation (Table 3). Ten physical habitat metrics are scored in the protocol and rated according to a percentage scale (i.e. 0 % to 100 %) similar to that of the HS-IBI which rates habitat quality as compared to reference from Excellent to Poor.

Study Site Physiognomy and Benthic Sampling Protocol

As specified in the HSBP 3.01 (Kido 2002), each study reach was divided into four flagged quadrants in which length / width, slope gradient, and sinuosity (a measure of extent of channel meandering) were measured using an electronic distance measurer (Sonin Combo Pro), clinometer (Suunto Co.), and compass (Suunto KB-14) respectively. Within each quadrant, stream and riparian habitat were assessed using the ten metrics detailed in Table 3. The extent of canopy cover over the stream by riparian tree species as well as their relative abundance was sampled using a randomly located grid of cross-sectional vertical observations made using a densiometer (GRS Densiometer). As described earlier, stream flow at each study site was measured using cross-sectional width / depth measurements and instantaneous velocity readings taken with an electronic flow meter and top-setting wading rod (Swoffer Co. Model 2100).

Although not a formal component of the HSBP, standing biomass of algae and invertebrates on the stream bottom of the study sites were sampled using a Surber net (0.09 sq m area) and randomly selected cobble (estimated surface area) as described in Kido (1997a). These data provide ecological information on the availability of foods for supporting stream food webs as well on the biodiversity of aquatic invertebrates, algae, and mosses. In the laboratory samples were sorted and plants / invertebrates identified to the lowest possible taxonomic category. Invertebrate species were dried and weighed to the nearest 0.01 g while the algal portions were dried / ashed to yield data reported in g AFDW. Estimates of surface area from rocks and Surber scrapes were used to calculate standing biomass densities (biomass g / sq m).

RESULTS AND DISCUSSION

Hawaii Stream Index of Biological Integrity (HS-IBI) Assessment

The segment of lower Kalihi Stream adjacent to the Project Area was found to be "impaired" from a biological integrity perspective (Fig. 2). Although the study site was dominated in overall numbers and total biomass by alien poeciliid fishes (Family Poeciliidae) (primarily swordtails [*Xiphophorus helleri*] (Table 4, 5), three native species were found to be present albeit in very small numbers. The close proximity of the ocean to the study site was evidenced by the presence of expected estuarine native species including the fishes 'o'opu-akupa (*Eleotris sandwicensis*) and aholehole (*Kuhlia sandwicensis*), as well as the small, dark Hawaiian prawn the 'opae oeha'a (*Macrobrachium grandimanus*) and the brackish water snail, the hapawi (*Theodoxus vespertinus*) (Table 4). However, as indicated native species presence in this short segment of lower Kalihi Stream was minimal and completely overshadowed by the very large biomass of alien poeciliid fishes in the stream. As compared to biotic expectations in reference Hawaiian streams, then, lower Kalihi stream scored very poorly on all

metrics evaluating population and community characteristics that are sensitive to human-induced disturbance (Table 5). These bioassessment data indicated that the stream's biological integrity (as determined by the HSBP) had been compromised or "impaired" by human influence and activity acting on the surrounding landscape over time.

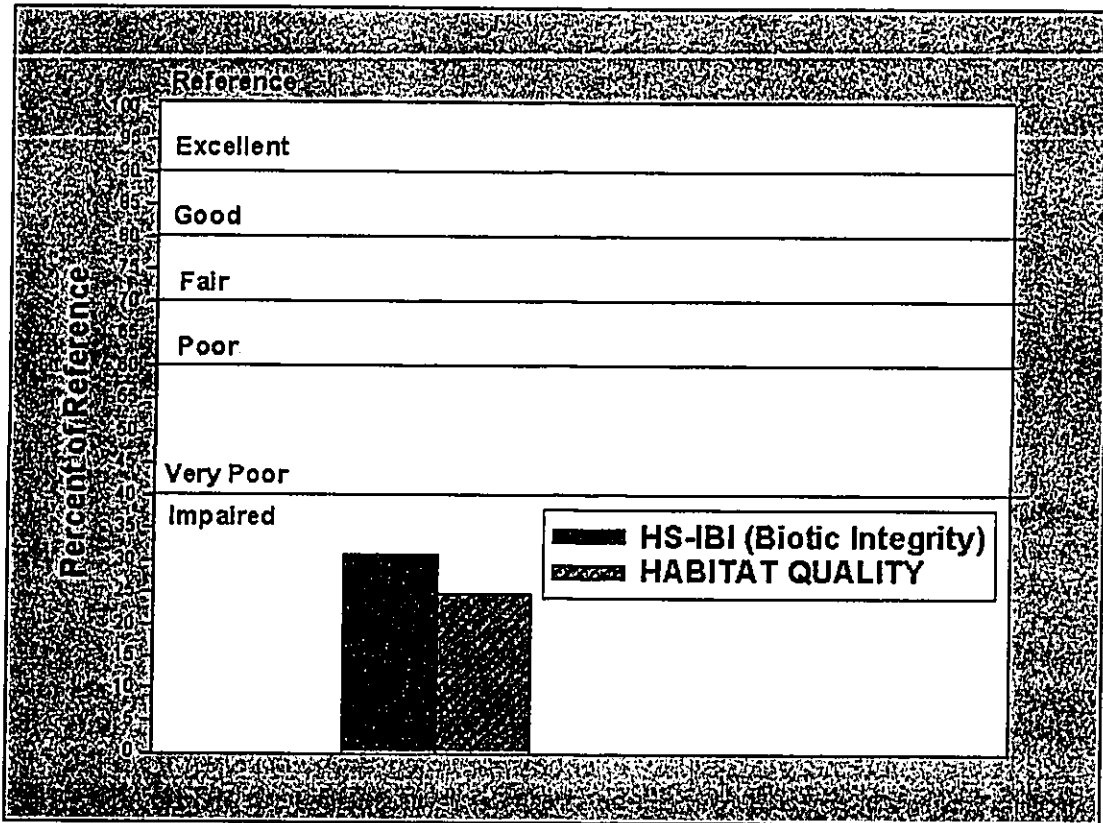


Figure 2. HSBP ratings for study site on lower Kalihi Stream adjacent to development area.

Table 4. Species list of fish and macroinvertebrates collected in lower Kalihi Stream.

TAXA (Native species)	Lower Kalihi Stream
Fishes: Teleostei: Perciformes	
<i>Eleotris sandwicensis</i> (ʻoʻopi-ʻakupa) (Eleotridae)	X
<i>Kuhlia sandwicensis</i> (aholehole) (Kuhliidae)	X
Poeciliidae: <i>Poecilia reticulata</i> (guppies)	X
<i>Xiphophorus helleri</i> (swordtails)	X
Invertebrates	
Arthropoda: Crustacea: Decapoda:	
Palaemonidae: <i>Macrobrachium</i> lar (Tahitian prawn)	X
<i>Macrobrachium grandimanus</i>	X
Mollusca: Gastropoda:	
<i>Thiara granifera</i> (Thiaridae)	X
<i>Theodoxus vesperinus</i> (Neritidae)	

Table 5. Scores for HS-IBI metrics obtained from HSBP application in lower Kalihi Stream.

METRIC	HS-IBI Score	
	Value	Points
1. Number of native amphidromous macrofauna (SNAM)	3	3.0
2. Percent Contribution Native Taxa (PNT)	0	1.0
3. Percent Sensitive Native Fish (SNF)	0	1.0
4. Sensitive Native Fish Density (fish sq m ⁻²)	0	1.0
5. Sensitive Native Fish Size (% ≥ 6.0 cm)	0	1.0
6. <i>Apoqus guamensis</i> Size (% ≥ 8.0 cm)	0	1.0
7. Total Native Fish Density (fish sq m ⁻²)	0	1.0
8. Community Weighted Average (CWA)	>9	1.0
9. Number of Alien Taxa (NAT)	3	3.0
10. Percent Tolerant Alien Fish	75%	1.0
11. Percent Diseased Fish	NA	3.0
Maximum Possible Points = 55	Total Points	17.0
HS-IBI Score (% of Reference)	30.9%	

¹ Sensitive species are 'o'opu-alamo'o and 'o'opi-nopili; total no. individuals / total no. fish only

² Either 'o'opu-alamo'o or 'o'opi-nopili (whichever is in highest density) but not both.

³ Excluding post-larval size-classes (≤ 3.0 cm TL).

HSBP Habitat Assessment

Based upon a physical assessment of the study site on a scale from 0 – 100 %, overall stream habitat quality for lower Kalihi Stream was scored by the HSBP as being “Impaired” (24.8 %) (Fig. 5, Table 6). The site scored moderately well in terms of expected availability of physical instream flow-related microhabitat for aquatic organisms (i.e. riffles, pools, runs, etc.) (Metric 1) as well as for the expected ranges in stream flow patterns, velocities, and depths (Metric 4). However, habitat in the study site scored very poorly in terms of its ability to control sedimentation occurring from the watershed and adjacent riparian zone as the streambed was excessively overloaded with fine soil / detritus which buried most of the natural rock substrate (Metrics 2,10) (Photo 2). Not surprisingly for an industrial area, a vegetated riparian zone was nearly completely absent from the site with both banks being heavily graded with little or no trees and / or understory planted for buffering or soil stabilization (Metrics 8,9) (Photo 1,2). While the stream channel was not observed to be concrete-lined (Metric 6) in this

Table 6. Scores for habitat metrics obtained from HSBP application in Lower Kalihi Stream.

METRIC	Habitat Score	
	% Score	Points
1. Habitat Availability	58.3%	10.5
2. Embeddedness	2.0%	1.0
3. FPOM / CPOM Characterization	10.0%	2.0
4. Velocity-Depth Combinations	56.3%	11.0
5. Channel Status	15.0%	3.0
6. Channel Alteration	50%	20.0
7. Bank Stability	90.0%	1.0
8. Riparian Zone Width	0%	0
9. Riparian Understory	0%	0
10. Boulder / Cobble vs. Soil Characterization	5.0%	1.0
Maximum Possible Points = 200	Total Points	49.5
HS-IBI Score (% of Reference)	24.8%	

portion of the stream, widening by bulldozer for flood control purposes was apparent and the resulting artificial banks were highly unstable and no doubt a chronic source of stream sediment during rainy periods (Metric 7) (Photo 3).

Stream Flow Characteristics

Lower Kalihi Stream was found to be a relatively wide (mean width = 3.95 m) but shallow stream (mean depth = 0.128 m) which appears to flow with fairly robust volume (mean flow = 5.86 cfs {3.785 MGD}) and velocity (mean velocity = 0.545 ft sec⁻¹) at least during the wet season when these data were collected (Table 7). As a general comparison, Hi'ilawe stream in Waipio Valley (Hawaii Island) had a measured mean flow of nearly twice that of lower Kalihi Stream measured at a similar elevation (mean flow = 9.87 ± 0.733 cfs) (Kido 2001). It is difficult, however, to ascertain how "normal" or representative these flow data are as it is not known if Kalihi Stream is still diverted in its higher reaches or how significantly flow inputs from impervious surfaces in developed areas of the watershed affect its long-term hydrology.

Table 7. Water quality / stream flow characteristics of bioassessment sites in Kalihi Stream.

Flow Characteristics	Lower Kalihi Stream
Channel Width (m)	3.95
Gross section area (m ²)	0.509
Mean Depth (m)	0.128
Wetted Perimeter (m)	4.156
Hydraulic Radius	0.122
Flow Volume (cfs / cms / mgd)	5.860 / 0.080 / 3.785
Flow Velocity (ft/s / m/s)	0.545 / 0.166

Primary Algal and Secondary Invertebrate Production

Background

The level of primary production by plant forms in streams is governed by a complex series of interactions between biophysical factors (e.g. hydrology, riparian conditions, species level / biodiversity, etc.) in the watershed upon which is overlaid human-based influences (e.g. water diversion, land-clearing, alien plant introductions, etc.). The abundance level / diversity of plant resources is affected by water quality (e.g. temperature, nutrient availability, etc.) and light which are in turn affected by human activities on the landscape (e.g. watershed condition, riparian zone composition, etc.). The primary factor creating losses in instream plant biomass is disturbance from flooding, abrasion by suspended sediments, substrate instability, and other components related to hydrology (Biggs 1996). Grazing by herbivorous fish and invertebrates can also act to reduce instream plant biomass but to a much lesser degree (Biggs 1996). Invertebrate consumers in streams rely upon a variety of food resources depending upon taxa. Resources include periphyton (e.g. free-living diatoms), macroalgae, and various forms of detritus which encompasses all non-living particulate organic matter (< 0.5 microns) including associated microorganisms (e.g. fungi, bacteria, etc.). Instream plant forms, of course, derive energy from light (i.e. are autotrophic) while detritus is primarily derived from vegetation in riparian zones (i.e. allochthonous-based sources of energy). Most native invertebrates in Hawaiian streams are tied to algae / periphyton (e.g. Kido 1997a) and there are very few that utilize detritus although this subject is not well studied.

Algal Community in Lower Kalihi Stream

Low species diversity coupled with relatively high biomass characterized the algal community of this segment of lower Kalihi Stream. The site was dominated by green algae (Chlorophyta) (Table 8) primarily *Cloniophora plumosa* which was found in high biomass in shallow riffles where rock substrate was available (Fig. 3). Other than *Enteromorpha flexulosa*, a filamentous green alga more common in brackish water habitat in the study site, no other algal species were collected. The absence of blue-green species was quite unusual and perhaps related to the dominance of green species facilitated by a super light-rich environment created by the absence of a riparian zone coupled with extreme reflectance levels from hard structures in the surrounding landscape.

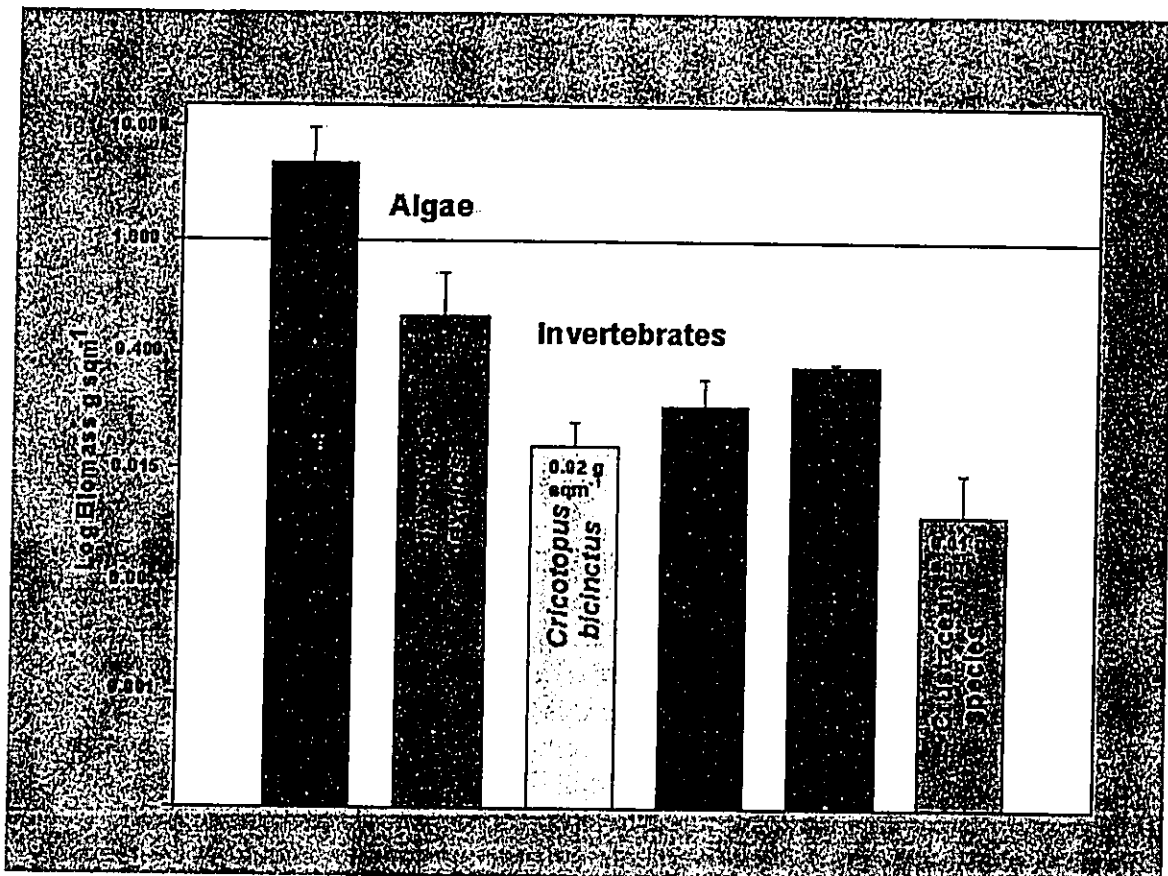


Figure 3. Comparisons of total biomass (g sqm⁻¹) of algae / invertebrates from benthic sampling in lower Kalihi Stream (total values in bars) (plots are on a log scale).

Table 8. Species list and densities (g sqm⁻¹) of algae and microinvertebrate in stream study site.

ALGAL SPECIES (CAEDW sqm ⁻¹)	Grams sqm ⁻¹
Chlorophyta (green algae)	
<i>Cladophora plumose</i> (Cladophoraceae)	4.73 ± 3.601
<i>Enteromorpha flexuosa</i> (Ulvacae)	0.22 ± 0.022
INVERTEBRATE SPECIES (c sqm⁻¹)	
Arthropoda - Insecta - Diptera (flies)	
<i>Cricotopus bicinctus</i> (Chironomidae)	0.02 ± 0.007
Tricoptera (caddisflies)	
<i>Hydropilla arcata</i> (Hydrophilidae)	0.03 ± 0.018
<i>Gheumatopsyche parvula</i> (Hydropsychidae)	0.08 ± 0.004
Unknown crustacean species	± 0.004 ± 0.0003

Invertebrate Community in Lower Kalihi Stream

Invertebrate diversity in the study segment of lower Kalihi Stream was depauperate with only three insect species collected in low total (Fig 3) and average (Table 8) densities. These results were somewhat surprising given the high total biomass of green algae measured in the site. High chlorophyte biomass generally correlates with high biomass of at least the alien swift-water midge *Cricotopus bicinctus* (Chironomidae) (Table 8) which were found in the site but in low abundance. Low abundance measured of the two generally common alien caddisfly species (Tricoptera) (Table 8) in the site was also somewhat unusual. All of the insect species collected in the study site are known sources of food for the native 'o'opu-nakea (*Awaous guamensis*) (Kido et al., 1993) and their low abundance is likely a factor contributing to the absence and/or low densities of this native 'o'opu species in the lower reaches of Kalihi Stream. Added to these disturbances was the degraded instream habitat, likely high levels of point / nonpoint source pollution from urban areas, not to mention the extremely modified nature of the landscape surrounding the stream environment.

key functional elements supporting primary algal and secondary invertebrate production (e.g. natural rock substrate, riparian buffers, mix of algal species, etc.) missing or visibly altered. As indicated earlier these disturbances degraded instream habitat are likely compounded by high levels of point / nonpoint source pollution coming from the active industrial areas and the extremely modified nature of the landscape surrounding the stream environment.

Potential Impacts of Proposed Development

Given the high level of impairment of habitat and biological integrity determined in the segment of lower Kalihi Stream adjacent to the proposed development site, it is unlikely that "responsible" construction activities will have any appreciable impact on the aquatic biota. The term "responsible" implies that certain "common sense" restrictions / guidelines are followed, which include:

1. Attention to eliminating as much as is practicable any deposition of sediment, construction materials, chemicals, or other foreign materials into the stream;
2. Restriction of construction activities away from stream banks; and
3. Development of long- / short-term contingencies and protocols in design and grading of the Project site to restrict chronic non-point / point source pollutants from entering the stream;

In order to improve habitat / biotic integrity in the stream site over the long term, it is recommended that the landowners:

1. Remove organic trash and metal-based junk in and around the stream; and
2. Establish a vegetated riparian buffered strip between industrial areas and the stream to include vegetating all stream banks which are currently exposed down to bare soil.

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APPENDIX – SITE PHOTOS

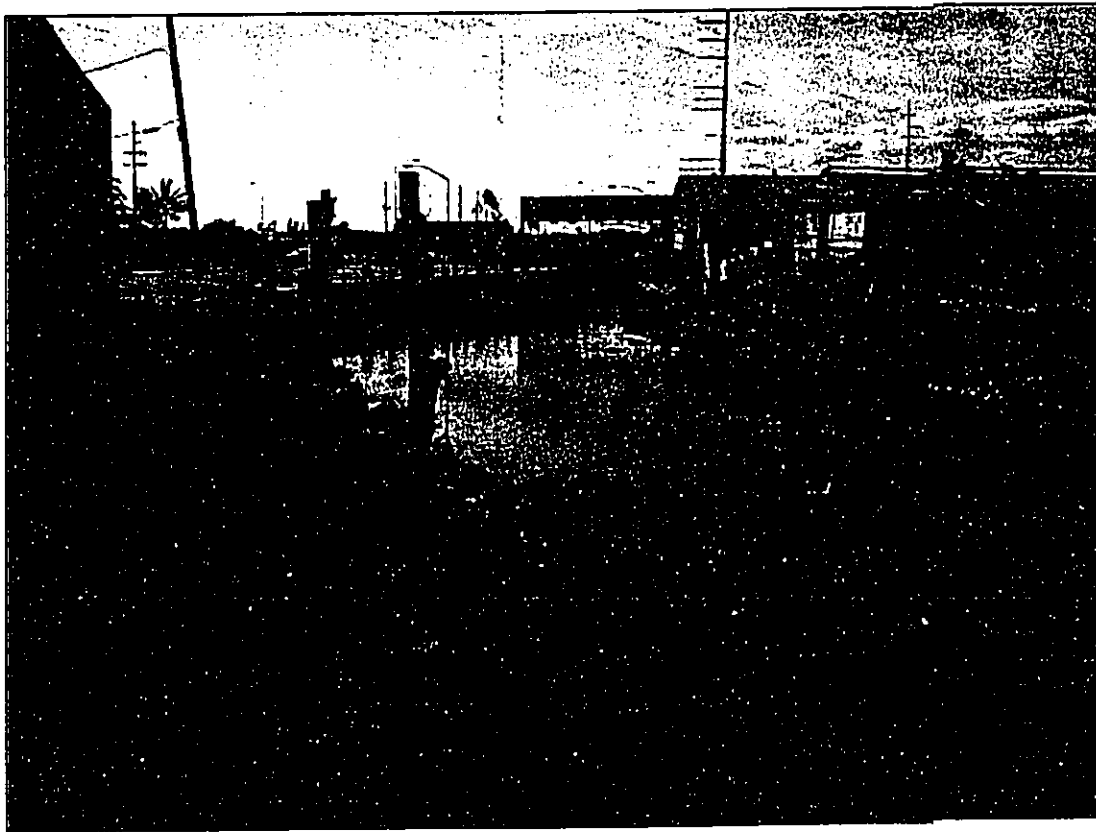


Photo 1. Lower Kalihi Stream at Kam Hwy adjacent to City Bus Center expansion area.

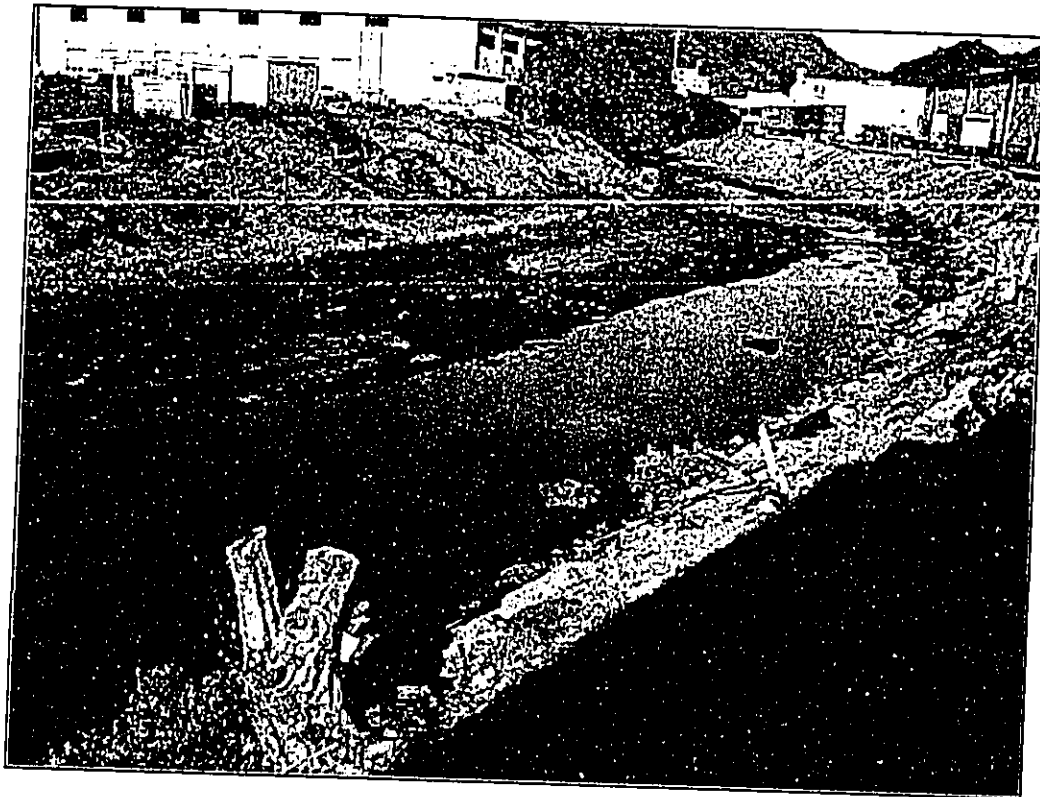


Photo 2. High sedimentation, no riparian zone, and modified banks in study site.

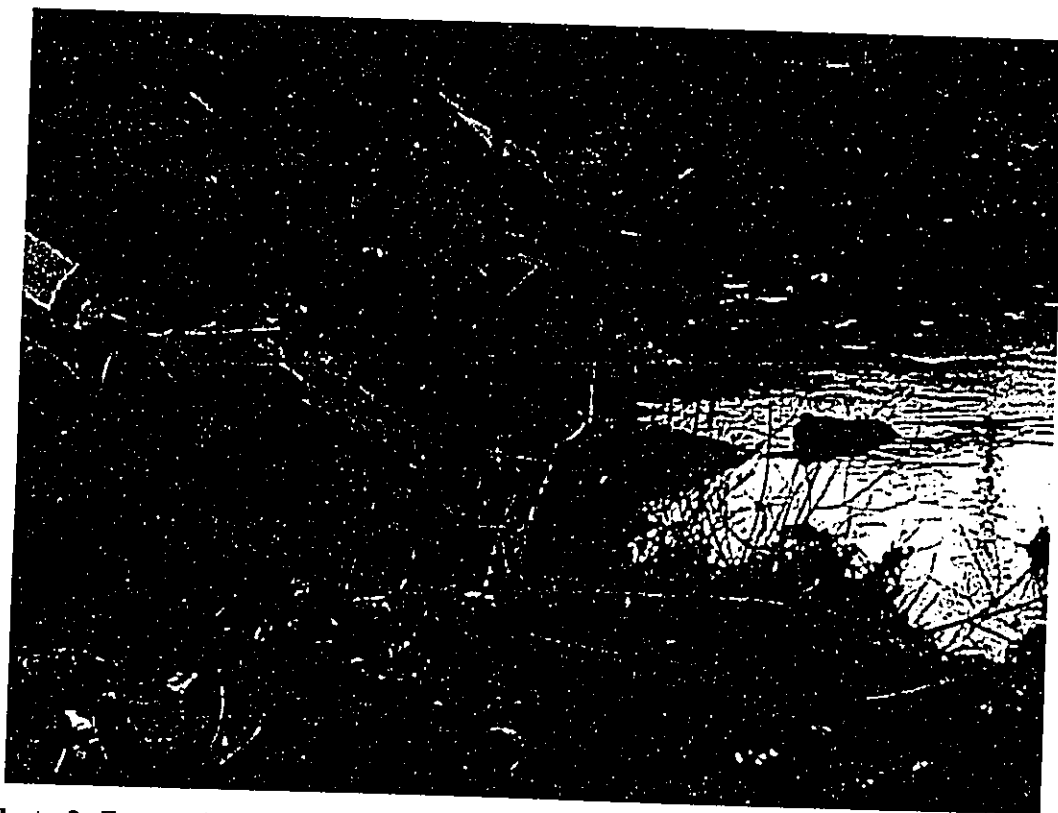


Photo 3. Exposed soil on banks and high volume of trash in Kalihi Stream study site.

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Appendix H

**Archaeological Assessment
Cultural Surveys Hawaii**

**Cultural Impact Assessment
Cultural Surveys Hawaii**

**ARCHAEOLOGICAL ASSESSMENT
OF THE PROPOSED
MIDDLE STREET TRANSIT CENTER
KALIHI AHUPUA'A, KONA DISTRICT, O'AHU
(TMK:1-2-18: 1, 2, 3, 8, 9 & 10)**

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Prepared for
Kimura International, Inc.

Cultural Surveys Hawaii, Inc.

January 2002

ABSTRACT

This report presents the results of an archaeological assessment (literature review and field check) of an approximately 10.35 acre parcel at the northeast corner of Middle Street and Kamehameha Highway (TMK 1-2-18: 1, 2, 3, 8, 9 & 10) situated in Kalihi(kai) *Ahupua`a*, O`ahu. The purpose of this archaeological assessment was to evaluate the potential for historic sites on the parcel, provide mitigation recommendations, and to serve as a sufficient and appropriate background study in support of any archaeological inventory survey. The parcel is bounded by Kalihi Stream, Kamehameha Highway, Middle Street and a Middle Street Bus Unit Repair Facility. Most of the parcel has been previously paved and is now devoted to various light industrial and retail uses. The project area is under consideration of development for a proposed Middle Street Transportation Center.

Review of historic documentation indicates that the immediate vicinity was the locus of traditional Hawaiian irrigated ponded-field systems, fish ponds, salt works, and habitations. In the mid-Nineteenth Century, these land uses continued with the immediate vicinity including Land Commission Awards of relatively important persons of the Hawaiian Kingdom including the *konoiki* Nahinu, and Honolulu Fort Commander George Beckley. George Beckley claimed a small fishpond named "Waikulu" which is understood as entirely within the south central portion of the project area. Whether this fishpond was a simple natural depression or whether it was man-made and actively maintained with some associated infrastructure (*auwai*, *mākāhā*) is unclear. While there was a great deal of Hawaiian activity in the immediate vicinity, we were unable to document any habitations or constructions within the project area *per se* prior to the apparent use of the parcel for animal pens associated with the meat company enterprises of Gilbert F. Waller starting c. the late 1870s. These meat operations (slaughterhouse, stock-yards) continued in the immediate vicinity into modern times.

At an immediately adjacent parcel to the northeast three sets of historic human remains and an associated cultural layer (designated SIHP Site # 50-80-14-4525) were identified. The indicated small graveyard was, however, found to lie in a small discrete area lying about 50 m (175 feet) northeast of the present project area. There was no indication that burials, remnants of a cultural layer or any other significant cultural deposits lay outside of a tightly defined area. The only other germane archaeological work in the vicinity was in the Shafter Flats area approximately one kilometer to the northwest. While no direct archaeological data was recovered in that research, some of the data recovered offered new insights into paleo-environmental change.

The results of historical research and a review of previous archaeological studies indicate no specific historical concerns related to the present project area. This project has, however, been the subject of State Historic Preservation Division Chapter 6E-8 Review which concludes: "We would require that an archaeological inventory survey with subsurface testing be conducted for areas proposed for below grade improvements." On the basis of our research, we believe that this parcel is likely to yield very little in the way of direct archaeological and historical finds. Rather, we recommend that subsurface testing focus primarily on assessing the prospect for the recovery of samples yielding data on paleo-environmental change particularly in the vicinity of the former Waikulu Fishpond.

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I. INTRODUCTION

A. Overview of Project

The Project area encompasses approximately 10.35 acres at the northeast corner of Middle Street and Kamehameha Highway (TMK 1-2-18: 1, 2, 3, 8, 9 & 10) situated in the *ili* of Kaliwa and Kionawawana, Kalihi(kai) *Ahupua`a*, Kona District, Island of O`ahu. It is bounded by Kalihi Stream to the south and east, Kamehameha Highway to the southwest, Middle Street to the west and northwest and a Middle Street Bus Unit Repair Facility to the north (Figure 1-3). The project area is approximately 400 m (1/4 mile) inland from the confluence of Kalihi and Ka-hau-iki streams at the head of Ke`ehi Lagoon and lies at less than 20 feet elevation above sea level. Most of the parcel has been previously paved and is now devoted to various light industrial and retail uses and particularly for the parking of various cars, trucks and equipment (see Appendix B photographs of the project area). The area is under consideration of development for a proposed Middle Street Transportation Center which would involve primarily the development of a parking structure and new Handi-van building for maintenance, operations and administrative functions. Additional retail/public facilities may include a Satellite City Hall, Transit Customer Service Center, meeting rooms, a bank/credit union, day-care and playground, post-office, dry cleaner, restrooms and a landscaped green belt along Kalihi Stream.

This project has previously been the subject of State Historic Preservation Division Chapter 6E-8 Historic Preservation Review (March 12, 2001, LOG NO 27107, Doc No 0103EJ05; Appendix A) which concludes: "We would require that an archaeological inventory survey with subsurface testing be conducted for areas proposed for below grade improvements." The purpose of this archaeological assessment was to evaluate the potential for historic sites on the parcel, provide mitigation recommendations, and to serve as a sufficient and appropriate background study in support of an archaeological inventory survey.

B. Scope of Work

The scope of work, developed in consultation with State Historic Preservation Division of the Department of Land and Natural Resources, the Honolulu Public Transit Authority and the archaeologist is summarized as follows:

1. Historical research to include study of archival sources, historic maps, Land Commission Awards and previous archaeological reports to construct a history of land use and to determine if archaeological sites have been recorded on or near this property.
2. Field inspection of the project area to assess the potential for impact to subsurface sites. This assessment will identify any sensitive areas that may require further investigation or mitigation before the project proceeds.

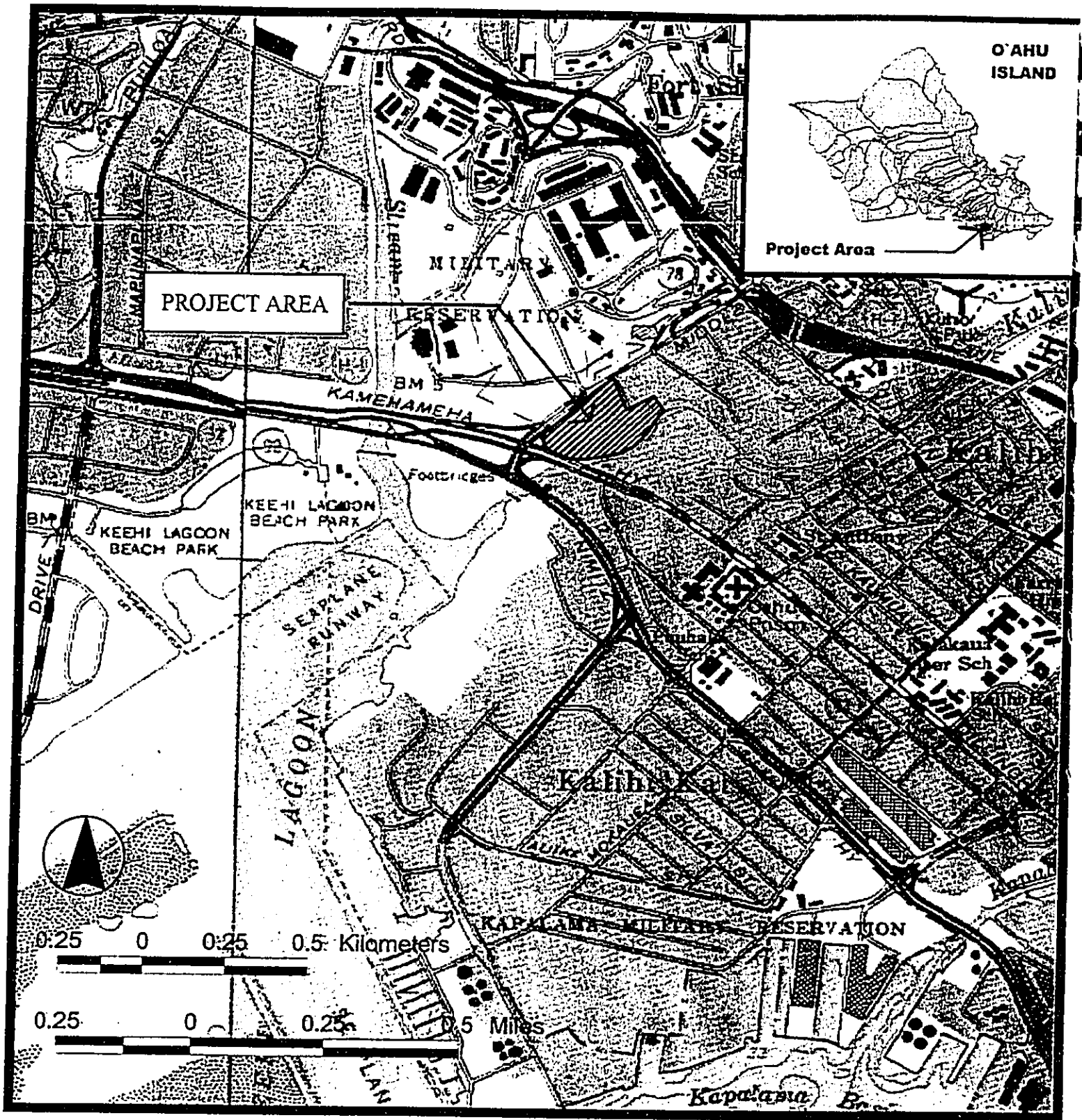


Figure 1 Portion of USGS Topographic Map, 7.5 Minute Series, Honolulu Quadrangle, Showing Project Area

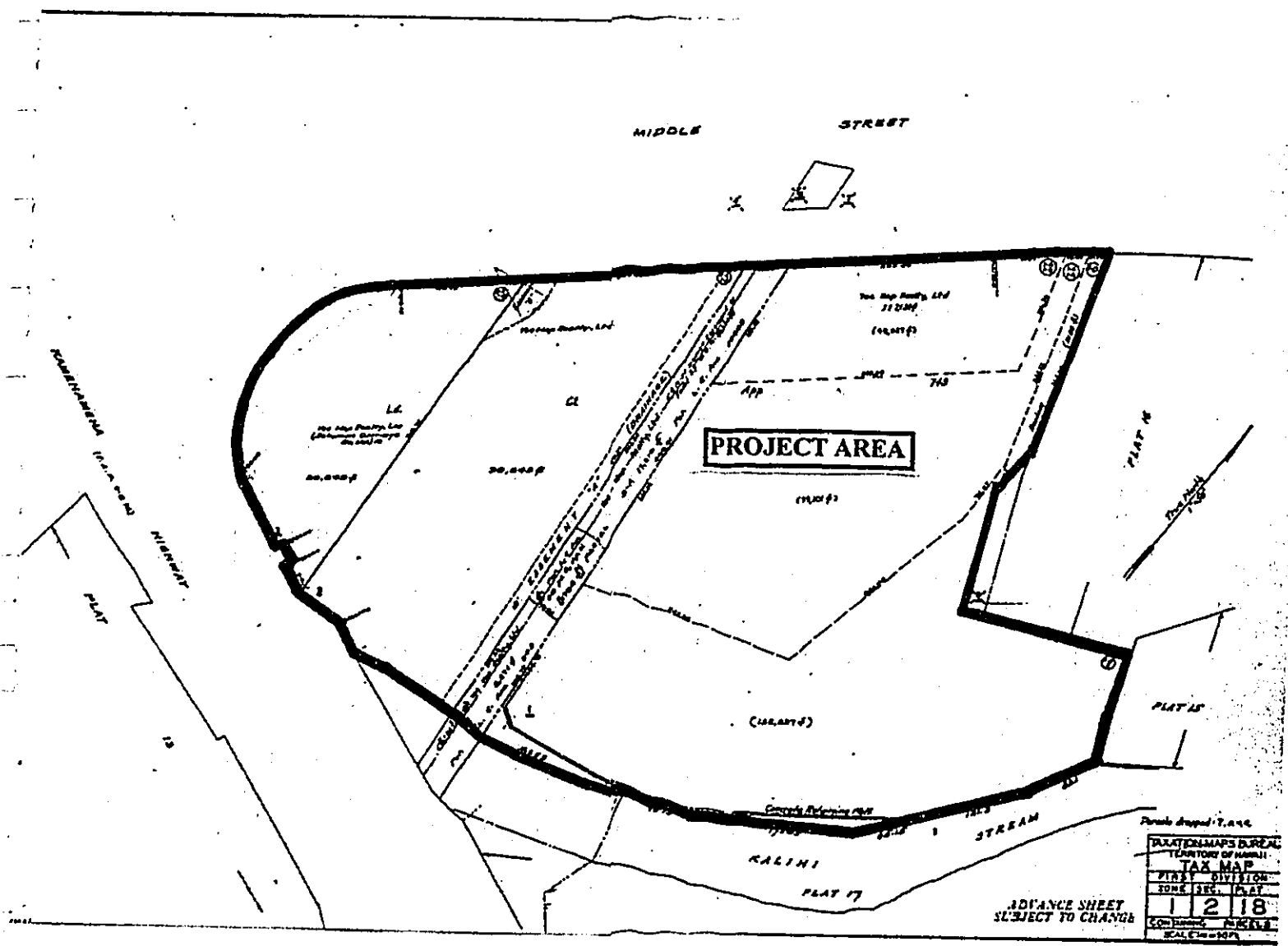


Figure 2 Tax Map Key 1-2-18 Showing Project Area

3. Preparation of a report to include the results of the historical research and the fieldwork with an assessment of archaeological potential based on that research, with recommendations for further archaeological work, if appropriate. It will also provide mitigation recommendations if there are archaeologically sensitive areas that need to be taken into consideration.

C. Project Area Setting

The project area located at the northeast corner of Middle Street and Kamehameha Highway lies on the boundary between the flood plain of Kalihi Stream and the Pearl Harbor drainage basin. The Pearl Harbor basin is essentially a series of drowned river valleys that formed a broad bay from Kalihi to `Ewa as the island sank and barrier reef grew up across the bay mouth, much like the present one at Kāne`ohe Bay. Sediment from the surrounding hills formed layers of mud, silt, and sand and these alternated with limy mud, coral reef and calcareous sand as the ocean level fluctuated up and down. Even peat was formed during periods when swampy conditions prevailed in the basin.

Kalihi is an amphitheater headed valley typical of leeward O`ahu, drowned by the present sea level at its mouth and its originally v-shaped bottom filled and made flat with lava flows of the geologically recent Honolulu Volcanic Series. The project area sits atop the recent lavas at the edge of a lagoon created by the barrier reef offshore. The old lagoon has been mostly filled with sediments and the shallow fringe was used by traditional Hawaiians for fishponds. The underlying substrate in the project area is understood to consist of interbedded layers of lagoonal sediments and Honolulu Series lavas. Soil survey (Foote et al. 1972) show the entire project area as "fill land".

The project area is approximately 400 m (1/4 mile) inland from the confluence of Kalihi and Ka-hau-iki streams at the head of Ke`ehi Lagoon and lies at less than 20 feet elevation above sea level but is not understood to lie in a tsunami evacuation zone.

For many decades the project area has been devoted to various light industrial and retail uses and particularly for the parking of various cars, trucks and equipment (see Appendix B photographs). The vast majority of the project area has been graded and paved and includes various light warehouses and other retail and light industrial constructions. There is some landscaping with coconut palms near the corner of Middle Street and Kamehameha Highway and some opiuma trees, castor bean plants, and exotic grasses and weeds but the parcel is overwhelmingly devoid of vegetation. Observed wildlife was limited to numerous chickens and tilapia in Kalihi Stream

II. HISTORICAL BACKGROUND

In 1991 Jim Landrum and Paul C. Klieger wrote a detailed summary of the history of Kalihi, O`ahu and how it relates to a project area immediately adjacent to the north of the present project area at 711 Middle Street. The information was gathered from collections of Hawaiian oral history, myth and legend, native and foreign accounts, maps and charts, ethnographies, archives of the 1848 Māhele, more recent land conveyances, and archaeological studies. The historical background presented below draws upon the Landrum and Klieger document and the reader is referred to that document for more detail.

A. Legendary Accounts

Kalihi is rich in legends but most appear to be focused in the back of the valley in the zone that would have been known as the "*wao akua*" mountain region believed inhabited by the spirits.

In the accounts of Kahalaopuna and her fiancé's traverse of Kalihi they "took the upper road where people seldom passed (*ma ka uka pili kānaka `ole, ma uka o Pauoa...*) (Fornander 1917:5.188-189). Similarly the accounts of Kalākaua (1888:515), Thrum (1907:125) and Patton (1932:44) place Kahalaopuna's traverse of Kalihi at the head of Kalihi Valley often near Kilohana Peak.

The Menehune pass through Kilohana in the uplands of Kalihi Valley searching for a tree from which to carve a voyaging canoe.(Thrum 1907: 114).

The various rich traditions of the goddess at Kalihi (known variously as Hai-uli, Hina, Kamehaikana, Kapo, Lau-mihi, Papa, Walinu`u)(see G. W. Kahiolo, *Ka Ha'e Hawaii* 1861; Kamakau, *Ke Au Okoa*, October 14, 1869; Westervelt 1915a:161; Pukui 1915:141; Fornander, 1917:5.360-361; Thrum, 1923:196; Beckwith 1940:187) typically place the goddess and her husband residing in the uplands of Kalihi Valley near the peak of Kilohana. Beckwith (1940:186) relates an account that the goddess "may be seen on the hillside beyond the upland of Kilohana where stands her tapu stone into which she entered, shaped like a house in front, like a fish's tail behind." Ka`ie`ie Heiau, understood as previously located in the uplands of Kalihi was particularly associated with the goddess (McAllister 1933:88).

The famous stone known as "The anus of Kalihi", *Puka kūkae wai o Kalihi* (Pukui 1983:299) or *Ka-elemu-wai-o-Kalihi* (In McAllister 1933:89-90) associated with the place called Kupehau where the chiefs of Hawai`i and Kamehameha I resorted (designated site 412 by the Bishop Museum) was located in mid-valley. This may have been the same as the place known as "*Ka-puka-wai-o-Kalihi*" created by Kāne and Kanaloa to provide water to go with their `awa (Westervelt 1915b:39-40) with the derogatory association applied after the conquest of O`ahu. Various other fabulous stones and rock formations (Papanuiaimoku, Ioleloa, Komohoali`i, Hapu`u, Kalaihauola) appear to have been located in the upper portion of Kalihi Valley.

There are a couple of accounts of armies passing through Kalihi with Lonoikaika passing through in his attack against Kūali`i (Fornander's 1917:4.410-411) and Kaiana

joining the forces of Kalanikūpule, and climbing over the Kalihi pass to fight against the attacking armies of Kamehameha (Kalākaua's 1888:407). But we find no reference to battles fought in Kalihi.

The coastal portion of Kalihi has few recorded traditions. Pukui (1983:186) offers the saying:

Ke kai nehe o Pu`uhale
The murmuring sea of Pu`uhale

She explains: "The sea at Pu`uhale, Kalihi, O`ahu was said to murmur softly as it washed ashore. There were once many fishponds there." In Thomas Thrum's (1907: 271) "Fish Stories and Superstitions" he relates a tradition of the `Ane mullet making periodical journeys through the seas of Kalihi as they travel from Pu`uloa (Pearl Harbor) to Lā`ie and back.

B. Early Historic Accounts

By the time the islands were found by European explorers, Kalihi Valley had a large resident population supporting themselves by extensive agricultural developments along the valley floodplains. Evidence of the religious and political aspects of Hawaiian society are noted in the descriptions of various Kalihi *heiau*, trails connecting Kalihi to other O`ahu population centers and island districts, and fishponds along the shoreline where Kalihi Stream meets Ke`ehi lagoon.

Otto von Kotzebue's journal and map of Honolulu provide one of our earliest accounts of the environs of seaward Kalihi c. 1817. The following account is of a trip towards Pearl Harbor commencing near the mouth of Nu`uanu Stream:

The way now lies to the west, through a beautifully cultivated valley, which is bounded towards the north by romantic scenery of woody mountains, and on the south by the sea. The artificial taro fields, which may justly be called taro lakes, excited my attention. Each of them forms a regular square of 160 feet, and is enclosed with stone all round like our basins. This field, or rather this pond...contains two feet of water. In the spaces between the fields, which are from three to six feet broad, there are very pleasant shady avenues, and on both sides bananas and sugar cane are planted...[T]he fish which are caught in distant streams thrive admirable when put into them. In the same manner as they here keep river-fish, they manage in the sea with sea-fish, where they sometimes take advantage of the outward coral reefs, and draw from them to the shore a wall of coral stone. Such a reservoir costs much labor, but not so much skill as the taro fields, where both are united, I have seen whole mountains covered with such fields, through which the water gradually flowed; each sluice formed a small cascade, which ran through avenues of sugarcane, or banana into the next pond, and afforded an extremely picturesque prospect. Sugar plantations and taro fields alternately varied our way, with scattered habitations, and we had gone unware five miles to the large village of Mouna Roa [Moana-lua]..." (Longman, *et al.* 1823:339-341)

Kotzebue's map of Honolulu (Figure 3), although undoubtedly somewhat schematic, shows large taro-fields (and trees) similar to his written description on both sides of the mouth of Kalihi Stream extending to the coast. The Kotzebue map also appears to show a network of fishpond walls (probably depicted somewhat schematically) completely sealing off the shallows in the vicinity of the mouth of Kalihi Stream. If the fishpond wall to the southwest of Kalihi Stream, corresponding to the wall of the Loko Weli fishpond, is drawn approximately correctly then the present project area may have been mostly impounded coastal shallows in 1817. While Kotzebue appears to show no houses amongst the taro *lo'i* at the mouth of Kalihi Stream, he does show four huts on the islet (Moku Moa) just off shore and also half a kilometer or so to the southwest of the project area. The trail shown was probably the main trail and Kotzebue's own route - which would have taken him well inland of the present project area as it arced north crossing Kalihi Valley.

John Papa 'I'i (1959:95) relates a similar excursion c. 1810 again going west:

When the trail reached a certain bridge [at Nu`uanu], it began going along the banks of taro patches, up to the other side of Kapālama, to the plain of Kaiwi`ula; on to the taro patches of Kalihi; down to the stream and up the other side; down into Kahauiki...

While somewhat general, the 'I'i account supports that of von Kotzebue in relating an abundance of *lo'i* where the main trail crossed Nu`uanu Stream, a relatively uncultivated plain as the trail traversed Kapālama and Kaiwi`ula and then more *lo'i* on Kalihi Stream.

Charles R. Malden mapped the south coast of O`ahu and Honolulu Harbor in 1825 (Figure 4) depicted the coast of Kalihi (which he labels "Kariki"). He shows, somewhat schematically, three fishponds just to the east of the project area which probably correspond to (from west to east) Apili Pond, Pāhou Pond and Pāhouiki. His map illustrates the very extensive coastal flats with a wide expanse "dry at half tide" but through which there was "a passage for canoes at H. W. [high water]". He shows a hut located nearly a mile off shore on these intertidal shallows of Kalihi.

F. D. Bennett (1840: Vol. I pg. 202) offers the following account of Kalihi Valley c. 1834:

The valley of Kalihi succeeds to that of Anuuana, but is less bold and diversified in its scenery. Human dwellings and cultivated lands are here very few, or scattered thinly over a great extent of, probably, the finest soil in the world. The commencement of the valley is a broad pasture-plain, the tall grass waving on every side, and intersected by a foot-path, reminding one forcibly of the rural scenes which precede the hay-harvest in England. Kalihi has a pass to the vale of Kolau similar to the pari of Anuuana, though more precipitous, and only employed by a few of the islanders who convey fish from Kolau to Honoruru...

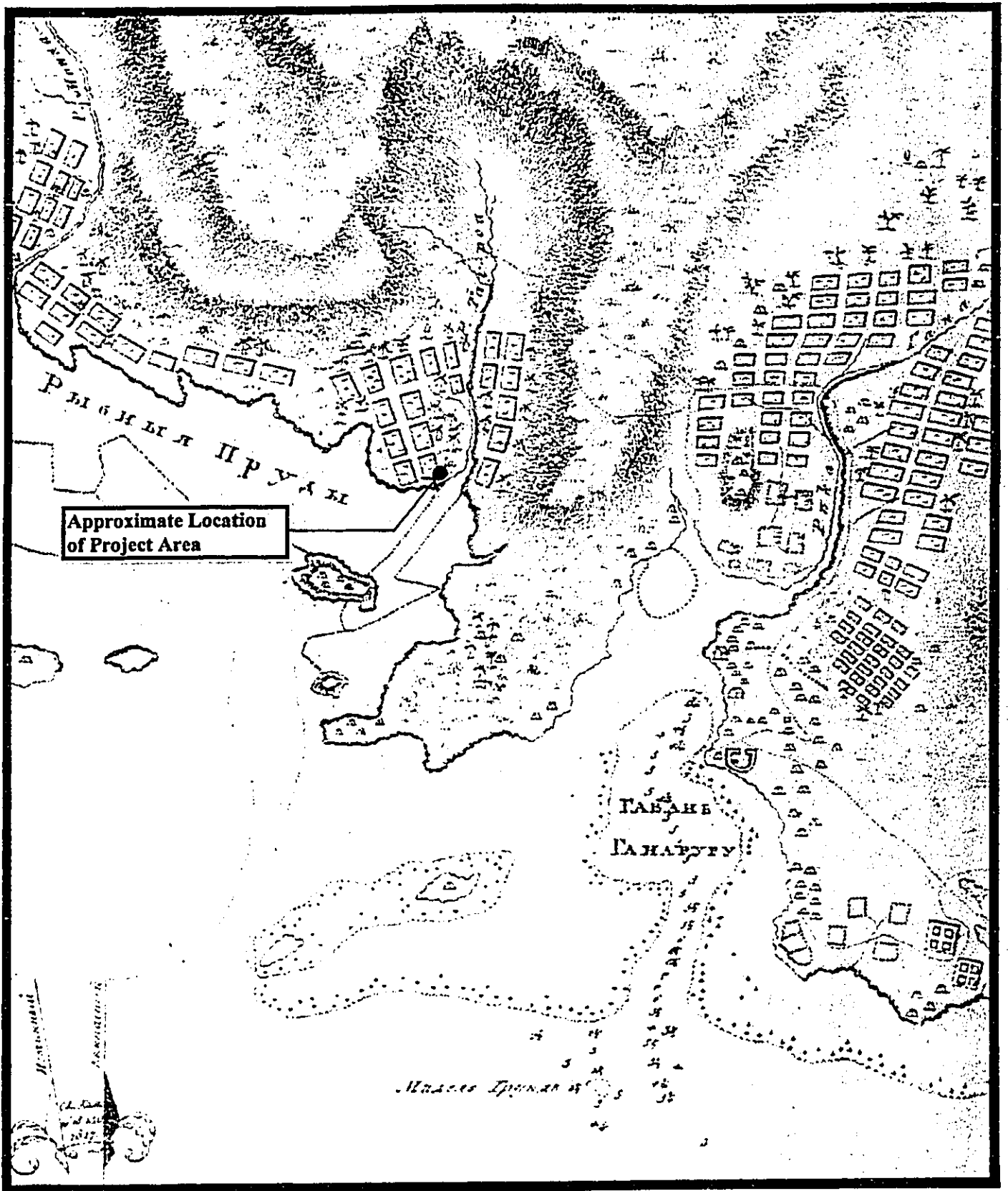


Figure 3 Portion of 1817 Map of Honolulu by Otto Von Kotzebue (approximate location of project area indicated)

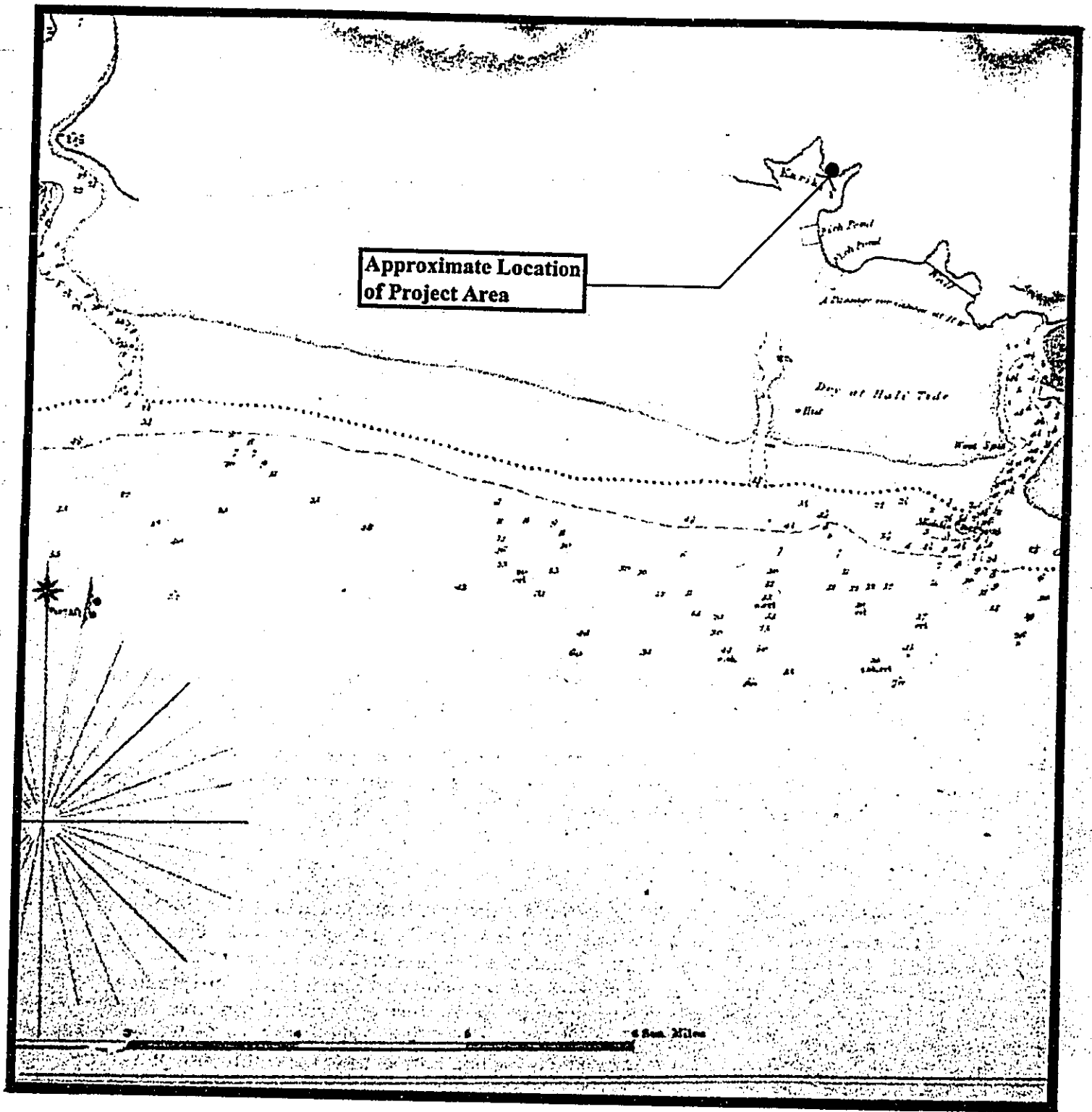


Figure 4 Portion of 1825 Map of the South Coast of O`ahu and Honolulu Harbor by Charles R. Maldin (approximate location of project area indicated)

E.S. Craighill and Elizabeth Handy supply the following description of Kalihi in the time of native planters:

Kalihi had a shallow seaside area, now the shore of Kalihi Basin, that was, like that of Moanalua, ideal for the building of fishponds, of which there were six. On the flatlands below the valley there were extensive terraces on both sides of the stream, while along the stream in the lower valley there were numerous areas with small terraces. The interior valley was rough and narrow and not suitable for *lo'i*, but it would have been good for sweet potatoes yams, *wauke*, and bananas which probably were planted there. (Handy and Handy 1972:475)

Most of the fishponds of Kalihi (Figure 5) were continued in use into the Twentieth Century. Cobb (1903:748) lists the following acreage for five fishponds of Kalihi c. 1901 (from north to south):

<u>Kalihi Fishpond</u>	<u>Acreage</u>
Apili	28
Pāhounui	26
Pāhouiki	14
Auiki (partly filled in)	12
Ananoho	52

Presumably these were five of the six fishponds of Kalihi referred to by Handy and Handy (above) with the sixth being "Waikulu Fishpond" which is understood to have been entirely within the present project area (see Figure 11) and probably had been filled in by c. 1901.

The c. 1870s Monsarrat and Lyons map (Figure 5) shows "Old Salt Pans" in the immediate vicinity of the project area. These salt works are still shown as late as 1919 (see Figure 8) but appear somewhat smaller by that date.

C. Māhele Accounts

Records of Land Commission Awards associated with the Kuleana Act of 1850 allow us to reconstruct something of the land use pattern in Kalihi at that time. Undoubtedly residential patterns had changed from pre-contact times as a result of massive depopulation owing to introduced diseases on the one hand and in-migration into greater Honolulu from out-lying areas on the other hand. The pattern of land-holdings circa 1850 suggest the majority of Hawaiians in the *ahupua`a* were living relatively close to Kalihi Stream inland of present day Dillingham Boulevard and seaward of the confluence of Kalihi and Kamaikai Streams (Figure 6). Coastal habitation was somewhat less than might have been expected. This may have been because the coast was exposed to occasional storm surf, high winds, tsunami and hurricanes or it may have reflected a cultural pattern in which relatively few people lived close to fishponds. It may simply have been an avoidance of the low-lying coastal mudflats which were close to the water table.

There were however a number of land claims near the mouth of Kalihi Stream in the vicinity of the present project area. Land Commission Award number 10498 to Nahinu encompassing 46.17 acres in the *ili* of Kionawawana, Kalihi *Ahupua`a*, appears to include the north portion of the project area (Figure 7). Nahinu was among the *konohiki* who

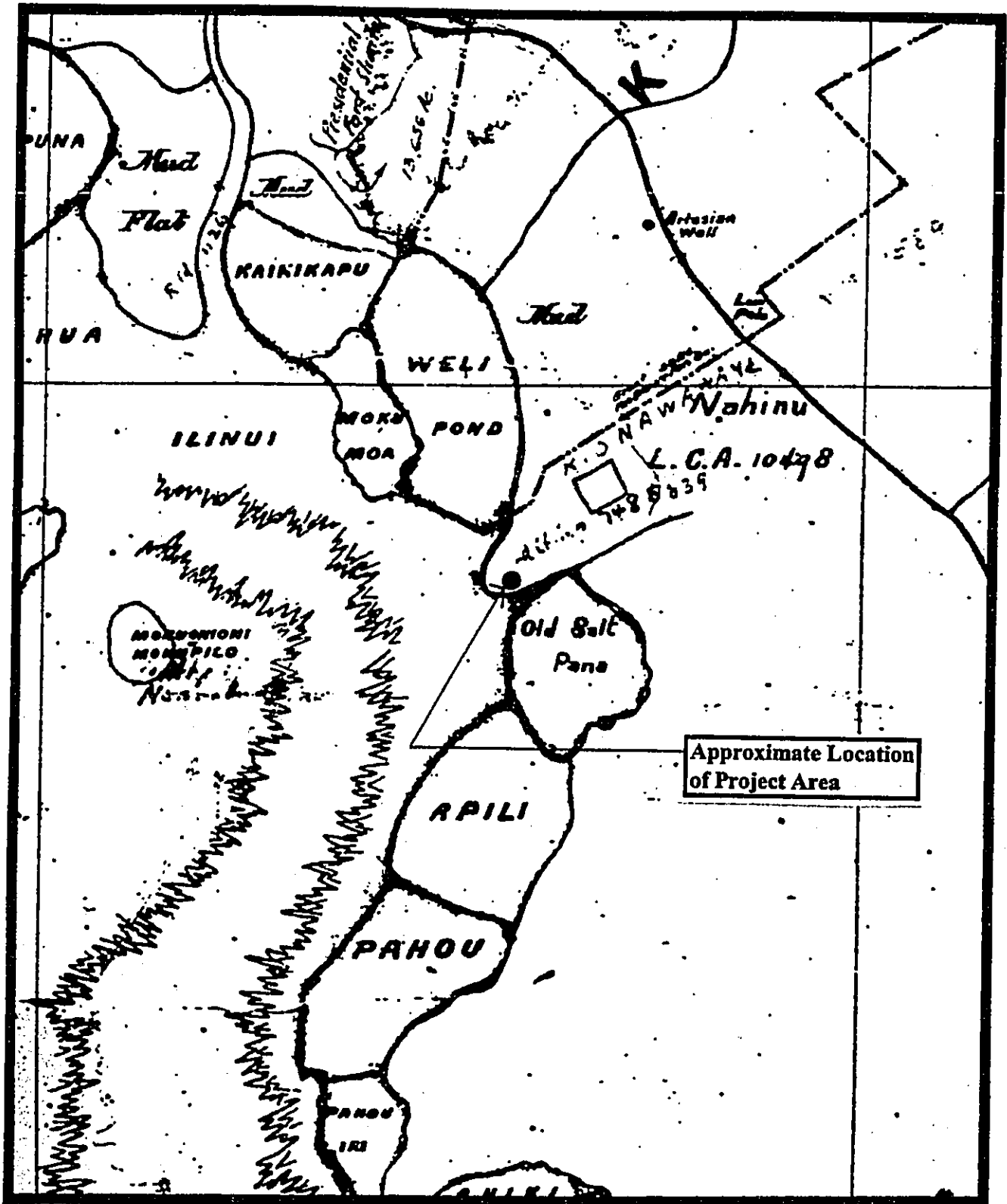


Figure 5 Portion of Circa 1870s Map of Moanalua and Kahauiki, Kona, O'ahu by M. D. Monsarrat and C. J. Lyons

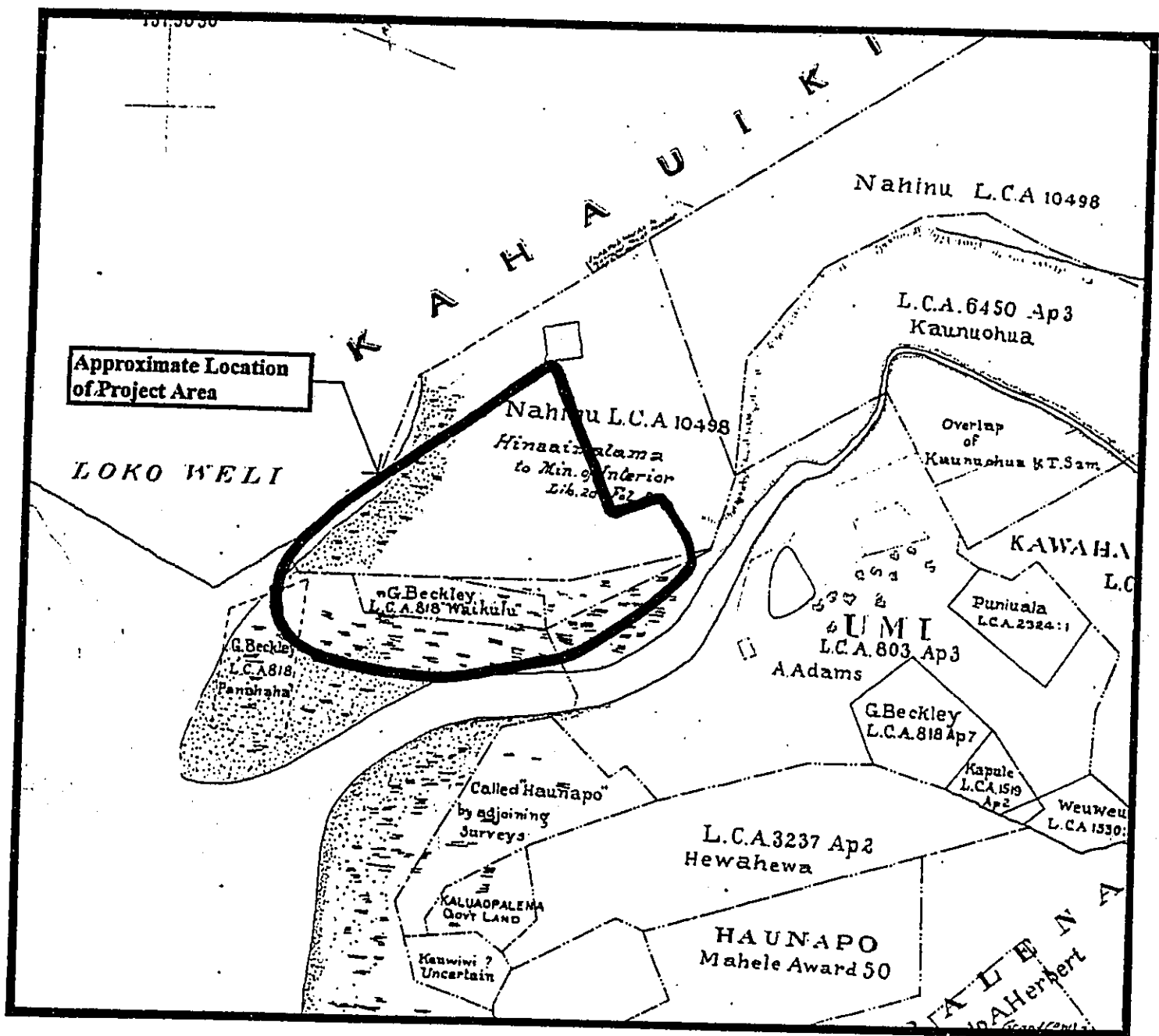


Figure 7 Portion of Map of Hawaiian Government Survey, Kalihi and Kapalama Makai Sections (J. F. Brown 1883)

received property during the first division of land between the king and chiefs in 1848. Nahinu's claim, no. 10498, as recorded on February 12, 1848 says,

No. 10,498 Nahinu Feb. 12, 1848

N.R. 560v4

To the Land Commissioners: I hereby tell of my little *ili* in Honolulu, in Kalihi. It is named Kiona. It was awarded to me by the *Mōī* and by G. P. Iuda [Judd], Government Official. One half of said land. I am, respectfully,

NAHINU

No. 10498 Nahinu 1 July 1851

N.T. 20v10-11

Kauikea sworn I have seen this land which belongs to Nahinu in the *ahupua`a* of Kalihi. It is an *ili* named Wanana and the second section is Kukahi, however, the first section has been taken by the government leaving the second section Kukahi to Nahinu of 7 *poalima* patches and 1 pasture section

<i>Mauka</i>	Kaliawa land
Waikiki	Kaliawa land/Apili land
<i>Makai</i>	Kahauiki <i>Ahupua`a</i>
`Ewa	Kaluaopalena <i>Ahupua`a</i>

Land from Kam. III in 1831, no objections except that I've heard Pao has been the only objections.

Kaluau sworn I have this *ili* land exactly as Kauikea has related here.

Landrum and Klieger (1991:25) followed the change of hands of the land that contains the project area and found that when Nahinu died, title to Land Commission Award 10498 passed to his daughter, Hinaaimalani. Then by way of sale for three hundred dollars 9.2 acres passed to the Minister of the Interior - representing the Hawaiian Government (as indicated on the 1883 Brown Map; Figure 7).

The eastern portion of the project area appears to have been adjacent to L. C. A. 803 awarded to Alexander Adams (Figure 7). The Scottish Captain Adams had a long career in Hawai'i serving as pilot to the Kamehamehas for thirty years before retiring to his estate of more than two thousand acres at Kalihi, O'ahu granted to him by Kamehameha I (Day 1984:1). The following account tells of the Adams' family life at the Apili Fishpond parcel just southeast of the present project area:

Apili. "Caught, snared or stuck:" Land surrounding the fishpond in Kalihi, O'ahu, belonging to the Adams' family. It was there that Capt. Alexander Adams had his famous gardens, which was quite a place of resort for strangers and whale men, about 1850. The fishpond is yet famous for the superior flavor of its fish, particularly the *awa*, which, eaten raw, is esteemed a rare treat by native epicures. (Dictionary of Hawaiian Localities, Saturday Press, July 28, 1883)

The Brown 1883 map (Figure 7) appears to show a structure on the Adams property with

gardens indicated just to the northeast. While these were likely the focus of the Adam's resort they appear to lie just east of the project area.

The south and central portions of the project area appear to include parcels of L.C.A. 818 awarded to another powerful early foreigner, George Beckley (Figures 7 and 11). He was an Englishman who was commandant of the Honolulu fort. He received a number of small parcels at Kaliwa, Kalihi including three parcels within or quite close to the present project area. `Āpana 11 of L.C.A. 818, which appears to lie entirely within the present project area, was known as Waikulu (trickling water") Fishpond (see Figure 11). It seems likely this fishpond would have had connections to Kalihi Stream.

Accounts of other Land Commission Awards in the immediate vicinity make it clear that the immediate area of the project was a *muliwai* or estuary with *lo`i* or taro patches, *kula* - probably indicating pasturage, and houselots and a pig pen.

D. More Recent History of the Parcel

The major historic enterprise in the immediate vicinity was the meat company of Gilbert F. Waller who took over a portion of the Nahinu parcel in 1877. Waller became the owner of the Metropolitan Meat Market in 1884 which he operated until 1887. Waller was a man of substance and was an unsuccessful candidate for governor. Landrum and Klieger's research found that in 1887 the Metropolitan Meat Co. was organized with Colonel Samuel Parker as president and Mr. Gilbert Waller as treasurer and manager and that the Metropolitan Meat Co., now the Hawaii Meat Company, remained in business for "at least 114 years." (Landrum and Klieger 1991:35).

Presumably the focus of the Metropolitan Meat Market was at the rather "L-shaped" structure shown just inland of the present project area on maps of the 1930s and 1940s (but not on the 1919 map; Figures 8-10). USGS Maps of this period show virtually no structures within the present project area. A photograph (Bishop Museum Negative No. CP3378) in the Landrum and Klieger study (1991:29) dating to the 1870s appears to show the present project area as paddocks. A written description of the scene on the back of the photograph signed by T. R. Waller relates: "This view is of the bone yard, and in the distance is the sea. The rest are paddocks for the sheep and cane, having a stream of water running through them." (quoted in Landrum and Kleiger 1991:28).

On June 10, 1929 a Land Court Application for the consolidation of lands of the present study area (described as "Land Situated at Kaliawa & Kionawawana, Kalihi-Kai, Honolulu") was prepared for C. Q. Yee Hop & Co. Ltd. as applicant (Figure 11). Two new lots are described. The present project area includes the vast majority of the new Lot 1 and most of the north central portion of Lot 2.

Lot 1 is described as follows:

Being a portion of R. P. 3546, L.C.A. 10498 to Nahinu, a portion of Waikulu Fish Pond, R.P. 4544, L.C.A. 818, Part 6, `Āpana 11, to the heirs of George

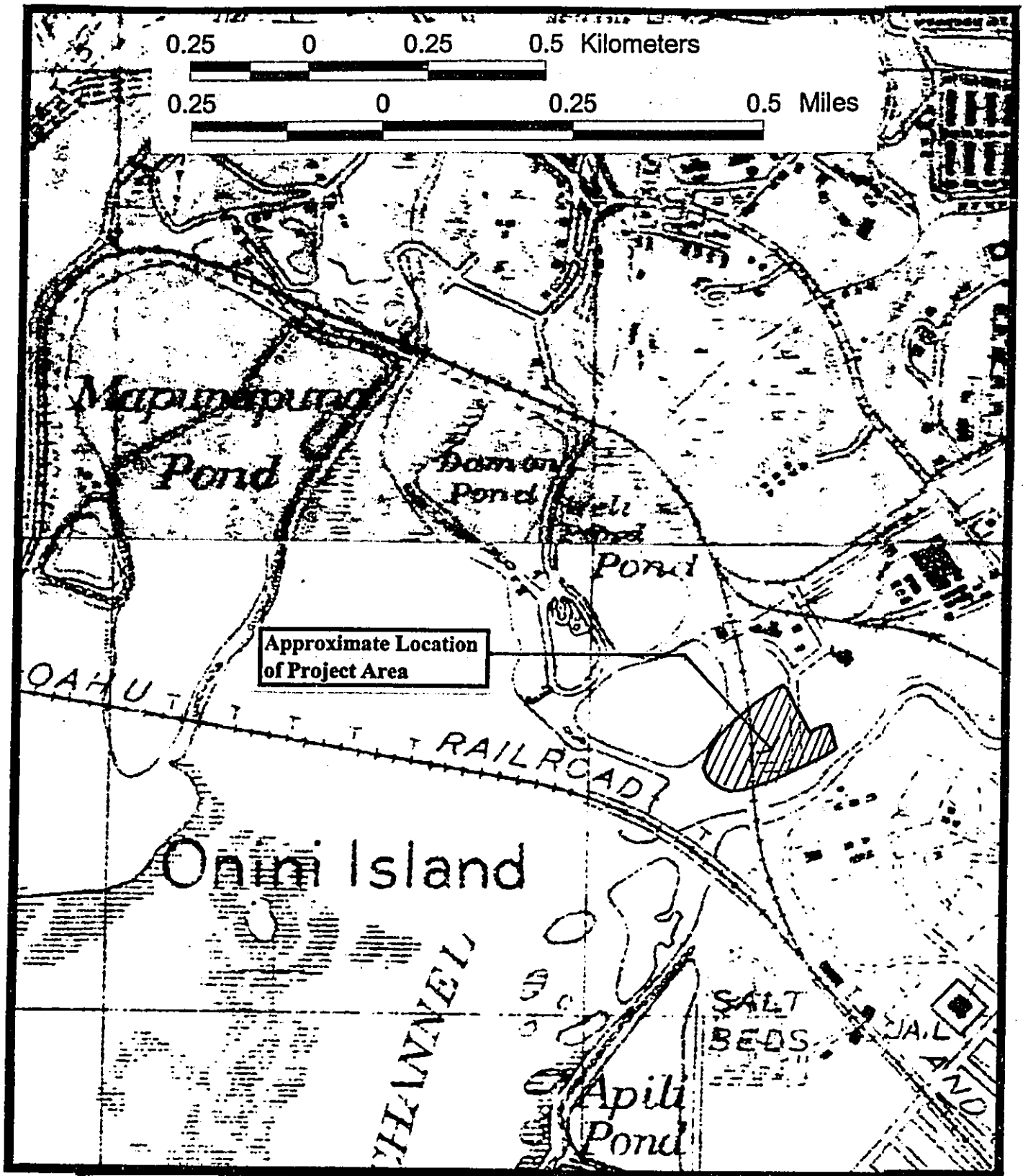


Figure 8 Portion of 1919 War Department Fire Control Maps of Honolulu and Pearl Harbor

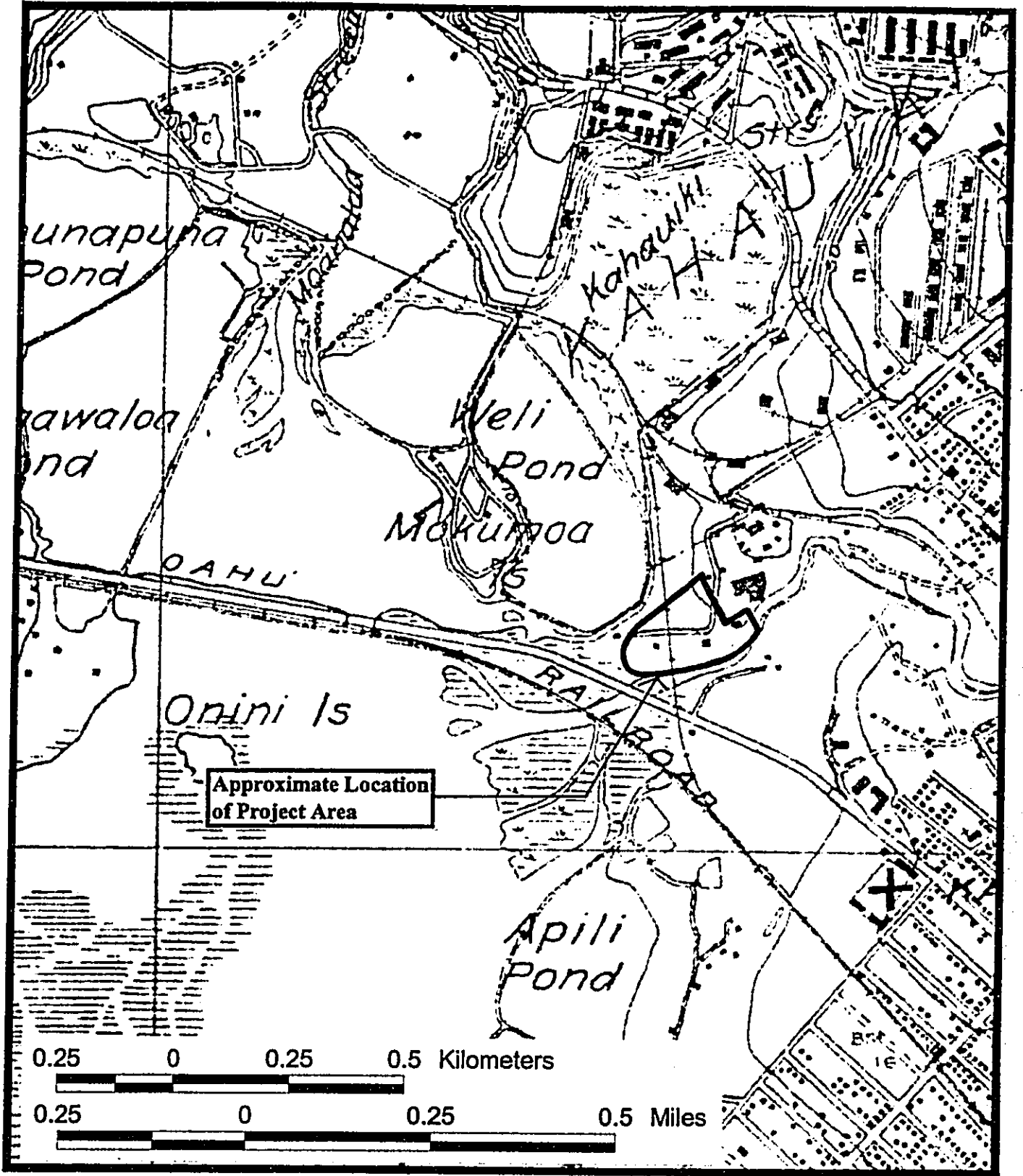


Figure 9 Portion of 1928/1930 USGS Honolulu Quad Map

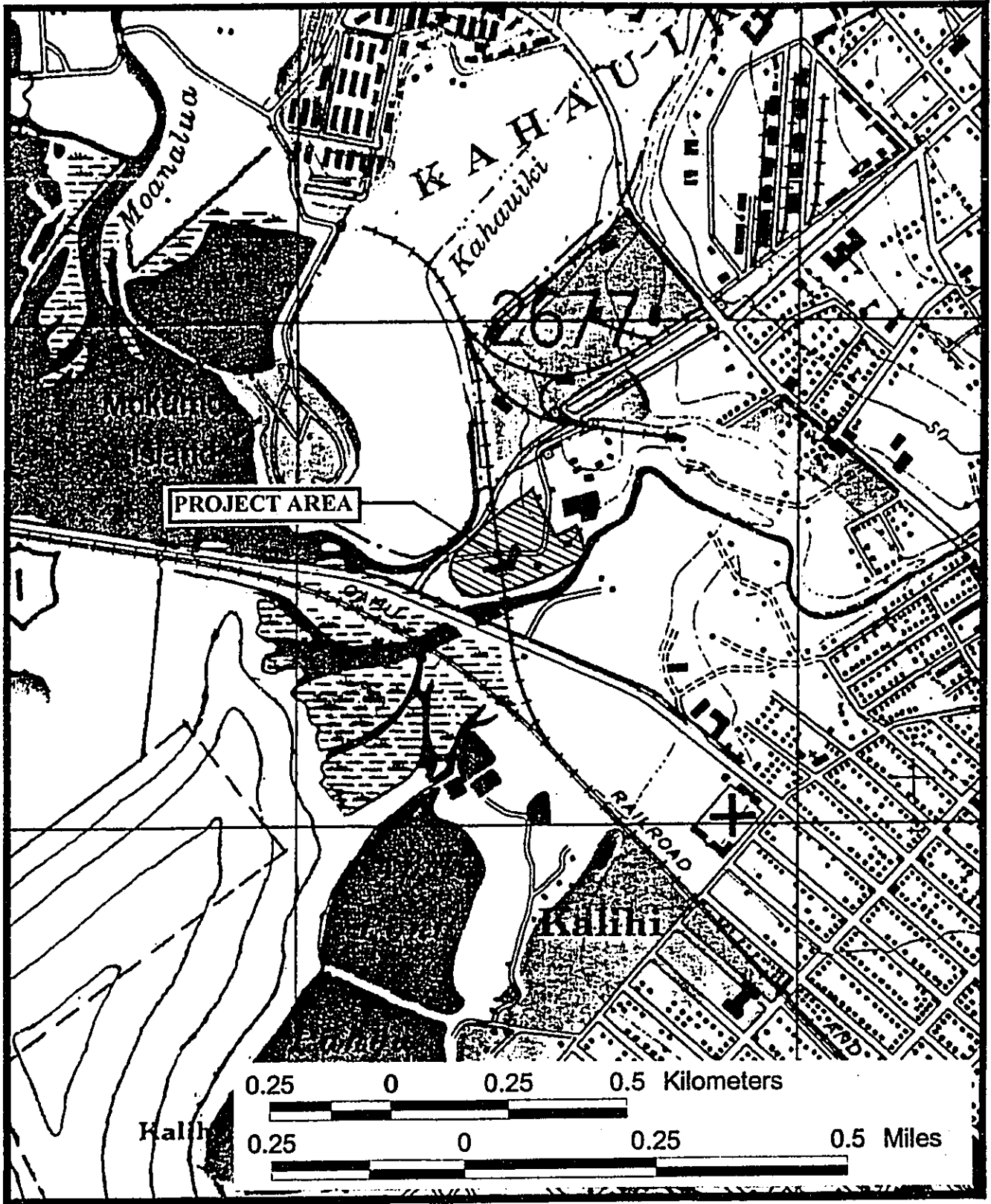


Figure 10 Portion of 1943 War Department Corps of Engineers Honolulu Quadrangle

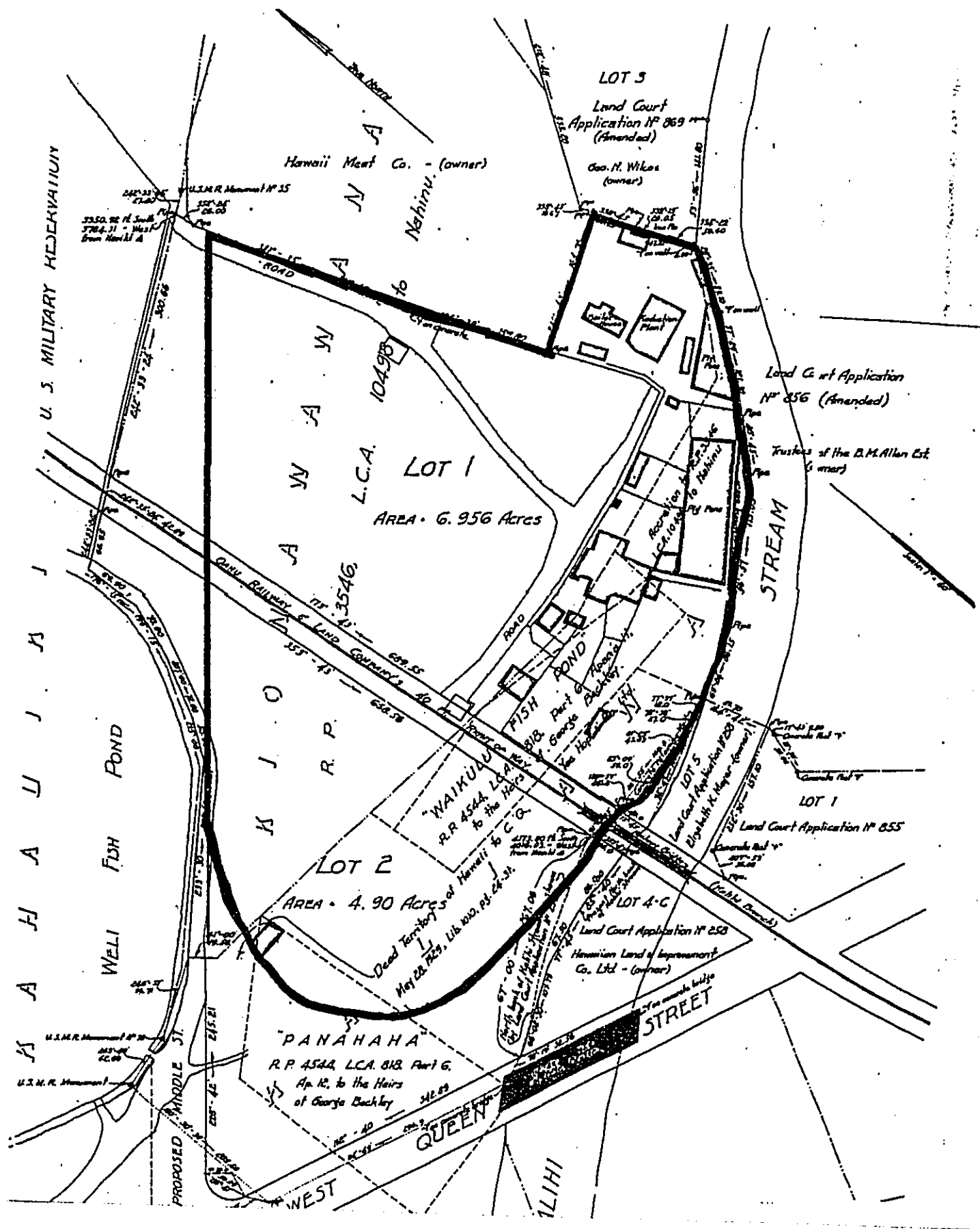


Figure 11 Land Court Application No. 748 dated 1929

Beckley; and a portion of the premises conveyed to the Applicant by deed of the Territory of Hawaii, dated May 28, 1929, and recorded in the Office of the Bureau of Conveyances at Honolulu, T. H. in Liber 1010, on pages 24-31; and accretion to R.P. 3546, L.C.A. 10498 to Nahinu.

Lot 1 is described as follows:

Being a portion of R. P. 3546, L.C.A. 10498 to Nahinu, a portion of Waikulu Fish Pond, R.P. 4544, L.C.A. 818, Part 6, `Āpana 11, to the heirs of George Beckley; a portion of Panaha, R.P. 4544, L.C.A. 818, Part 6, `Āpana 12, to the heirs of George Beckley and a portion of the premises conveyed to the Applicant by deed of the Territory of Hawaii, dated May 28, 1929, and recorded in the Office of the Bureau of Conveyances at Honolulu, T. H. in Liber 1010, on pages 24-31.

The meets and bounds data offers no particular insights but the map (Figure 11) shows a number of small structures, two of which are annotated "Pig Pens", one noted as a "Boiler House" and one noted as a "Reduction Plant". Most of the parcel appears to be in paddocks. This data is consistent with the general picture of the parcel as paddocks and small structures associated with a meat company for many decades.

III. PREVIOUS ARCHAEOLOGICAL RESEARCH

The pre-1778 history of Kalihi is little known from an archaeological perspective. Previous archaeological studies recently completed in the *ahupua`a* have been limited in number, in size of study area - not unlike the present project area, and in the depth of the study (reconnaissance level) with sites of limited significance found (Table 1 and Figure 12).

A. Previous Archaeological Studies in Kalihi

Thrum (1909:41) briefly discusses three *heiau* in Kalihi giving the following information:

Ka`ie`ie...Kalihi-uka, on premises of Dr. Huddy; of ho`ouluai class. Haumea its deity. Parts of foundation only remain [1909].

Ka`aleo...Kalihi-kai. No particulars ascertained.

Haunapo ..Kalihi-kai. No particulars ascertained.

McAllister (1933:88-91) seemingly designated all of Kalihi Valley as his site 71 and presents the following information.

Kalihi Valley. If any archaeological remains yet exist in Kalihi Valley, they are not known to the Hawaiians. David Kama, who is caretaker of the water reserve, tells me that he has heard the drums on nights of Kane, above his house, but he has never found the *heiau*.

McAllister (1933:88-91) notes the information on the *heiau* provided by Thrum (given above) and notes: "I have been unable to obtain additional information."

In two studies of a five acre parcel in the north central portion of Kalihi Valley (near Kale Place, just south of the Likelike Hwy.) William Barrera (1976a, b) identified four sites including a collapsed terrace (Site 50-80-14-1419), a 1.6 m high retaining wall and paved area (Site 50-80-14-1420), a low terrace wall (Site 50-80-14-1421) and a rectangular earthen terrace (Sites 50-80-14-1422).

In 1980 Robert Connolly III carried out a reconnaissance of a 99.58 acre parcel in the north central portion of Kalihi Valley for a proposed Kalihi Valley Park and recorded site 50-80-14-3980, an agricultural complex of *auwai*, boulder facings, terrace retaining walls and boulder mounds, in the valley bottom at an elevation of about 600 feet or 183 meters.

In 1986 Hallett H. Hammatt carried out an archaeological reconnaissance of a parcel on Sand Island determining the vicinity was dredged fill material.

In 1988 Aki Sinoto and others carried out a survey of an approximately 50,000 sq. foot area for a 614 reservoir project in northeast Kalihi Valley and found retaining walls and slope cuts believed to be associated with the construction in recent times of old Kalihi Road. These later features were assigned Hawaii State site number 50-80-14-2004 and Bishop Museum site number 50-OA-A6-22. No pre-contact archaeology was observed.

Table 1: Archaeological Studies in Kalihi

Source	Type of Study	Location	Findings
Thrum 1907, 1909	<i>Heiau</i> study	Archipelago wide	Identifies 3 heiau
McAllister 1933	Archaeological Survey	Island-wide	Identifies Site 72 Kalihi Valley, Site 73 Ananoho Fishpond & Site 74 Pāhouiki, Pāhounui & Apili Fishponds
Barrera 1976a	Archaeological Reconnaissance	N/central Kalihi Valley (Kali Pl.)	Identifies 3 sites: -1419, -1420 & -1421
Barrera 1976b	Archaeological Investigations	N/central Kalihi Valley (Kali Pl.)	Describes 4 sites: -1419 to -1422
Connolly 1980	Archaeological Reconnaissance	N/central Kalihi Valley	Identifies site 50-80-14-3980
Hammatt 1986	Archaeological Reconnaissance	Sand Island	Dredged fill material
Sinoto <i>et al.</i> 1988	Archaeological Survey	Northeast Kalihi Valley	No significant sites (historic road cuts)
Kennedy 1990	Archaeological Walk-Through	Northeast Kalihi Valley	No sites
Schilz 1990	Archaeological Survey & Monitoring Program	N/central Kalihi Valley	No sites
Landrum & Klieger 1991	Historic literature and document search	SW corner of Kalihi Ahupua`a, 711 Middle Street.	Noted no archaeological or historical features within their project
Hammatt & Folk 1992	Burial Treatment Plan	Site -4525, 711 Middle	Addressing finds documented by Folk <i>et al.</i> 1993

		Street.	
Folk <i>et al.</i> 1993	Archaeological Survey with extensive backhoe testing	Site -4525, 711 Middle Street.	Identified 3 burials and a cultural layer designated 50-80-14-4525
Folk & Hammatt 1993	Mitigation Plan	Site -4525, 711 Middle Street.	Addressing finds documented by Folk <i>et al.</i> 1993
Hammatt 1993	Historical Search	SW Kalihi, Kam IV & Rose St.	Provides context for 2 burials previously found
Bordner 1994	Archaeological Surface & Subsurface Investigations	Northeast Kalihi Valley	No sites

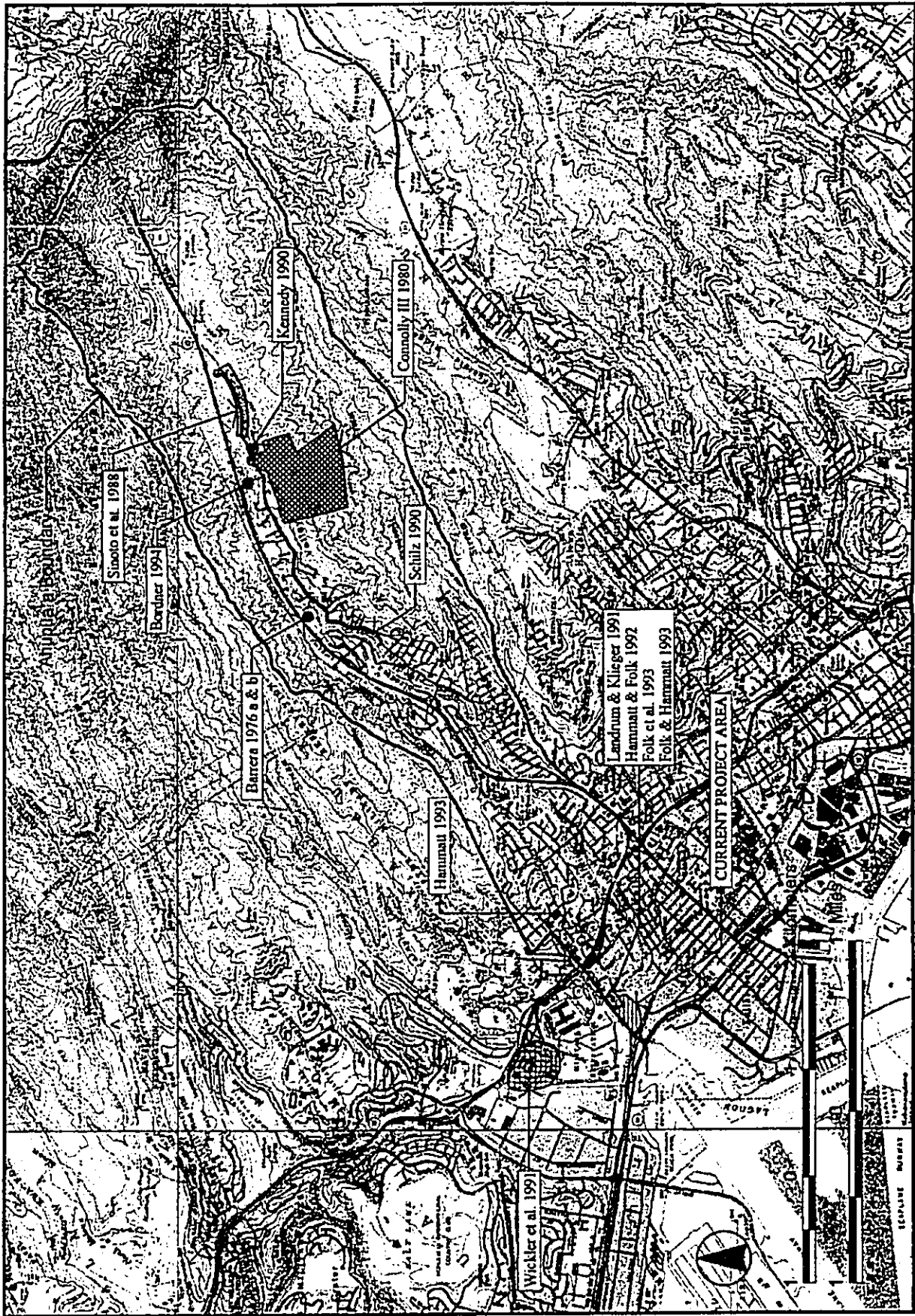


Figure 12 Map Showing Locations of Previous Archaeological Studies in Kalihī Ahupuaʻa

In 1990, Joseph Kennedy carried out a walk-through survey of an approximately 10,000 sq. foot proposed exploratory well site in northeast Kalihi Valley and found nothing of significance although he notes: "A great number of sites are still located in the upper Kalihi area...farther upstream and quite a distance from the study area." (Kennedy 1990:1).

Also in 1990, Allen Schilz did archaeological survey and monitoring in the same general area of Kalihi Valley along an approximately 9,000 foot long (2.74 kilometer) 16" water main project and found no sites or evidence of pre-contact resources in that project area.

In 1991, Jim Landrum and Paul Klieger carried-out a historical literature and documents search for the City & County Bus Unit Repair Shop Facility on a parcel immediately adjacent to the northeast of the present project area. They noted the proximity of their project area to Loko Weli but noted no archaeological or historical features within their project area. They recommended archaeological monitoring of grading and construction related activities.

In 1993, William Folk, Susan Crotty and Hallett H. Hammatt carried out an archaeological survey with subsurface testing on a property adjacent to the present study area (Figure 13) at 711 Middle Street for the City & County Honolulu Public Transit Authority. The work involved 19 backhoe trenches and identified three post-contact human burials and a cultural layer designated as site 50-80-14-4525. The testing indicated that the site was quite discrete in an area approximately 50 feet by 40 feet in the central portion of the parcel. The study recommended the formulation of a plan in support of the recovery of the burials but concluded: "Aside from the specific area determined to be the graveyard no further archaeological work is recommended." (Folk *et al.* 1993:30). A subsequent Mitigation Plan (Folk and Hammatt 1993) discusses the proposed disinterment and similarly does not recommend archaeological monitoring. A Burial Treatment Plan (Hammatt and Folk 1992) was also prepared.

In 1993, Hallett H. Hammatt prepared a historical study of a property at Kamehameha IV Road and Rose Street owned by the Reorganized LDS Church. Two burials had been found and an informant mentioned an old graveyard in the vicinity. Research found no evidence of an established cemetery on the property.

In 1994, Richard Bordner carried out a surface survey and sub-surface testing at the Kalihi-Uka Exploratory Well location for the Board of Water Supply but was unable to verify any past cultural use other than extensive mid-20th century land modification. Although Bordner (1994:4) indicates the study area was the same as that of Kennedy's 1990 study there maps indicate otherwise.

B. Neighboring Paleo-environmental Research

In 1991 Stephen Wickler, J. Stephen Athens and Jerome Ward carried out paleo-environmental and archaeological investigations in support of a Fort Shafter Flats sewer line project approximately one kilometer northwest of the present project area. Despite historical references to house sites, irrigated pond fields, and possibly buried fishpond

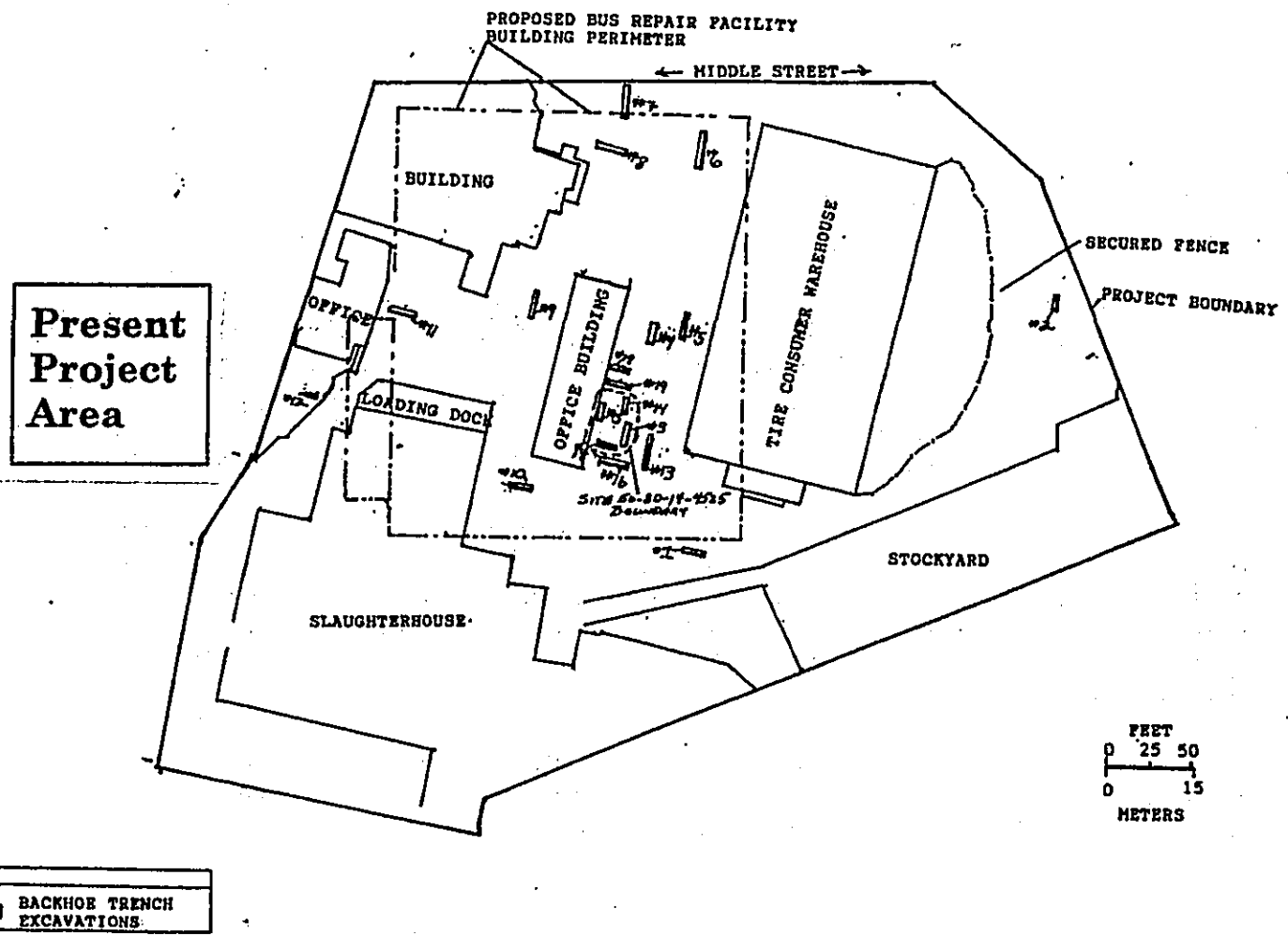


Figure 13 Map Showing Relationship of Site # 50-80-14-4525 to the Present Study Area (adapted from Folk et al. 1993:15)

deposits in the immediate vicinity no direct archaeological evidence was recovered. This study does, however, provide a wealth of paleo-environmental data. A temporal record was recovered: continuous from about 1200 B.C. to about 200 B. C., then with a gap (probably owing to erosion from Moanalua Stream) until c. A. D. 769-997 and then seemingly continuous into the historic period. Pond-field agriculture commencing sometime after c. A. D. 769-997 was indicated.

The most notable finding of this study was the evidence of radical transformations in the ecosystem between the vegetation indicated in Pollen Zone B (ca. 450-90 B.C.) and the vegetation indicated in Pollen Zone A (ca. 768-997 AD) (Wickler *et al.* 1991:49). The thousand year break in the pollen record is regrettable as is the absence of any slightly later pollen record-study that might provide more detail on the history of Hawaiian land modification (there was almost no record of Polynesian introduced species).

In terms of on-going paleo-environmental discourse the most interesting aspect of this work is the suggestion of relatively early environmental impacts - earlier than the authors in fact conclude. The study concludes that:

Based on the pollen evidence, the lowlands in the vicinity of the project area prior to Polynesian settlement and up through perhaps A.D. 1000 were dominated by *Pritchardia* sp. palm forests. After about A.D. 1000 the palm forests rapidly declined and by European contact they were virtually non-existent. (Wickler *et al.* 1991:53)

The evidence reported, however, suggests the possibility of massive impacts significantly earlier. The findings report: "Pollen Zone A (ca. A.D. 768-997) is dominated by a cheno-am signal at 39% with very low levels of *Pritchardia*...[and other native mesic forest species](Wickler *et al.* 1991:49)." In fact by this time-frame of ca. A.D. 768-997 the *Pritchardia* pollen had fallen to 2% of the total pollen whereas in the closest earlier studied pollen sample (ca. 450-90 B.C. - undoubtedly indicative of a pristine eco-system) the *Pritchardia* pollen was at around 25% (Wickler *et al.* 1991:50). This suggests, to us, that the collapse of the pristine eco-system had largely already occurred by the ca. A.D. 768-997 time-frame and perhaps significantly earlier than in the post A.D. 1000 period concluded in the study noted above.

Wickler *et al.* are undoubtedly correct in their conclusions that their pollen record from the Shafter flats documents massive transformation of plant communities in early Polynesian times. Their data would, however, appear to be consistent with this transformation having occurred at a somewhat earlier date than they posit - post A.D. 1000. The import of this lies in the likelihood that this environmental transformation accompanied Polynesian colonization. Earlier evidence of environmental transformation suggests earlier Polynesian colonization.

C. Settlement Patterns in Kalihi

The geographical distribution of Land Commission Awards which were doled out following the Mhele of 1848 presents us with a good picture of settlement patterns in Kalihi in the mid-19th century (Figure 6). The pattern is one of land claims for houses and garden plots on the natural terraces on both sides of Kalihi Stream, predominantly in the lower Kalihi Valley and on the flat lands seaward of the valley. Land Commission register and testimony documents describe the claims in terms of types and uses of garden plots, the crops grown, irrigation systems, the presence of homes, locations and boundaries, etc. The gardens described are predominantly *lo`i* - man made pondfields etched into the surface of the alluvial stream terraces and interconnected by elaborate systems of *`auwai* or irrigation ditches. Types of gardens mentioned also include *kula* - dry land or non-ponded plots used for most other crops that do not thrive in the pondfield environment as does *kalo* or taro.

E.S. Craighill and Elizabeth Handy (1972) in the 1930s collected data from informants and made personal observations about the native Hawaiian farmer, his garden and field systems, and his crops and related lore. Their data concurs with patterns evident in the distribution of land awards in Kalihi, even to the point that in the narrower upper valley the land awards diminish substantially in quantity, but are still present where suitable flat arable land is present or important forest products exist. From the pattern of land award distribution shown in Figure 6, we may infer that the traditional Hawaiian practice of maintaining residences dispersed within and throughout their agricultural fields is continued in Kalihi at least until the mid-19th century.

The Native Register for Land Commission Award number 10498 to Nahinu merely states Nahinu's claim to the *`ili* of Kiona (Volume 4:561) with no particulars as to land use. Native testimony by Kauikea on behalf of Nahinu on the other hand says that Nahinu's land consisted of an *`ili* called Wawana "and the second section is Kukahi, however, the first section has been taken by the government leaving the second section Kukahi to Nahinu of seven *poalima* patches [garden plots worked for the chief] and 1 pasture section..." (Native Testimony, Volume 10 & 11:20). It is not clear from these documents what precise geographic relationships existed between Kiona, Wawana, Kukahi, and Kionawawana. Nor is it clear whether Nahinu's *Pōalima* were worked by himself for another, or by others for him, or whether the plots were *lo`i* or *kula*.

Four other Land Commission Awards are listed in the Indices of Awards by location as being in the *`ili* of Kionawawana. Together they attest to the presence in the area of *kalo* or taro patches, an irrigation ditch or *`auwai*, the stream, the *Pōalima* of Nahinu, a parcel of *kula*, *lo`i* that jump, a houselot in Kukahi in Keonawawana (Award no. 2296), a pig pen, a *muliwai* or estuary, a pond for Nahinu, and a house lot in Kionawawana "not now enclosed." (Award no. 11,229) and bounded on all sides by the *Konohiki*. Still another Award consisting of numerous parcels along Kalihi Stream near Nahinu's land adds to the list of features a "public cattle fence" and a corral.

IV. RESULTS OF FIELD INSPECTION

A field inspection was carried out by CSH archaeologist David W. Shideler, M.A. on January 8, 2002. As expected, the entire project was found to have been massively impacted by historic use. Most of the parcel has been previously paved and is now devoted to various light industrial and retail uses and particularly for the parking of various cars, trucks and equipment (see Figures 14-17 in Appendix B).

Only one surface feature was observed that is technically historic (older than 50 years). A portion of a concrete and basalt stone retaining wall was observed adjacent to Kalihi Stream (visible in Figure 15). This is understood as the same wall shown on Land Court Application No. 748 dated 1929 (Figure 11) and thus is understood as at least 73 years old. No particular import was given to this concrete retaining wall. No other possibly historic surface sites are believed to be on the parcel.

It was observed that the existing density of vehicles, the presence of a couple of large piles of aggregate and boulders, and the commercial structures on the parcel may make any subsurface testing problematic.

V. SUMMARY AND RECOMMENDATIONS

A. Summary Discussion

Our review of historic documentation indicates that the immediate vicinity of the project area was the locus of traditional Hawaiian irrigated ponded-field systems, fish ponds, salt works, and habitations. In the mid-Nineteenth Century, these land uses continued with the immediate vicinity including Land Commission Awards of relatively important persons of the Hawaiian Kingdom including the *konohiki* Nahinu, and two eminent foreigners in service to the Kamehamehas: Captain of the Kingdom Alexander Adams and Honolulu Fort Commander George Beckley. Circa 1850, Capt. Adams maintained some well-known gardens, which were a place of resort for strangers and whale men, just to the east of the present project area. George Beckley claimed a small fishpond named "Waikulu" which is understood as entirely within the south central portion of the project area. Whether this fishpond was a simple natural depression or whether it was man-made and actively maintained with some associated infrastructure (*'auwai, mākāhā*) is unclear.

While there was clearly a great deal of Hawaiian activity in the immediate vicinity, we were unable to document any habitations or constructions within the project area *per se* prior to the apparent use of the parcel for animal pens associated with the meat company enterprises of Gilbert F. Waller starting c. the late 1870s. These meat operations (slaughterhouse, stock-yards) continued in the immediate vicinity into modern times (Landrum & Klieger 1991:35).

An immediately adjacent parcel to the northeast was the subject of a number of archaeological studies and plans (Landrum & Klieger 1991, Hammatt & Folk 1992, Folk *et al.* 1993, Folk & Hammatt 1993). The quite thorough historic literature and document search of Landrum & Klieger on this adjacent parcel recommended no further archaeological work but did recommend archaeological monitoring. Given the research of Landrum & Klieger, the discovery of three sets of historic human remains and an associated cultural layer on the parcel (designated SIHP Site # 50-80-14-4525) was something of a surprise. The indicated graveyard was, however, found to lie in a small discrete area lying about 50 m (175 feet) northeast of the present project area. There was no indication that burials, remnants of a cultural layer or any other significant cultural deposits lay outside of a tightly defined area and aside from the small specific area containing the graves no further work was recommended for the project area (Folk *et al.* 1993:30).

The only other germane archaeological work in the vicinity was that of Wickler, Athens, and Ward (1991) in the Shafter Flats area approximately one kilometer to the northwest. While no direct archaeological data was recovered at all, some of the data recovered offered new insights into paleo-environmental change in the vicinity.

In summary the results of historical research and a review of previous archaeological studies indicate no specific historical concerns related to the present project area. Although this immediate area was the locus of traditional Hawaiian irrigated ponded-field systems, fish ponds, salt works it was probably too low-lying, swampy, and prone to

flood to have had intensive traditional Hawaiian or early historic occupation.

The question does however remain to evaluate the potential for deposits which may offer significant data on paleo-environmental change. While no subsurface studies have been conducted in the present project area to our knowledge, the stratigraphic layers documented in the *makai* (western) portion of the adjacent Folk *et al.* 1993 study area consisted of lagoonal clays and calcareous sand interbedded with decomposed post-erosional melilite nephelinite lavas of the Honolulu series. This is the type of stratigraphy to be anticipated within the present project area.

There are arguments both for and against paleo-environmental studies in the present project area. On the one-hand the area was probably a low-energy, deltaic, sink-type of environment down-wind of O`ahu's pollen-bearing trade winds. On the other hand there is evidence suggestive that the mouth of Kalihi Stream meandered somewhat over these coastal flats over time (probably particularly during flood) and additionally that storm surf or tsunami may have also blown out part of the pollen record. While the parcel was relatively undisturbed in the early historic period it seems likely there was some truncation of the upper deposits during later grading and paving.

B. Recommendations

This project has previously been the subject of State Historic Preservation Division Chapter 6E-8 Historic Preservation Review (March 12, 2001, LOG NO 27107, Doc No 0103EJ05; Appendix A) which concludes: "We would require that an archaeological inventory survey with subsurface testing be conducted for areas proposed for below grade improvements."

It is recommended that the project area be subject to a program of subsurface testing to augment the present study and complete the archaeological inventory survey required by the state. On the basis of our research, we believe that this parcel is likely to yield very little in the way of direct archaeological and historical finds. This conclusion argues against investment in thorough spatial coverage. Rather, we recommend that subsurface testing focus primarily on assessing the prospect for the recovery of samples yielding data for paleo-environmental studies.

Of greatest interest would be the recovery of samples for pollen analysis datable to the time span between c. A.D. 500 and 800. Such data would serve to address questions regarding the timing and nature of environmental transformation likely associated with Polynesian colonization. Possibly the prior location of Waikulu Fishpond in the south central portion of the project area would be a particularly good area to search for such a datable pollen record as may inform us regarding the nature and timing of Polynesian colonization of the rich coastal bottom lands of south O`ahu.

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Appendix A: State Historic Preservation Division Chapter 6E-8 Historic
Preservation Review

REPORT NUMBER 20/07

CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

March 12, 2001

Randall K. Fujiki, Director
Department of Planning and Permitting
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

LOG NO: 27107 ✓
DOC NO: 0103EJ05

Dear Mr. Fujiki:

**SUBJECT: Chapter 6E-8 Historic Preservation Review – Proposed Revision to the
Primary Urban Center Development Plan Public Facilities Map for the
Proposed Middle Street Transportation Center and the Handi-Van
Facility in Kalihi Kai, 2001 DPPFM-1
Kalihi Kai, Kona, O`ahu
TMK: 1-2-018:001-003, 009 & 10**

Thank you for the opportunity to comment on the proposed revision to the Primary Urban Center Development Plan Public Facilities Map for the Proposed Middle Street Transportation Center and Handi-Van facility. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the project areas.

The proposed revision will add a Transit Center symbol within six years to the PUC/DPPFM. The symbol is required prior to approval of land acquisition funds for major public facilities such as the proposed transportation center. A review of our records shows that there are no known historic sites at this location however, no archaeological survey has been conducted for this parcel. An historic site (Site 50-80-14-4525), consisting of human burials was found during archaeological survey with subsurface testing conducted at the adjacent Kalihi Palama Bus Center parcel. The historic record suggests that the areas around Pearl Harbor and Kalihi would have been attractive for settlement in prehistory, offering easy access to a wide variety of rich environments including wet land taro cultivation and extensive protected fishing and shell fishing grounds. A Land Commission Award was awarded for a portion of this parcel as well as several claims along Kalihi stream in this vicinity. Because historic period changes included filling of fishponds and other low-lying areas it is possible that the remains of these agricultural plots still exist today. Consequently, although surface historic sites are not likely to be found on this parcel, we believe that subsurface

Appendix B: Photographs of Project Area



Figure 14 General View of Southwest Portion of Project Area from the Intersection of Middle Street and Kamehameha Highway; View to Northwest



Figure 15 General View of Southeast Portion of Project Area from the South side of Kalihi Stream (Stream in Foreground); View to Northwest



Figure 16 General View of Northeast Portion of Project Area; View to North



Figure 17 General View of Northwest Portion of Project Area (Middle Street in background); View to Northwest

**CULTURAL IMPACT ASSESSMENT
OF THE PROPOSED
MIDDLE STREET TRANSIT CENTER
KALIHI AHUPUA`A, KONA DISTRICT, O`AHU
(TMK:1-2-18: 1, 2, 3, 8, 9 & 10)**

K. W. Bushnell, B.A.
Hallett H. Hammatt, Ph.D.

Prepared for
Kimura International, Inc.

Cultural Surveys Hawai`i, Inc.

November 2002

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I. INTRODUCTION AND SCOPE OF WORK

A. Project Background

At the request of Kimura International Inc., Cultural Surveys Hawai'i, Inc. conducted a cultural impact assessment of a 10.35 acre parcel in Kalihi Kai, Kona District, Island of O`ahu. The parcel is situated in the northeast corner of Middle Street and Kamehameha Highway (TMK 1-2-18:1,2,3,8,9 & 10). It is bounded by Kalihi Stream to the south and east, Kamehameha Highway on the southwest, Middle Street to the west and northwest and the Middle Street Bus Unit Repair Facility to the north (Figure 1). An *Archaeological Assessment of the Proposed Middle Street Transit Center Kalihi Ahupua`a, Kona District, O`ahu* was completed in January 2002. The assessment recommended subsurface testing which focuses on recovering samples yielding data for paleo-environmental studies. The cultural impact assessment was recommended by the Office of Hawaiian Affairs as part of HRS 343 compliance. The purpose of this Traditional Practices Assessment is to consider the effects the proposed development of the Middle Street Transit Center may have on native Hawaiians as it pertains to the culture and their right to practice traditional customs.

B. Scope of Work

The following Scope of Work was proposed for satisfying requirements based on the Office of Hawaiian Affairs' concerns for HRS 343 compliance.

1. Identification of appropriate parties for initial consultation, a request for information to various groups and individuals.
2. A substantial effort to follow-up on the mailings by telephone and to follow-up on any and all referrals.
3. Preparation of a final report summarizing the information gathered related to traditional practices and land use anticipated as 5-10 pages presenting our efforts and findings

C. Methodology

Hawaiian organizations, agencies and community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the study area and the surrounding vicinity. A discussion of the consultation process can be found in the following section on "Community Consultations". Please refer to Table 1 for a complete list of individuals and organizations contacted.

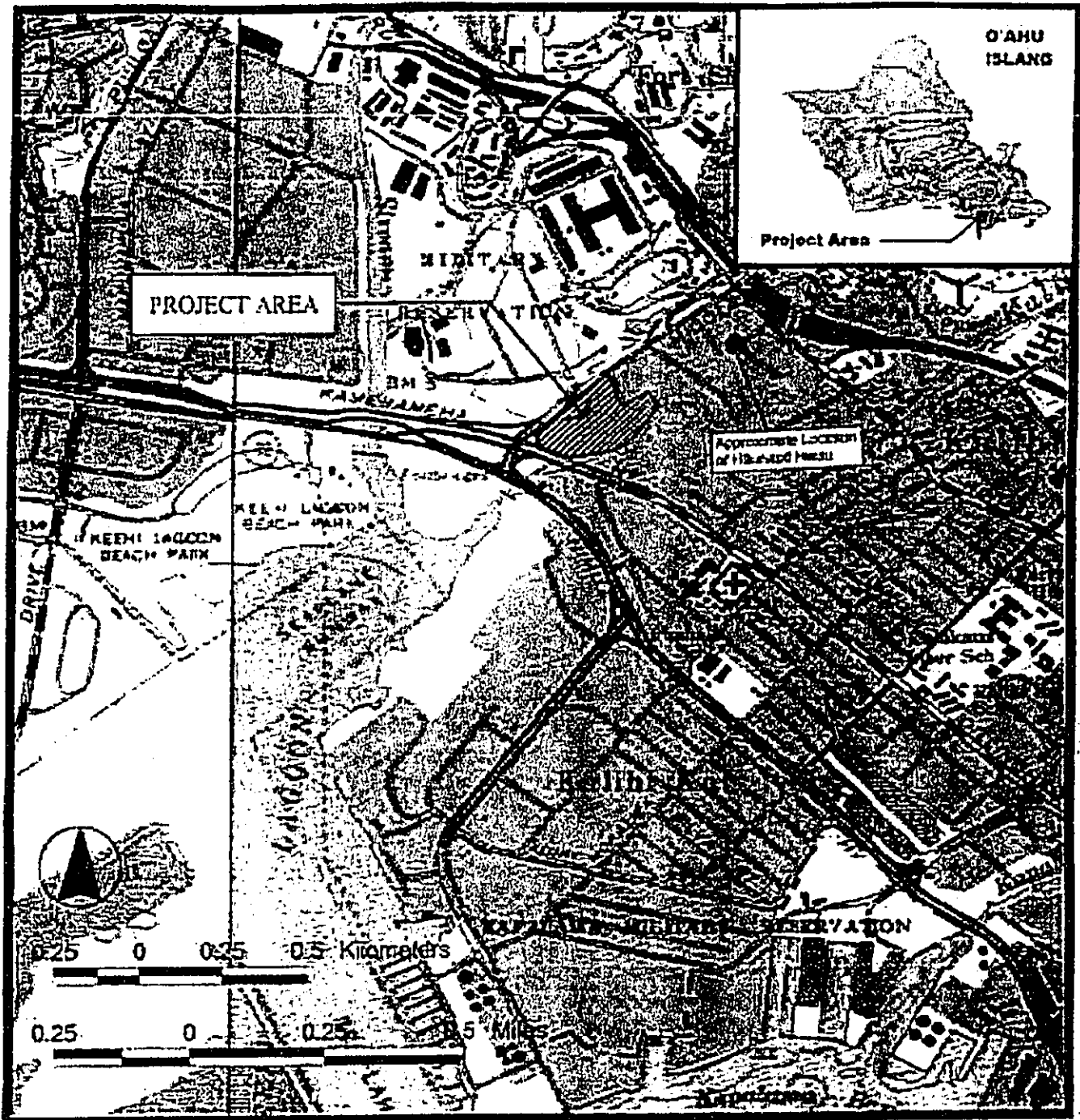


Figure 1 Portion of USGS Topographic Map, 7.5 Minute Series, Honolulu Quadrangle, Showing Project Area and Approximate Location of H unap Heiau According to Pukui *et. al.*, 1972.

II. STUDY AREA DESCRIPTION

The project area is approximately 400 m (1/4 mile) inland from the confluence of Kalihi and Ka-hau-iki streams at the head of Ke`ehi Lagoon and lies at less than 20 feet elevation above sea level. Most of the parcel has been previously paved and is now devoted to various light industrial and retail uses (particularly for the parking of various cars, trucks and equipment). The area is under consideration of development for a proposed Middle Street Transportation Center which would involve primarily the development of a parking structure and new Handi-Van building for maintenance, operations and administrative functions.

III. COMMUNITY CONSULTATION

As partial fulfillment for the Scope of Work (SOW), consultation with organizations and the community were conducted to identify knowledgeable *kūpuna* or *kama`āina* who could inform on the history, previous land use and traditional practices of the study parcel. The organizations consulted were the State Historic Preservation Division, the Office of Hawaiian Affairs, the O`ahu Island Burial Council and the Neighborhood Board Commissions of Kalihi including Numbers 15 and 16, Kalihi-Palama and Kalihi Valley, the Kalihi-Palama Hawaiian Civic Club and Alu Like. In addition, members of the Nahinu `Ohana were consulted given their historic family ties to the land which encompasses the project area.

Although the Nahinu family was very familiar with their genealogy, very little was known about the land in the project area. All of the Nahinu clan consulted were related to a different line of Nahinu than was associated with the land in the vicinity of the project area. Of all the Nahinu family, Mr. George Kaeliwai was the most familiar with the project area and the Kalihi Kai area in general. He grew up near the project area and had a broad perspective of the tremendous changes which have occurred in Kalihi kai. He was also aware of some traditional cultural practices, particularly related to fishing.

Table 1: Results of Community Consultations

Key:

Affiliation

OHA=Office of Hawaiian Affairs
SHPD=State Historic Preservation Division
NB=Neighborhood Board
OIBC=O`ahu Island Burial Council

Y=Yes

N=No

S=Some

A=Attempted (at least 3 attempts were made to contact individual, with no response)

U= Unable to contact, i.e., no known phone number or forwarding address

Name	Affiliation	Contacted	Personal Knowledge (Y/N/S)	Referred by	Comments
Ah Tou, George Palena	Nahinu Ohana	Y	S		Recognized lineal descendant of Nahinu, LCA 10498. Raised in Kona and Ola'a, Puna, Hawai'i Island. Familiar with family history; some information on land in project area.
Akina, Edgar	Kalihi Resident	Y	Y	M. McClelland	Fisherman who fishes in Ke'ehi Lagoon
Apo, Peter K	O'ahu Island Burial Council; Kona Regional Rep.	Y		Listing	
Chincio, Moana Nahinu	Nahinu Ohana	Y		Referred by G. Ah Tou	Has ties to Nahinu family. Familiar with Nahinu family on land once given to Nahinu family.
Diamond, Van Horn	Oahu Island Burial Council	A		Listing	
Hutchison, Mary Ann	Ahahui Ka'ahumanu Society	U		Listing	
Kaeliwai, George	Nahinu Ohana	Y	Y	Former Pres. of 'Ewa Hawn Civic Club	Grew up in Kalihi Kai; much knowledge about former land use and traditional practices near project area
Kalihi-Palama Public Library		Y	N		No information

Name	Affiliation	Contacted	Personal Knowledge (Y/N/S)	Referred by	Comments
Kaulahao, Mary	Relative to Nahinu Ohana	A		Referred by G. Ah Tou	
Keala, Jalna	OHA	Y		Listing	Referred: local hawn civic clubs, local chapters and royal societies, OIBC, individuals who may be affected
Lindsey, Joy	Nahinu Ohana	Y	N		Responded to ad looking for lineal descendants to Nahinu in 1993. Referred Betty Snowden.
McEldowney, Holly	SHPD	Y		Standard	Potential impact to Kalihi Stream and Ke`ehi Lagoon
McClelland, Maryrose	NB #16, Kalihi Valley	Y	N	Referred by: Bernadette Young	Referred E. Akina, <i>kama`āina</i> and fisherman of Kalihi.
Napoka, Nathan	SHPD	A		Standard	
Pang-Tamura, Ani	Alu Like, Inc. Ke Ola Pono No Na Kupuna	Y			
Pine, Susan	Kalihi-Palama Hawaiian Civic Club	A		Listing	
Snowden, Betty	Nahinu Ohana	Y	S	Referred by: Joy Lindsey	Knew of Kalihi Nahinu, but is related to other Nahinu line. Little information on Kalihi.
Young, Bernadette	Kalihi Palama #15 Neighborhood Commission	Y		Listing	Comment: not enough time to meet with Neighborhood Board and respond. Unhappy with time line.

IV. TRADITIONAL CULTURAL PRACTICES

A. Nahinu Family and the Kahuna Tradition

The project area is within what historically was Land Commission Award 10498, awarded to Nahinu in 1848. The land encompassed 46.17 acres in the *ʻili* of Kionawawana, Kalihi *Ahupua`a*. Nahinu was among the *konoiki* who received property during the first division of land between the king and chiefs in 1848.

No. 10,498 Nahinu Feb. 12, 1848

N.R. 560v4

To the Land Commissioners: I hereby tell of my little *ʻili* in Honolulu, in Kalihi. It is named Kiona. It was awarded to me by the *Mōri* and by G. P. Iuda [Judd], Government Official. One half of said land. I am, respectfully,

NAHINU

No. 10498 Nahinu 1 July 1851

N.T. 20v10-11

Kauikea sworn I have seen this land which belongs to Nahinu in the *ahupua`a* of Kalihi. It is an *ʻili* named Wanana and the second section is Kukahi, however, the first section has been taken by the government leaving the second section Kukahi to Nahinu of 7 *poalima* patches and 1 pasture section

<i>Mauka</i>	Kaliawa land
Waikiki	Kaliawa land/Apili land
<i>Makai</i>	Kahauiki <i>Ahupua`a</i>
ʻEwa	Kaluaopalena <i>Ahupua`a</i>

Land from Kam. III in 1831, no objections except that I've heard Pao has been the only objections.

Kaluau sworn I have this *ʻili* land exactly as Kauikea has related here.

According to Mrs. Betty Snowden, a Nahinu family member consulted, the Nahinu of Kalihi was a *kahuna* from the Hewahewa line (pers. communication, B. Snowden, 7/16/02). Kamakau (1992) mentions Nahinu, the *kahuna*, in association with Boki:

Boki returned and lived at his place at Beretania and devoted himself to medicine, in which he was proficient, and all those joined him who were skilled in placing pebbles [in diagnosis], such as Kaa, Kuauau, Kinopu, Kahiole, Nahinu, Kekaha, Hewahewa, and their followers and other *kahunas* besides (*Ibid*: 291).

Mrs. Snowden added that *kahuna* were given lands near fresh water because it was important for them to practice their *ho'oponopono* there. Further information on the Nahinu family genealogy is available in Appendix A.

B. Fishponds

The United States Fish Commission Report for 1903 (Cobb 1903: 748) lists twelve fishponds located on the periphery of Ke'ehi Lagoon which were in operation in 1901 with a total acreage of 857. Some of these fishponds were located just *makai* of the project area. The large fishponds nearest the project area were Weli Fishpond in Kahauiki *Ahupua`a* (30 acres) and Apili Fishpond in Kalihi *Ahupua`a* (28 acres). Weli Fishpond was approximately 30 acres and it was constructed of mostly earth embankments (Sterling and Summers, 1978:322). One of the meanings of *weli* is "phosphorescent light on water, believed caused by a ghost that was interfering with fishing" and suggests a phenomenon unique to that fishpond. The other large fishpond, Apili, was noted for its *awa*, a fish "which vied with the *'ama'ama* (mullet) in popularity" (Titcomb, 1972:70).

"Apili. (Hawaiian meaning)'caught, snared, or stuck': Land surrounding the fishpond in Kalihi, Oahu belonging to the Adams' family. It was there that Capt. Alexander Adams had his famous gardens, which was quite a place of resort for strangers and whale men, about 1850. The fishpond is yet famous for the superior flavor of its fish, particularly the *awa* [milkfish], which, eaten raw, is esteemed a rare treat by native epicures (Sterling and Summers, 1978: 323).

A *kama`aina* born in Kalihi recalls fishponds in the vicinity of the former Apili Pond when he was a youngster in the 1930s. At that time, the Apili Pond was split into several ponds and was operated by the Hamada Family who would harvest the fish from tin boats (pers. communication, G. Kaeliwai, 7/16/02).

In addition to the large *loko* flanking Ke'ehi Lagoon, several small fishponds are recorded for the vicinity of the project area. These include Makaakukuhi, Waikulu and Panahaha (RP 4544, in Waihona `Aina). Two of these *loko*, Waikulu and Panahaha, are depicted in an 1883 Hawaiian Government Survey Map of Kalihi and Kapalama Makai Sections (Figure 2). In this map, Loko Waikulu and a small portion of Loko Panahaha appear to be with the project area. The location of Loko Makaakukuhi is unknown, although it is thought to be near the other two *loko*. All the *loko* were less than one acre in area (RP 4544, in Waihona `Aina).

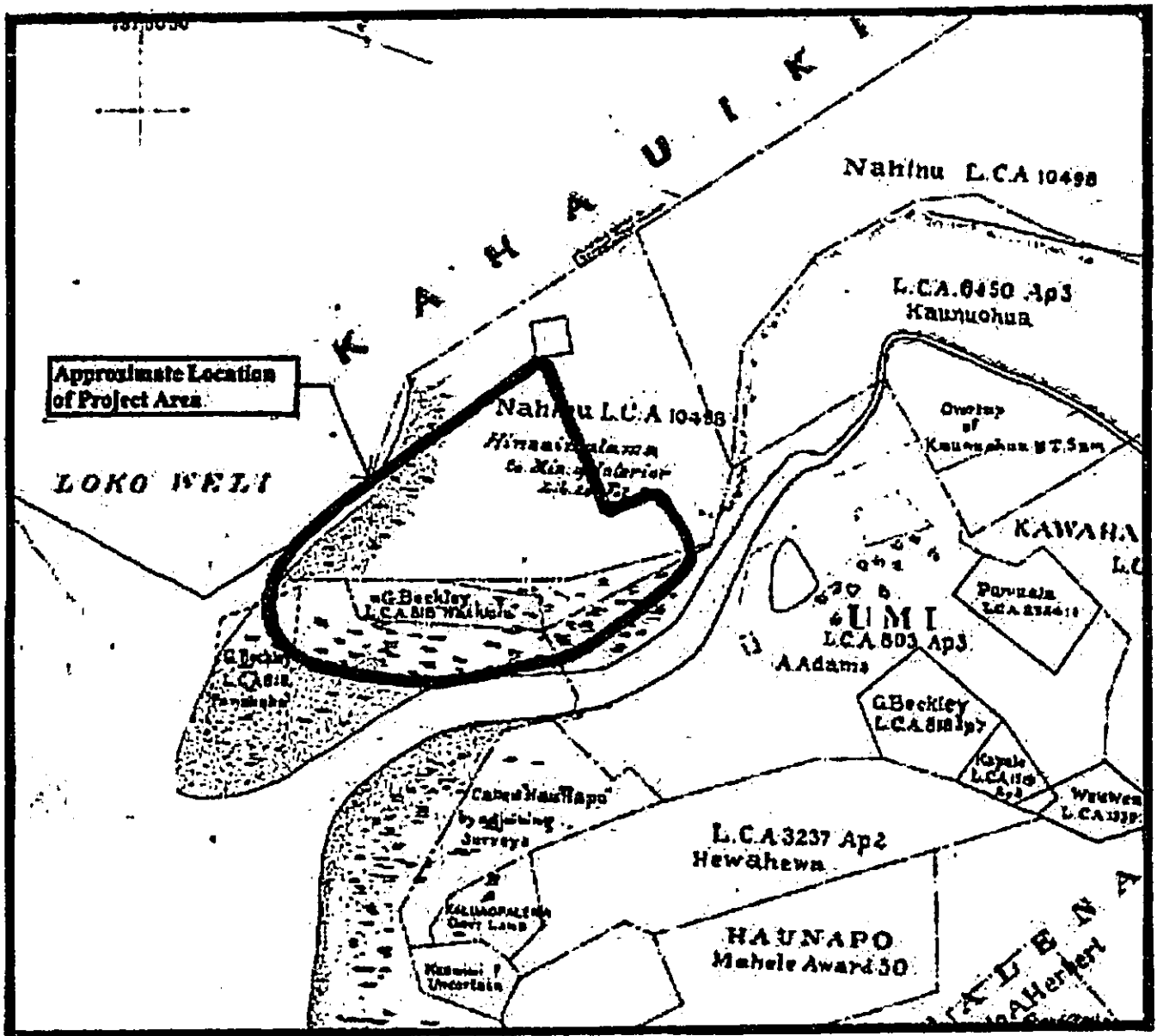


Figure 2 Portion of Map of Hawaiian Government Survey, Kalihi and Kap lama Makai Sections (J.F. Brown 1883) Showing Waikulu and Panahaha Fish Ponds.

C. Poned Field System

Several of the land commission awards in Kalihi Kai claim taro lo'i within or adjacent to Nahinu's land, or the project area. In LCA 10498 to Nahinu, he is given the land Kukahi with 7 *poalima* and one pasture section. In addition, other evidence of agriculture in the Kionawawana `Ili in Kalihi is found in Māhele documents including references to *kula* land, *`auwai* and pig enclosures. Handy and Handy (1940:79) describe "extensive terraces" on the flatlands of Kalihi on both sides of the stream.

D. Salt Pans

Salt Pans were depicted in various historic maps of the Kalihi region. In a c. 1870s map of Moanalua and Kahauiki, the salt pans are shown just south of Kalihi Stream adjacent to Loko Apili. A 1922 Fire Control Map shows salt beds on the inside of Apili Pond. There is also direct reference to the salt pans of Kaibikapu, a large fishpond on the west side of Ke`ehi Lagoon (McAllister, 1933:93). Royal Patent 2388 to Meeks notes there were salt ponds adjacent to Apili Fishpond called "Punaula" (Waihona `Āina). "Talk story" with one Nahinu descendant suggests the Nahinu `Ohana was harvesting salt on their land. Mr. Ah Tou, claims that that Nahinu used to have salt ponds where white salt was made (pers. communication, G. Ah Tou, 6/25/02). Others from the Nahinu family remember salt making as part of traditional practice of the general area. Mrs. Snowden recalls visiting relatives in Moanalua where everyone ate the local gray salt. Having grown up on Kaua`i, where red salt was the norm, the gray salt looked "dirty" (pers. communication, B. Snowden, 7/16/02). George Kaeliwai, who grew up in Kalihi Kai, mentioned the Lee Family, who ran the salt flats down at Puuhale, just south of the project area (pers. communication, G. Kaeliwai, 7/16/02).

E. Burials

In the area northeast and adjacent to the project area, a cluster of three historic, post-contact human burials and a cultural layer (State Site #50-80-14-4525) were uncovered during test excavations for an archaeological inventory survey (Folk et. al, 1993). The testing indicated that the site was quite discrete in an area approximately 50 feet by 40 feet in the central portion of the parcel. In consultation with the State Historic Preservation Division and the O`ahu Island Burial Council and in accordance with the wishes of a recognized lineal descendant of the Nahinu Family, Mr. George Palena Ah Tou, the burials were relocated on the same property.

Although this immediate area was the locus of traditional Hawaiian irrigated ponded-field systems, fish ponds, and salt works, it was probably too low-lying, swampy and prone to floods to have had intensive traditional Hawaiian or early historic occupation. Nevertheless, two members of the Nahinu `Ohana expressed concern for possibility of more inadvertent burials in the project area. Mrs. Chincio felt that because there were witnesses who claimed to live on Nahinu's land, there may be more historic burials there (pers. communication, M. Chincio, 7/23/02). Mrs. Snowden felt that there

still may be burials under the mess of today's freeways and that where there were not former taro *lo'i*, there may be burials (pers. communication, B. Snowden, 7/16/02). The Nahinu family would like to be contacted in the event of inadvertent discovery of any burials in the project area.

F. Trails

There is no indication that there was a major pre-contact trail in or near the project area. One spur of the old OR & L Railroad traverses the project area and another which crosses Ke`ehi Lagoon runs just south of the project area. Middle Street which runs *mauka-makai* seems to use the same alignment as the *ahupua`a* boundary between Kalihi and Kahauiki. Middle Street in the first part of the twentieth century is described as a "small, little lane" (University of Hawaii at Manoa, 1984: 517). There may have been a *mauka-makai* trail on this alignment prior to the construction of Middle Street, though no evidence has been found to substantiate this.

Early maps show a main east-west trail crossing Kalihi Stream well *mauka* of the project area. There does not appear to be a specific traditional access trail but rather a network of paths to access the Kalihi River mouth, coastal shallows and fish ponds, *lo'i*, and *kuleana* in the area. The parcel lies adjacent to two major modern thoroughfares: Middle Street on the northwest and Kamehameha Highway. Access to Kalihi Stream for fishing is possible from the Kamehameha Highway.

G. Plant Resources

In the first half of the century, the land across the stream from the project area was all mud flats and marshlands (pers. communication, G. Kaeliwai). Mr. Kaeliwai explains that the prisoners (from Oahu Prison, located south of project area) and farmers would go clear the stream and pick the *honohono* grass for their pigs and horses. O`ahu Prison used to use land all the way to Kalihi Stream. They would plant vegetables and taro. Uncle George described it as "beautiful". Another old timer interviewed mentioned the Pake Garden in association with the slaughterhouse. He indicated that somewhere adjacent to the slaughterhouse, there was a garden where Chinese farmers grew vegetables which were harvested to sell at the Kekaulike Market (University of Hawaii at Manoa, 1984:517).

Today, the vast majority of the project area has been graded and paved and includes various light warehouses and other retail and light industrial constructions. There is some landscaping with coconut palms near the corner of Middle Street and Kamehameha Highway and some opiuma trees, castor bean plants, and exotic grasses and weeds but the parcel is overwhelmingly devoid of vegetation.

H. Sacred Sites

Kalihi is rich in legends but most appear to be focused in the back of the valley in the zone that would have been known as the "*wao akua*" mountain region believed inhabited by the spirits. The various rich traditions of the goddess at Kalihi (known variously as Hai-uli, Hina, Kamehaikana, Kapo, Lau-mihi, Papa, Walinu'u) (see G.W. Kahiolo, *Ka Ha'e Hawaii* 1861; Kamakau, *Ke Au Okoa*, October 14, 1869; Westervelt 1915a:161; Pukui 1951:141; Fornander, 1917:5, 360-361; Thrum, 1923:196; Beckwith 1940:187) typically place the goddess and her husband residing in the uplands of Kalihi Valley near the peak of Kilohana.

A *heiau* is thought to have existed on land near the mouth of Kalihi Stream in the vicinity of the project area. The name of the land is Hāunapō, "night striking" (Pukui et. al, 1974:42). The *heiau* may have connections to 'Umi, the sixteenth century chief of Hawai'i. When referring to 'Umi in *Place Names of Hawaii*, the following explanation is given:

Street and former land section, Kalihi Kai, Honolulu. *Lit.*, strangle. (The name is probably derived from the strangling of a victim used as a human sacrifice at the *heiau* Hāunapō which stood in the vicinity of the present street; TM) [Pukui et. al, 1974: 215].

Umi Street and Haunapo Lane are located less than 800 feet away off of N. King Street. McAllister (1933:88) lists two *heiau* for Kalihi-kai, Kaoleo and Haunapo. Additional information regarding location or function was not given. These two *heiau* are assumed to be long gone as no other record of them was found. No mention of *heiau* or other sacred sites was made during the consultation process.

I. River Resources-Kalihi Stream

The project area lies immediately adjacent to Kalihi Stream which forms its southeast boundary. In the vicinity of the project area, it is likely that *'ama'ama* and *āholehole* were once plentiful in the streams at the river mouth. Today, the stream is artificially lined in this stretch and is generally rather muddy and shallow but flows continuously into the sea. While none of the four native freshwater species that are indicators of high quality stream ecosystems have been reported for Kalihi Stream, four other common native species have been reported (Wilcox and Edmunds, 1990:174). Five noxious non-native stream animals have been reported for Kalihi Stream of which *Tilapia spp.* were observed to be particularly abundant near the project area. The Stream Assessment listed few natural, cultural and recreational opportunities in the portion of Kalihi Stream adjacent to the project area.

An avid fisherman growing up in Kalihi in the 1950s, Mr. Akina, remembers playing, fishing and crabbing inside Kalihi Stream in the vicinity of Kuhio Park Terrace, an area previously known as Kalihi War Homes. Crabbing for Samoan crab was particularly popular (pers. communication, E. Akina, 8/29/02). Mr. Akina admitted he hasn't fished in Kalihi Stream for more than ten years. As soon as he became conscious of how polluted it was, he quit fishing there and also at the mouth of the Kalihi Stream, preferring the Kahauiki Stream confluence, or other areas. However, Mr. Akina related that he does see local people crabbing the Kalihi Stream from the Dillingham Bridge (on both sides of the bridge) and at other areas further downstream. Mr. Kaeliwai used to fish on the banks of the OR & L Railroad (now Nimitz) right at the mouth of Kalihi Stream, just downstream of the project area. He remembers catching mostly *āholehole* and Samoan crabs in this area (pers. communication, G. Kaeliwai, 7/16/02).

In addition to fishing, the Kalihi Stream was a popular swimming spot. Mr. Akina remembers one place in particular called "Pop's Pond", near Martin Street and the present day Kuhio Park Terrace Play Ground. Here, there was a nice ledge from which the kids would jump into the pond. After Kuhio Park Terrace was built, the pond became too polluted to swim in as the residents began to throw their trash and car parts into the water (pers. communication, E. Akina, 8/29/02).

J. Fishing-Ke`ehi Lagoon

Ke`ehi Lagoon was once flanked by fishponds which yielded great quantities of fish which were in high demand. Some of these fishponds were still in production into the early twentieth century. *Kama`āina* growing up in the 1930s and 1940s remember abundant quantities of fish, shellfish and crabs everywhere, in the streams, at the stream mouths, in the fishponds, in Ke`ehi Lagoon and further out. In the mudflats at Puuhale, south of the project area, crabs were plentiful. Mr. Kaeliwai recalls catching white crab (*watabi*), the red/ Hawaiian crab, and dollar size clams (pers. communication, G. Kaeliwai, 7/16/02). Mr. Kaeliwai still remembers the day Pearl Harbor was attacked. At the time, the Ke`ehi Lagoon was being dredged to create Sand Island. The day of the attacks, young George was in the Ke`ehi Lagoon picking up shells, crabs and fish that were displaced from the dredging of the lagoon. He was talking story with the dredging workers and his sister called him from the bank to come home right away. Mr. Kaeliwai feels the dredging of the lagoon affected not only the form of the Lagoon, but the fish that lived in it. Mr. Ah Tou expressed dismay at the construction of Nimitz Highway, which he feels wiped the fishing grounds out (pers. communication, G. Ah Tou, 6/25/02).

Mr. Akina still fishes in the Ke`ehi Lagoon and he has seen fishing conditions decline in the last few decades. He explained that Ke`ehi Lagoon was once a hammerhead shark breeding ground. Now, he sees very few sharks. Though he still goes crabbing for Samoan crab and pole fishing for mullet and *pāpio*, he feels the quantity and the quality of the fish and crabs have been impacted negatively by all the pollutants coming into the Lagoon (pers. communication, E. Akina, 8/29/02). Mr. Akina is well acquainted with some of the fishing families who still live on Mokauea. Many of these

families have been fishing for generations and find it more and more difficult to retain their fishing grounds. Mr. Ah Tou, member of the Nahinu family, remembers when relatives were thrown off the island (pers. communication, G. Ah Tou, 6/25/02). Fishing traditions on Mokauea and in Kalihi Kai may have some historic connection as they used some of the same fishing grounds.

V. SUMMARY AND RECOMMENDATIONS

An attempt was made to contact eighteen people who may have information regarding traditional cultural practices for the project area or vicinity. The focus of the consultation was the Nahinu *'Ohana* who has historic ties to the land from at least the early to mid 1800s. The four Nahinu descendants reached were actually related to a different line of the Nahinu family, a first cousin of the Nahinu associated with LCA 10498 and the project area. Although most were aware of their genealogy, only one had particular knowledge of the project area due to his life experience living at Kalihi Kai.

The oldest informant who had knowledge of the project area was born in 1929. The Hawaii Meat Company, formerly the Metropolitan Meat Co. and known locally as "the slaughterhouse", began operations circa 1884 and was in business for more than one hundred years. No informant alive today can recall what the study parcel was like prior to the slaughterhouse. Traditional cultural practices noted for the parcel are almost entirely derived from historic documents. The project area has been devoted to light industrial purposes for well over a century and has been massively impacted by historic use. Most of the parcel has been previously paved and is now devoted to various light industrial and retail uses and particularly for the parking of various cars, trucks and equipment.

Despite the impacts to the project area, some concerns were expressed. The Nahinu family felt there may be more burials in the project area based on the burials found in the adjacent parcel to the northeast and based on the fact that *Māhele* documents account for other persons living on the land. Although the physiogeography is not conducive to being a burial ground, there is still a remote possibility that burials will be inadvertently discovered. If this is the case, the Nahinu *'Ohana* has requested they be contacted.

The other main concern is fishing. In the last several decades, fishing and swimming has declined in the Kalihi Stream as a result of increased pollution. However, there are people who do continue to crab for Samoan crab in areas just downstream of the project area. Though the Kalihi Stream is now considered polluted, increased industrial run off would only aggravate the problem. This goes for the larger area of Ke'ehi Lagoon which receives the output of streams traversing many industrial and residential areas in the Honolulu area. Fishermen who still fish in the Lagoon feel helpless regarding the uncontrolled pollutants entering the lagoon. They only see the effects on their fishing grounds and in the quality and quantity of fish and crabs in the lagoon. In order to protect what little fishing there is left in Kalihi Stream and Ke'ehi Lagoon, we suggest there be some plan to control the amount of waste entering the drainage, both during construction and for long term planning.

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APPENDIX A

Hallett H. Hammatt, Ph.D
Cultural Surveys Hawaii
733 N. Kalaheo Avenue
Kailua, Hawaii 96734

November 1, 2002

Sir,

In early October I was contacted by a very gracious employee who wished to locate and speak to anyone who could provide information about the Nahinu family. My great-grandfather was David Hopeni Nahinu, son of Hunohunoholani and grandson of Paoakalani.

Hawaii was a one name society until the missionaries came, then many took the name of their father or other ohana. Great-grandpa took Nahinu because his ohana of that name had no male to carry the name. That is the family legend.

Anyhow, after the visit with your employee, my curiosity was peaked and I decided to do research. In only one day I found some startling and interesting information and I wondered why your organization never discovered what I did....and I just used the archives and library.

It bothered me that misinformation or inaccurate information was evidently being recycled, because your report left the impression that there were no descendants of Nahinu. Not so. Enclosing genealogy and sources of information so as you may research for yourself.

For instance, Nahinu of Kalihi had a daughter who married twice, had a son who had no issue. She definitely was my great-grandpa's cousin. I called your office to inform your employee of my discoveries but was informed that it was too late as the report went in. I don't know what that means or why we are perpetuating misinformation, so I intend to document and make a record of this with copies to proper and interested parties.

The purpose of my actions:

1. The information was very easily accessible to anyone and a lay person like myself found it in one day.
2. It was customary for the Ohana to secure grants close to each other and I found several near Nahinu's grant...Adams, Beckley, Umi, Kaunuohua, Kapule, Hewahewa... just to name a few.
3. I firmly believe that carefully researched and supported docu-

mented information should be attached to reports, especially when it involves the taking of someone's property or grave sites.

I did share my information with your staff even though they said it was too late for the report. I strongly recommended that she send in a corrected report. Obviously, someone is recycling misinformation when it is clearly stated by Mr. Nahinu himself that his daughter's name was NOT what you had in your report.

Dr. Hammatt, I hope that you will take this seriously and re-direct your staff to properly research and disseminate information only after careful study and documentation, especially if it is to have major impact on others.

I am enclosing copies of information for your files.

Respectfully,

Betty Snowden

Betty Snowden
419A Atkinson Drive #902
Honolulu, HI 96814

phone: 949-26179

cc: Kimura International, Inc.

sources: Mahele Book
McKinzie Hawaiian Genealogies
Family history
Kamehameha's Children Today by Ahlo

NAHINU, M.

LCA 10498

MAHELE BOOK 156-157 (162-163)

Relinquished:

1/2 Kiona, ili no Kalihi, Kona; Oahu

(Signed)

Received:

1/2 Kiona, ili no Kalihi, Kona, Oahu

Claim 10498

NR 560.4 Feb. 12, 1848: claims piece of ili aina in Honolulu, at Kalihi, named Kiona. Awarded me by the King. It is one half of the land.

NT 20.10 July 1, 1851: Kauikea, witness,

knows land of Nahinu in Kalihi. It is an ili called Wanana and the second section is Kukahi, however, the first section has been taken by the government, leaving the section Kukahi to Nahinu of 7 poalima patches and 1 kula. Land was from Kamehameha III in 1831.

NT 201.10 certificate of award, as Mahele Book.

LCA 10498

(RP 3546) Kionawana, Kalihi 46.17 ac/1ap.

(Aw. Bk. 10:650; *Indices* 357)

159: Chamberlain Journal February 5, 1833:

A Hulumanu; "a forward one among the rioters" [of 1833-34, the time of the "Haunaele of Kaomi."

Nahinu "formerly at bindery" (MS note)

601: NAHINU

BM: 11:66 [allow for variant spellings]

Keaweaike

Kaihelelelani

Konaaimakalani

Konaaimakalani

Kamaka[?Kamakau]wahine Nahina [read Nahinu]

NAHINU

K/A Kaleionehu

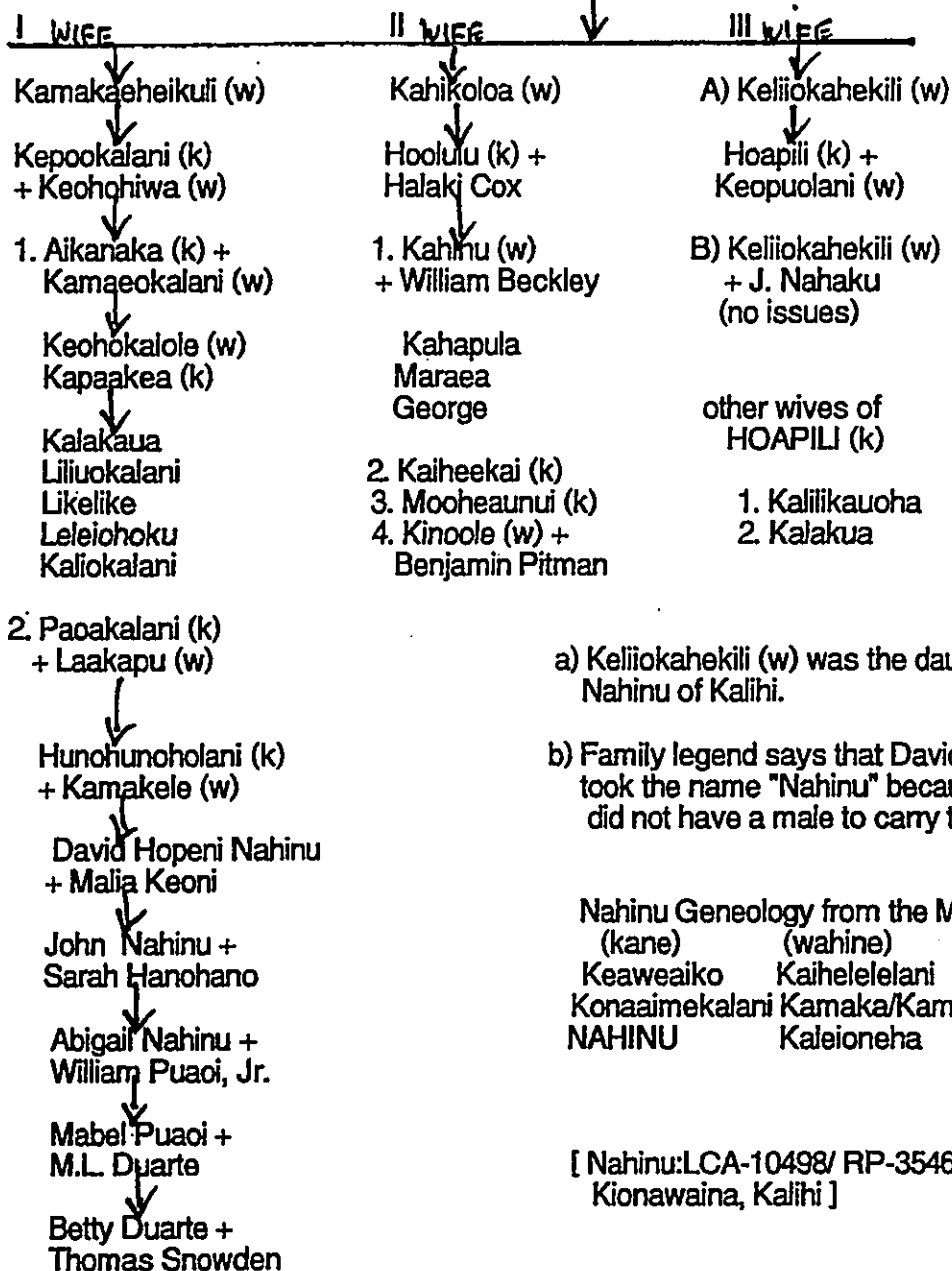
Keliokahekili, w.

Hon. J.A. Nahaku

Keliokahekili

n.i.

KAMEEIAMOKU (k)
(The Sacred Royal Twin)



a) Keliiokahekili (w) was the daughter of grantee Nahinu of Kalihi.

b) Family legend says that David Hopeni Nahinu took the name "Nahinu" because his cousin did not have a male to carry the name.

Nahinu Geneology from the Mahele Book

(kane)	(wahine)	(keiki)
Keaweaike	Kaihelelelani	Konaimekalani
Konaimekalani	Kamaka/Kamakau	NAHINU
NAHINU	Kaleioneha	Keliiokahekili

[Nahinu:LCA-10498/ RP-3546-
Kionawaina, Kalihi]

Kahakuha'akoi

Kamehameha I	Kahakuha'akoi ~ Wahinepio	La'akapu (w)
La'akapu (w)	Paoakalani (k)	Hunohunoholani
Hunohunoholani	Kamakele	David Hopeni Nahinu (k)
David Hopeni Nahinu (k)	Malie	Kemiki (w)

Source of Information

A- Kamakau, S.M., Ruling Chiefs, page 183-184

B- Royal Lines of Nahinu AD 1440

C- Hawaii Lines of Chiefs and Chiefesses, page 4

D- Statement and Genealogy Chart of Laakapu,
daughter by Kamehameha I and Kahakuhaakoi aka Wahinepio
By Kemiki (w) dated June 27, 1918, from the State Archives,
Liliuokalani Collections

A- "...Chiefs and Chiefesses carried the hem of her [Ka'ahumanu] tapa and
pa'u, splendidly ordered by the most skilled dyers. Ka-heihei-malie and
Ka-haku-haakoi, the second and third in esteem of his wives, were also
richly dressed and their rank shown by the *kahili* called Koa'e-hulu-ma'ema'e,
which had formerly belonged to Ke-aka, the wife of Alapa'i-nui, and had been
passed down by her to her granddaughters as a sign of their rank and of their
parents' affection..." [Kamakau, RC: 183-184].

Kauhiaimokuakama (k)	Luukia (w)	Kululu Kalolaahilani Kamakahukilani
Kamakahukilani (w)	Kekuamanoha	Kalaimoku Kahakuhaakoi (w) Boki (k)

[McKinzie, Edith, Hawaiian Genealogies, Vol. II:13]

(Note: The above line descends from Kihaapilani through the Koo lineage).

Kihapiilani (k)	Koleamoku (w)	Kauhiokalani
Kauhiokalani	Kauamanu	Makaku
Makaku	Ikiakapoonole	Kaoo
Lonoikamakahikiquapu	Kaiuluakea	Koo
		Kaiuli

Kuu <i>P. ...</i>	Kahoowaha <i>Kauukuu</i>	Kainahopukahi Luukia
Luukia	<i>Kauuauuikuaakalia</i>	<i>Kaiaia</i> Kaloaahilani Kamakahukilani
Kamakahukilani (w)	Kekuamanoha	Kalaimoku Kahakuhaakoi (w) Boki (k)

[On the side of Kekuamanoha]:

Kekaulike Kekaulike	Kahawalu (w) Ha'alou (w)	Kauhaimokuakama (k) Kekuamanoha (k) Namahana (w)
Kekuamanoha (k)	Kamakahukilani	Kalaimoku Boki Wahineopio ~ Kahakuhaakoi w) ~ Kamoonohu (w)
Kahakuhaakoi (w)	Kahoanokukinau (k)	M. Kekauonohi (w) Kahalaia (k)
M. Kekauonohi (w) M. Kekauonohi (w)	Keliiahonui (k) L. Haalelea (k)	(no issue) (no issue)

[McKinzie, Edith K. Hawaiian Genealogies: 19, 50-51; Fornander, Abraham, Account of the Polynesian Race Vol II: 212]

Kahakuhaakoi (w) <i>[H. John Papa, Fragments: 50-51]</i>	Kalaimamahu (k)	Kahalaia (k)
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Commentary:

By the above, in the genealogy submitted by Kemiki (w) in 1918, La'akapu (w), daughter of Kahakuha'akoi (w) and Kamehameha I was a half-sister of Miriam Kekauonohi (w), daughter of Kahakuha'akoi and Kahoanokukina'u (k), son of Kamehameha I and Peleuli (w). She would also be a half-sister of Kahalaia (k).

Appendix I

**Section 106, National Historic Preservation Act Consultation
Correspondence**

CULTURAL SURVEYS HAWAII, INC.

Archaeological and Cultural Impact Studies
733 N. Kalāheo Ave. Kailua Hawai'i 96734
Bus: (808) 262-9972/Fax: 262-4950
e-mail: dshidelax@culturalsurveys.com

January 18, 2002

Dr. Sara Collins
State Historic Preservation Division
Kākūhīhewa Building Room 555
601 Kamokila Blvd.
Kapolei Hawaii 96707

Subject: Request for Guidance in Determining an Appropriate Scope of Work for Subsurface Archaeological Testing at the Proposed Middle Street Transit Center Public Facility, Kalihi Ahupua`a, Kona District, O`ahu (TMK:1-2-18: 1,2,3,8,9 & 10).

Aloha Dr. Sara Collins:

Back in March 12, 2001 your office carried out a Chapter 6E-8 Historic Preservation Review of a proposed Middle Street Transportation Center public facility project (LOG NO 27107, DOC NO 0103EJ05; Appendix A of the enclosed document) that calls for an archaeological inventory survey. Cultural Surveys Hawaii has carried out an initial assessment of the project area, to be directly applicable to a later inventory survey, which is intended to help define an appropriate scope of work in terms of where to dig, how much to dig, and what specialized studies (pollen analysis, carbon dating) are indicated that the State Historic Preservation Division (SHPD) may respond to in order to determine what the next step should entail. We seek your guidance in this regard of determining an appropriate scope of work to address SHPD concerns.

Enclosed please find a draft *Archaeological Assessment of the Proposed Middle Street Transit Center, Kalihi Ahupua`a, Kona District, O`ahu (TMK:1-2-18: 1,2,3,8,9 & 10)*. In summary, the results of historical research and a review of previous archaeological studies indicate no specific historical concerns related to the present project area. Although this immediate area was the locus of traditional Hawaiian irrigated ponded-field systems, fish ponds, and salt works it was probably too low-lying, swampy, and prone to flood to have had intensive traditional Hawaiian or early historic occupation. On the basis of our research, we believe that this parcel is likely to yield very little in the way of direct archaeological and historical finds. This conclusion argues against investment in thorough subsurface spatial coverage.

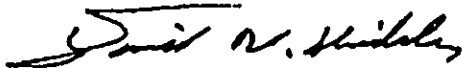
Rather, we recommend that subsurface testing focus primarily on assessing the prospect for the recovery of samples yielding data for paleo-environmental studies. Neighboring paleo-environmental research (Wickler *et al.* 1991; summarized on pages 25 & 27) suggests that what would be of greatest interest would be the recovery of samples for pollen analysis datable to the time span of c. A.D. 500 and 800. Such data would serve to address

Dr. Sara Collins
January 18, 2002
Page 2

questions regarding the timing and nature of environmental transformation likely associated with Polynesian colonization. Possibly the prior location of Waikulu Fishpond in the south central portion of the project area (see Figure 11, page 19) would be a particularly good area to search for such a datable pollen record as may inform us regarding the nature and timing of Polynesian colonization of the rich coastal bottom lands of south O'ahu.

We are thus writing to you requesting written direction regarding an appropriate scope of work for subsurface testing to address SHPD concerns for the parcel. Our evaluation of the available historical and archaeological data (supplied in the enclosed study) causes us to recommend for your consideration a scope of work analogous to our recently agreed upon scope of work for an archaeological inventory survey of a portion of Nimitz Highway. We are recommending that subsurface work focus on the recovery of information from a relatively small portion of the project area most likely to inform us regarding the past.

Mahalo for your kōkua



David W. Shideler
O'ahu Office Manager
Cultural Surveys Hawai'i, Inc.

Cc. Mr. Glenn Kimura, Kimura International, Inc.



Friday, January 18, 2002

Dr. Sara Collins
State Historic Preservation Division
Kakuhihewa Building Room 555
601 Kamokila Blvd.
Kapolei, Hawaii 96707

**Request for Guidance in Determining an Appropriate Scope of Work for
Subsurface Archaeological Testing at the Proposed Middle Street Transit Center
Public Facility, Kalihi Ahupua'a, Kona District, Oahu (TMK: 1-2-18:1,2,3,8,9& 10)**

Dear Dr. Collins

Cultural Surveys Hawaii, whom we have retained as archaeological consultants for our environmental assessment for the above project, suggested that I send you a brief memo in support of their request to forego subsurface testing to a date following completion of the Environmental Assessment.

Conducting subsurface work at this time, we feel, would be premature for the following reasons:

- Although the City and County of Honolulu intends to purchase the property from the current landowner for the proposed project, the City would like to minimize upfront costs prior to negotiations and purchase.
- The property is privately owned and leased to a number of different tenants, all of who have viable businesses or industrial activities. Subsurface testing at this time could be disruptive and cause economic hardship.
- Tenants intensively use the property and it would be difficult to access areas for trenching without asking tenants to temporarily move items stored on the property.

If and when the City successfully negotiates the purchase of the property and moves toward construction, it would appear that that would be the appropriate time to proceed with further archaeological surveys as recommended by your office. Please contact me if you have any questions. Thank you.

Sincerely,

Glenn T. Kimura

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAIULANIHEWA BUILDING, ROOM 566
801 KAMOKOLA BOULEVARD
KAPOLEI, HAWAII 96707

GILBERT S. COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCES MANAGEMENT

DEPUTIES
ERIC T. MRAHO
LIVNEL NISHOKA

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE
MANAGEMENT
CONSERVATION AND RESOURCES
ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

March 20, 2002

Mr. David Shideler, O'ahu Office Manager
Cultural Surveys Hawaii, Inc.
733 N. Kalaheo Avenue
Kailua, Hawaii 96734

LOG NO: 29431 ✓
DOC NO: 0203SC20

Dear Mr. Shideler:

SUBJECT: Chapter 6E-8 Historic Preservation Comment on an Archaeological Assessment
Prepared for the Proposed Middle Street Transit Center Public Facility
Kalihi, Kona, O'ahu
TMK: (1)-1-2-018: 001-003 & 008-010

Thank you for the opportunity to comment on an archaeological assessment prepared for the construction of the proposed Middle Street Transit Center Public Facility (Hammatt & Shideler, 2002. *Archaeological Assessment of the Proposed Middle Street Transit Center Kalihi Ahupua'a, Kona District, O'ahu (TMK. 1-2-18: 1, 2, 3, 8, 9 & 10)*). We received the subject document on January 29, 2002.

Your archaeological assessment indicates that soil deposits associated with historic sites (Waikulu Pond) are likely to be present. We agree with your proposed scope of work for the requested archaeological inventory survey (see Hibbard to Fujiki, dated March 12, 2001, LOG NO: 27107).

You have provided sufficient historical and archaeological background information to recommend subsurface testing within a limited portion of the proposed project area. Specifically, you have recommended that limited subsurface testing occur, and that it focus on the recovery of palaeoenvironmental samples associated with the formation and/or construction of Waikulu Pond, known to be present from historical records.

We shall expect to receive a report of findings from the inventory survey. If significant historic sites are shown to be present in the project area, and the proposed undertaking will have an "adverse effect" upon them, then mitigation actions may also need to be developed and implemented prior to any construction.

Should you have any questions, please feel free to contact Sara Collins at 692-8026.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

SC:jk

c: Mr. Glenn T. Kimura, President, Kimura International, 1600 Kapiolani Blvd, Suite 1610,
Honolulu, HI 96814

Appendix J

**Infrastructure Analysis
Mitsunaga & Associates, Inc.**

INFRASTRUCTURE ANALYSIS
CIVIL ENGINEERING

MIDDLE STREET
TRANSIT CENTER
HONOLULU, OAHU, HAWAII

NOVEMBER 2002

PREPARED FOR:

KIMURA INTERNATIONAL, INC.
1600 Kapiolani Blvd.
Suite 1610
Honolulu, HI 96814

PREPARED BY:



Mitsunaga and Associates, Inc.
747 Amana Street Suite 216
Honolulu, Hawaii 96814
Phone: (808) 945-7882 Fax: (808) 946-2563
Email: Mitsunaga-civil@hawaii.rr.com

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MIDDLE STREET TRANSIT CENTER

(TMK: 1-2-018: 01, 02, 03, 09, 10)

INFRASTRUCTURE ANALYSIS CIVIL ENGINEERING

The proposed Middle Street Transit Center is located within the City and County of Honolulu Primary Urban Center and is generally bound by Kamehameha Highway, Middle Street and Kalihi Stream. The property is presently owned by Yee Hop Realty, Ltd. and contains approximately 10.35 acres. The current State Land Use Designation is Urban and County Zoning Designation is I-2. The existing land uses include warehouses, which are occupied by various commercial and light industrial tenants. The City and County of Honolulu is currently in the process of acquiring the subject parcels.

The proposed project will be developed into a major transportation center and related mixed-use complex adjacent to the existing City and County Kalihi-Palama Bus Facility. The proposed project will support the City's proposed Bus Rapid Transit (BRT) project and provide dedicated Handi-Van parking and maintenance facilities. Other facilities include retail and public facilities, a childcare center, and landscaping improvements along Kalihi Stream.

Site Accessibility and Parking

Land uses immediately surrounding the project site include the Kalihi-Palama Bus Facility to the east, Kamehameha Highway to the west, Kalihi Stream to the south, and Middle Street to the north. Currently, the property can be accessed at several driveways along Middle Street. The *makai* (west) driveway is used to access a used car lot, truck weighing station, and Country Market, while the driveway located further east is utilized by various businesses.

Access to the proposed Middle Street Transit Center will be provided along Middle Street, and Kamehameha Highway. A 70 ft. wide signalized access will be provided along Middle Street near the existing *makai* access driveway, and a 50' wide signalized access will be provided along Kamehameha Highway located approximately 400 ft. south of the Middle Street/ Kamehameha Highway intersection. The access on Kamehameha Highway will require relocation of an existing overhead mounted sign. Portions of Kamehameha Highway and Middle Street will require improvements to accommodate the new access points.

Pedestrian and vehicular circulation for buses, Handi-vans and passenger cars will be provided. A fire department access road shall be provided to within 150 ft. of the first floor of the most remote structure. Such access shall have a minimum vertical clearance of 13'-6", be constructed of an all weather surface capable of supporting a minimum of 60,000 pounds, with a gradient not to exceed 20%. All dead end fire access roads in excess of 150 ft. in length shall be provided with a turnaround, as required by the Honolulu Fire Department. In addition, loading zone and parking requirements for the new complex shall comply with the County Ordinance, and accessible parking shall comply with ADA requirements.

Accessible pedestrian walkways and ramps (if required) shall be provided to service the proposed facilities. All walkways located on an accessible route should have a maximum longitudinal grade of 5%, or if greater than 5%, walkways must be designed as a ramp per ADA guidelines. Walkways and ramps should have a maximum cross slope of 2%.

References:

1. *Land Use Ordinance*. Department of Planning and Permitting, City and County of Honolulu, May 1999.

Grading and Drainage

The purpose of the grading is to prepare the site for the proposed Transit Center and supporting facilities. Sufficient grading should also provide for ADA accessibility requirements, and pedestrian circulation. Grading of the proposed site shall provide adequate drainage of on-site storm runoff.

The grading of the project site shall be in conformance with the City and County of Honolulu Grading Ordinance and the recommendations of the Geotechnical Engineer. Site grading should have slopes of 4:1 or flatter to provide for easier maintenance.

Existing Conditions

The site generally drains from north to south with the low area at the southern portion of the property (along Kalihi Stream). The elevations of the site range from 18 feet to 6 feet, with ground slopes of 0.5% to 2%. However, an abrupt grade change of approximately 6 ft. occurs near the existing Unit Repair Shop, where a retaining wall and cut slope run adjacent to the existing access road. The majority of the existing site is paved with weathered asphalt and concrete, and contains a number of warehouse and business buildings.

Overland sheet flow, swales, drain inlets, and underground drain lines are utilized to intercept, convey and dispose of on-site generated runoff. The runoff generated within the property discharges into Kalihi Stream at the southern portion of the site. An existing 15 ft. wide Drainage Easement (in favor of the State of Hawaii) bisects the property from north to south in the vicinity of the proposed bus transit station.

The drainage area for the property is approximately 10.35 acres. The existing runoff generated within the proposed project site for a 10-year storm is approximately 43.7 cubic feet per second (cfs).

Proposed Drainage Improvements

The intent of the drainage plan is to minimize the drainage impact of the proposed Transit Center, and provide adequate storm water disposal of runoff generated on-site. The on-site drainage system will be designed to comply with the City and County of Honolulu Drainage Standards and Standard Details. The proposed development will also

have to accommodate the existing 15 ft. drainage easement, in which protection and access for maintenance shall be provided.

Due to the proposed layout of the Transit Center, portions of the existing drainage system will be removed, relocated or replaced to accommodate the new facilities. Overland sheet flow, swales, drain inlets, and underground drainlines will be used to intercept and route the on-site runoff from the proposed Transit Center and related improvements to existing drainage systems located within the site or tie into the City and County system adjacent to the property. Since the proposed development will include landscaping improvements within the site and along Kalihi Stream, it is unlikely that there will be an adverse long-term impact to storm water runoff from the site. Preliminary hydrologic analysis indicates that the proposed Transit Center should not generate additional storm runoff or impact off-site drainage conditions. The following table summarizes the estimated 10-year storm runoff for the existing and proposed conditions.

<i>Item</i>	<i>Drainage Area</i>	<i>Area (acres)</i>	<i>Runoff (cfs)</i>
1	Existing Drainage Area	10.35 acres	43.7 cfs
2	Proposed Drainage Area	10.35 acres	42.6 cfs
	Proposed Change	N.A.	-1.1 cfs

The possible decrease in the storm runoff generated on-site can be attributed to landscaping improvements proposed at the Transit Center, and a decrease in impervious pavement areas. In order to further mitigate drainage impacts to the existing drainage system, runoff will be directed to grass or landscaped areas where possible.

The proposed drainage improvements will also address storm water quality improvements and conform to the revised Rules Relating to Storm Drainage Standards of the City and County of Honolulu. Erosion and dust control shall adhere to the Rules Relating to Soil Erosion Standards and Guidelines of the City and County of Honolulu and all applicable State regulations.

The purpose of the water quality criteria is to reduce the pollution associated with storm water runoff from new development and redevelopment. This includes establishing controls on the timing and rate of discharge of storm water runoff to reduce storm water runoff pollution through the implementation of best management practices and engineering control facilities designed to reduce the generation of pollutants. The criteria can be met by either detaining storm water for a length of time to allow storm water pollutants to settle, or by use of filtration or infiltration methods, such as vegetated swales. A Drainage Connection License for connection to the City and County of Honolulu storm drainage system may be required as a result of the improvements proposed.

The Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency (FEMA) identifies flood hazard and flood prone areas. The project site is located in Flood Zone AO, areas within the 100-year flood zone, with flood depths of 1 to 3 feet. The average flood depth for a 100-year storm event within the project site as indicated on

the FIRM is 2 feet. The eastern portion of the site is located in Zone X, which is identified as areas within a 500-year flood; or areas of a 100-year flood with average depths of less than 1 foot.

References:

1. Flood Insurance Rate Map (FIRM), Panel 150001 0112 C, City and County of Honolulu. September 28, 1990.
2. *Rules Relating to Storm Drainage Standards.* Department of Planning and Permitting, City and County of Honolulu, January 2000.
3. *Rules Relating to Soil Erosion Standards and Guidelines.* Department of Planning and Permitting, City and County of Honolulu, April 1999.

Water System

Existing Conditions

The Board of Water Supply (BWS) owns and maintains the water system, which services the proposed project site. Presently, the facilities are serviced by the Board of Water Supply's 180 ft. (pressure zone) system. The 1.0 MG Aliamanu Reservoir has an overflow elevation of 180 feet and a bottom elevation of 160 feet. The Aliamanu 180 Reservoir receives water from the Kalihi Station and Kalihi Shaft, which has the following capacities:

- Kalihi Station: 2- 1,750 gpm @ 185' TDH
 1- 3,500 gpm @ 185' TDH
- Kalihi Shaft: 2- 6,000 gpm @ 190' TDH

The Board of Water Supply's Distribution Maps indicate a 42-inch waterline and parallel 6-inch waterline along Kamehameha Highway. A 24-inch waterline also runs along Middle Street and ties into the 42-inch line at the Kamehameha Highway/ Middle Street intersection.

According to the Board of Water Supply, three different meters currently service the property. All three meters connect to the BWS 6-inch waterline in Kamehameha Highway. Parcel 01 is serviced by a 1-inch meter (Meter No. 87040278; Prem. ID 1111159); Parcel 03 is serviced by a 1-inch meter (Meter No. 00400673; Prem. ID 1064573); and Parcel 09 is serviced by 1-1/2 inch meter (Meter No. 00600336; Prem. ID 1111157).

A number of fire hydrants are located within the property, as well as along Middle Street. Two detector check meters were also located, which previously serviced fire hydrants at Parcels 01 and 09, however, the BWS indicated that these meters are inactive.

Proposed Water System Improvements

The 180 ft. service zone, which services the property is capable of providing a static pressure head of approximately 70 pounds per square inch (psi), which should provide adequate potable service the site.

The water system shall be designed in conformance with the Board of Water Supply Water System Standards and Standard Details. New waterlines and laterals should be provided to service the proposed Transit Center. Furthermore, the new water system should include a fire protection system capable of providing adequate fire flow and pressure to new hydrants at various locations within the project site. The improvements may include connecting the new water and fire protection system to the existing 24-inch waterline along Middle Street, and installing an FM meter to service both domestic and fire flow requirements. According to the Board of Water Supply, the existing BWS system is presently adequate to accommodate the proposed City Transit Center. However, the Board of Water Supply will make a final determination of water availability when building permit applications are submitted for review and approval.

The flow requirements for the proposed Middle Street Transit Center based on BWS's Water System Standards are as follows:

- Avg. Day Demand: 4,000 gallons per acre
- Max. Day Demand: 1.5 x Avg. Day Demand
- Peak Hour Demand: 3.0 x Avg. Day Demand
- Fire Flow: 4,000 gpm @ 20 psi (min) residual pressure
- Minimum Pressure: 40 psi (under peak hour flow conditions)
- Maximum Pressure: 125 psi (static or pumping pressure)
- Maximum Velocity: 6 feet per second (without fire flow)

The estimated water demands for the proposed Middle Street Transit Center based on Board of Water Supply Standards are as follows (gallons per day, gpd; gallons per minute, gpm):

- Fixture Units: To be determined by Mechanical Engineer
- Average Day Demand: 41,400 gpd (28.8 gpm)
- Maximum Day Demand: 62,100 gpd (43.1 gpm)
- Peak Hour Demand: 124,200 gpd (86.3 gpm)
- Fire Flow Requirement: 4,000 gpm (3 hour duration)

References:

1. *Water System Standards, Volume I.* Board of Water Supply, City and County of Honolulu, 1985.
2. *Water System Distribution Maps,* Board of Water Supply.

Wastewater System

Existing Conditions

Wastewater generated within the property currently utilizes a pumping system as well as cesspools to discharge effluent collected on-site.

Facilities that use the pump station, direct wastewater effluent to the City and County sewer system via a wastewater pump station located at the southern portion of the property. An 8-inch sewer force main is directed to the south across Kalihi Stream, and ties into the City and County system at a sewer manhole along the 24-inch Kalihi Sewer Extension Relief. According to the Department of Planning and Permitting, connection to the City's system was made in 1999. The sewer pump station is presently owned and maintained by Yee Hop Realty, Ltd.

Existing facilities, which do not tie into the City and County sewer system utilize cesspool systems located on-site. The City's Collection System, Maintenance Division has reported that the areas serviced by cesspools has experienced overflows, which indicate inadequate capacity and operation of the cesspool systems. Mitigation of this problem or clean-up activities will be required with the construction of the proposed Transit Center.

The design average flow for the existing site is estimated to be 20,700 gpd.

A 10 ft. wide sewer easement (in favor of the Federal Government) bisects the property from north to south, and is located adjacent to the 15 ft. wide drainage easement. According to the Directorate of Public Works, Engineering Section (federal) and the City's Department of Environmental Services, the sewer easement contains a sewer force main that directs wastewater effluent from Fort Shafter to the Sand Island Wastewater Treatment Plant. The capacity of the sewer force main is approximately 2 MGD. The force main was recently relined, however, there were some problems with leaking in the new lining, and the federal government and contractor are still in the process of mitigating the problem. The force main is currently inactive (off-line) and has been for the past three years. In order to bypass the force main, wastewater effluent is being temporarily discharged into the City's system. The force main is expected to be back on line at the end of December 2002.

According to the Directorate of Public Works, the federal government is currently soliciting bids for the privatization of their utility systems (electrical, water, sewer, etc.). Depending on the bids, all utility systems (excluding systems where privatization is uneconomical or where unique security reasons exist) will be turned over to private contractors for operations and maintenance. The Department of Defense Reform Initiative Directive No. 49 calls for the privatization of all Army owned utility systems by September 30, 2003.

In addition, the City's Department of Transportation Services operates a bus maintenance facility located east of the subject property, where a bus wash facility is utilized for the cleaning and washing of buses. The wash water facility is covered, in which the wastewater effluent from the bus wash operation is collected and contained within the facility. An underground collection system diverts the effluent to a treatment system or holding tank, where it is recycled for reuse. The effluent that is not recycled will be directed to the sewer system. Therefore, all wash water will be contained within the facility, in which no discharge will be made to the existing drainage

system, Kalihi Stream or Keēhi Lagoon. Furthermore, since the bus wash facility is covered, storm water runoff is not able to mix with the facilities wash water effluent. The construction of the proposed Transit Center will not affect the operation of the maintenance and wash facility. The wash water effluent will be contained within the facility and continue to discharge into the wastewater system.

Proposed Wastewater Improvements

The sewer system shall be designed in conformance with the City and County of Honolulu Wastewater Standards and Standard Details. New sewer lines and laterals will be installed to service the proposed Transit Center facilities and tie into the existing City and County wastewater system. Connection to the City's system can be made by utilizing the existing 8-inch force main or connecting to the system at the 27-inch sewer line along Kamehameha Highway. If the pumping system is used, the design of the pump station will need to conform to the City's design standards, which may require upgrades or reconstruction of the existing pump station.

During the design development phase of the project, a Sewer Connection Application for the proposed Middle Street Transit Center shall be submitted to the City and County of Honolulu, Department of Planning and Permitting for connection to the City and County wastewater system. *If approval for connection is given, the application will be valid for a 2-year period.* Through discussion with the Department of Environmental Services, connection to the City and County system would be allowed if proposed flows do not exceed wastewater flows generated by the existing site. The on-site wastewater system, including wastewater pump station will be owned and maintained by the City and County of Honolulu, Department of Environmental Services.

The proposed development of the Transit Station will also have to accommodate the existing sewer easement, whether under the jurisdiction of the federal government or a private contractor. Protection of the easement and access for maintenance and repairs of the sewer facility shall be provided.

The following criteria pertains to the design of the sanitary sewer system, as required by the City and County of Honolulu, Department of Environmental Services. Reference to average daily flows also estimated by *Wastewater Engineering, Third Edition*.

- General Industry: 1,500 gallons per acre/ day (Light Industry)
- Avg. Daily Flow: 5-80 gallons per capita/ day (gpcd)
- Max. Wastewater Flow: Avg. Flow x Flow Factor (Babbit Flow Chart)
- Dry Weather I/I: 5 gpcd
- Design Avg. Flow: Avg. Flow + Dry Weather I/I
- Design Maximum Flow: Max. Flow + Dry Weather I/I
- Wet Weather I/I: 1,250 gallons per acre/ day (gad)
- Design Peak Flow: Design Max. Flow + Wet Weather I/I
- Minimum Velocity: 2.0 fps (full flow conditions)
- Minimum Slope: 6" – 0.0060 (0.60%)
8" – 0.0044 (0.44%)

The estimated wastewater effluent generated by the proposed Transit Center is as follows:

- Design Average Flow: 19,500 gpd (13.5 gpm)
- Design Maximum Flow: 67,500 gpd (46.9 gpm)
- Design Peak Flow: 80,440 gpd (55.9 gpm)

References:

1. *Design Standards of the Department of Wastewater Management, Volume I.* City and County of Honolulu, July 1993.
2. *Wastewater Engineering, Third Edition.* Metcalf and Eddy, Inc. 1991.

***APPENDIX
(CALCULATIONS)***

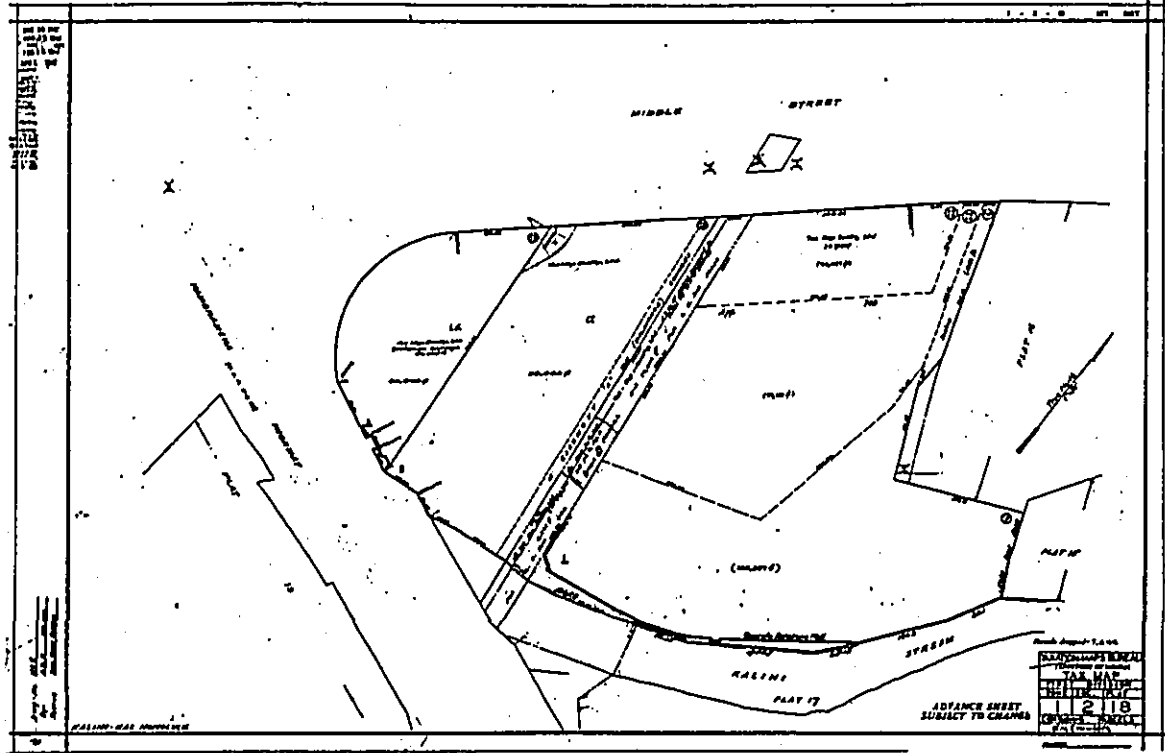
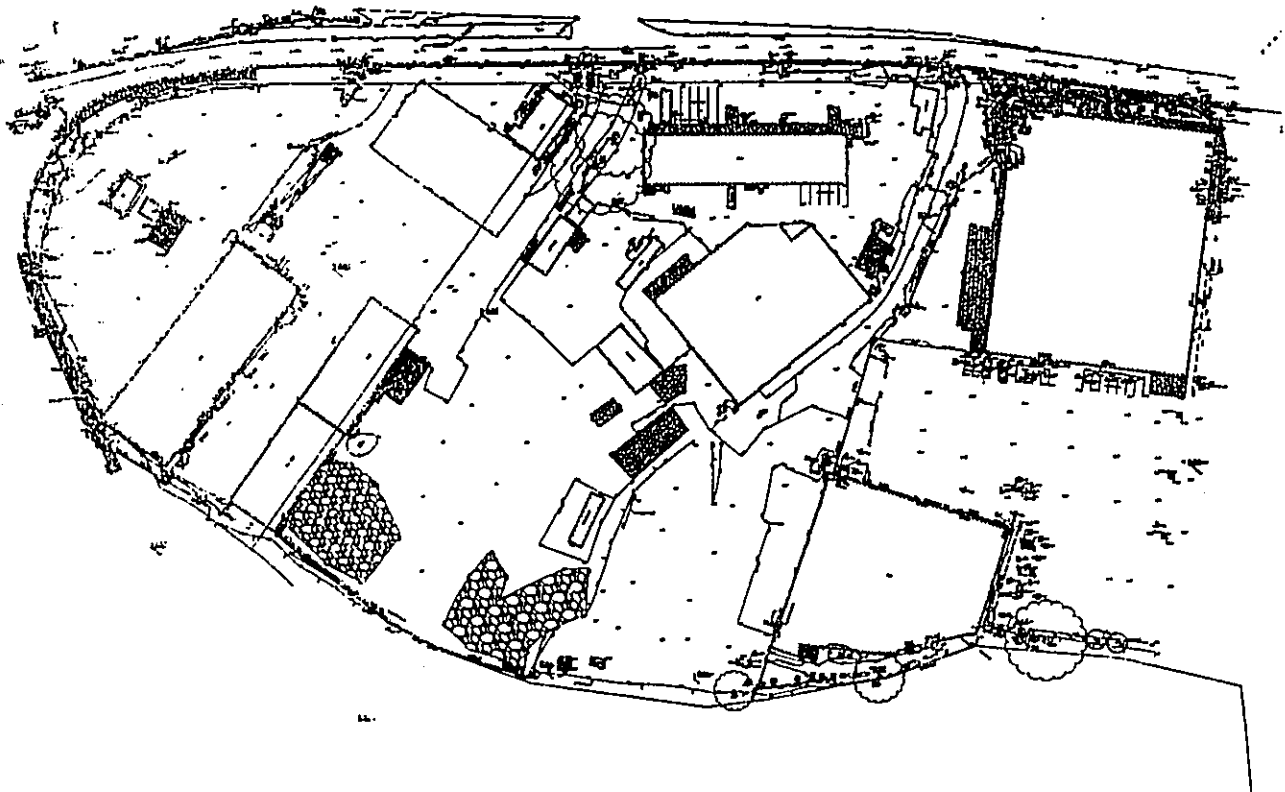


EXHIBIT G176
SCALE: 1"=100'

PROJECT AREA = 10.35 ACRES



EXIST. DRAINAGE SYSTEM (PRELIMINARY)

(REF: PAGES RELATIVE TO STORM DRAINAGE CALCULATIONS, BPP, JANUARY 2002)

FINAL PERMIT: C = CIA (DRAINAGE AREA < 100 ACRES)

PERCENT USE INTERLUV, T₁ = 10 YRS.

- PRESENT DITCH / AREA, A = 10.36 ACRES
- RUNOFF COEFFICIENT, C: REPRESENTATIVE AREA (C = 0.4) → 10% OF TOTAL AREA
- CALCULATE / AREA (C = 0.55) → 30% OF TOTAL AREA

$C = 0.90 (0.40) + 0.55 (0.50) = 0.60$

• PAUL FAY INTERLUV, S (1/100):

T₁ = 10 YRS → I = 2.2 1/100 (PLATE 1)

VELOCITY, V = 3.75

TIME OF CONCENTRATION, T_c = 0.56 MIN. (PLATE 2)

SUBAREA: PAVED

AREA: GRADE, A = 0.07

$I = 2.2 \frac{1}{100} \times 2.4 = 5.28 \frac{1}{100}$

$\therefore C = CIA = 0.60 \times (5.28 \frac{1}{100}) (10.36 AC) = 32.7 CFS$

PROPOSED DRAINAGE SYSTEM

POTENTIAL HEADROOM: 0.25 FT

PERCENT USE INTERLUV, T₁ = 10 YRS

• PROJECT AREA, A = 10.36 ACRES

• BUFFERS CONTRIBUTION, C: REPRESENTATIVE AREA (C = 0.4) → 10% OF TOTAL AREA (CALCULATED)

$C = 0.90 (0.40) + 0.55 (0.50) = 0.60$

• PAUL FAY INTERLUV, S (1/100):

I = 2.2 1/100 (PLATE 1)

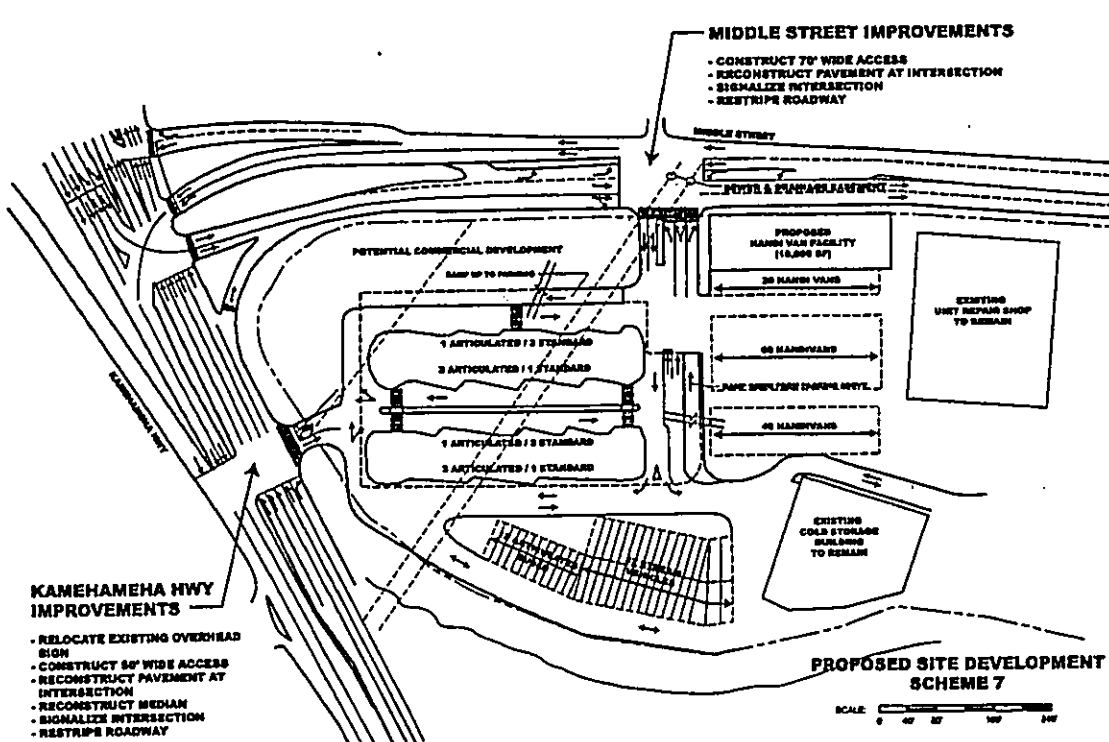
VELOCITY, V = 3.75

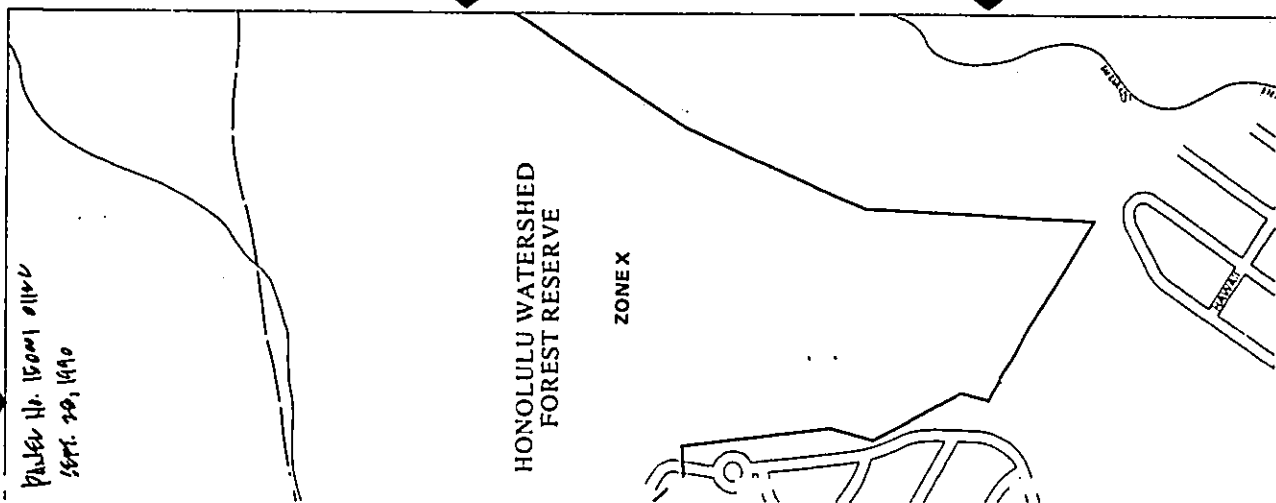
CURFACE: PAVED

AREA: GRADE, A = 11 (CALCULATED)

$\therefore C = CIA = 0.60 \times (5.28 \frac{1}{100}) (10.36 AC) = 32.7 CFS$ → 30% OF TOTAL AREA (NO ADDITIONAL BUFFERS)

DESCRIPTION	PROJECT: MIDDLE STREET IMPROVEMENT	CHECKED
DRAINAGE		BY: Mitsunaga & Associates, Inc.
PLAN		JOB NO. _____
		DATE: 1/10/02
		SHEET OF 1





LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A
No base flood elevations determined.

ZONE AE
Base flood elevations determined.

ZONE AH
Flood depths of 1 to 3 feet (usually short flow on debris barrier); average depths determined. For areas of elevated fill flood- ing, velocities also determined.

ZONE AO
To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.

ZONE AV
Causal flood with velocity hazard (wave action); no base flood elevations determined.

ZONE VE
Causal flood with velocity hazard (wave action); no base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X
Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X
Areas determined to be outside 500-year flood plain.

ZONE D
Areas in which flood hazard are undetermined.

Flood Boundary
Floodway Boundary
Zone D Boundary
Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Causal Base Flood Elevation Within Special Flood Hazard Zones.

Base Flood Elevation Line; Elevation in Feet
Cross Section Line
Blue Flood Elevation in Feet Where Uniform Within Zone
Elevation Reference Mark

513
(EL 987)
RM7 X

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding. It is not intended to be used as a source of final data for all planning purposes outside Special Flood Hazard Areas.

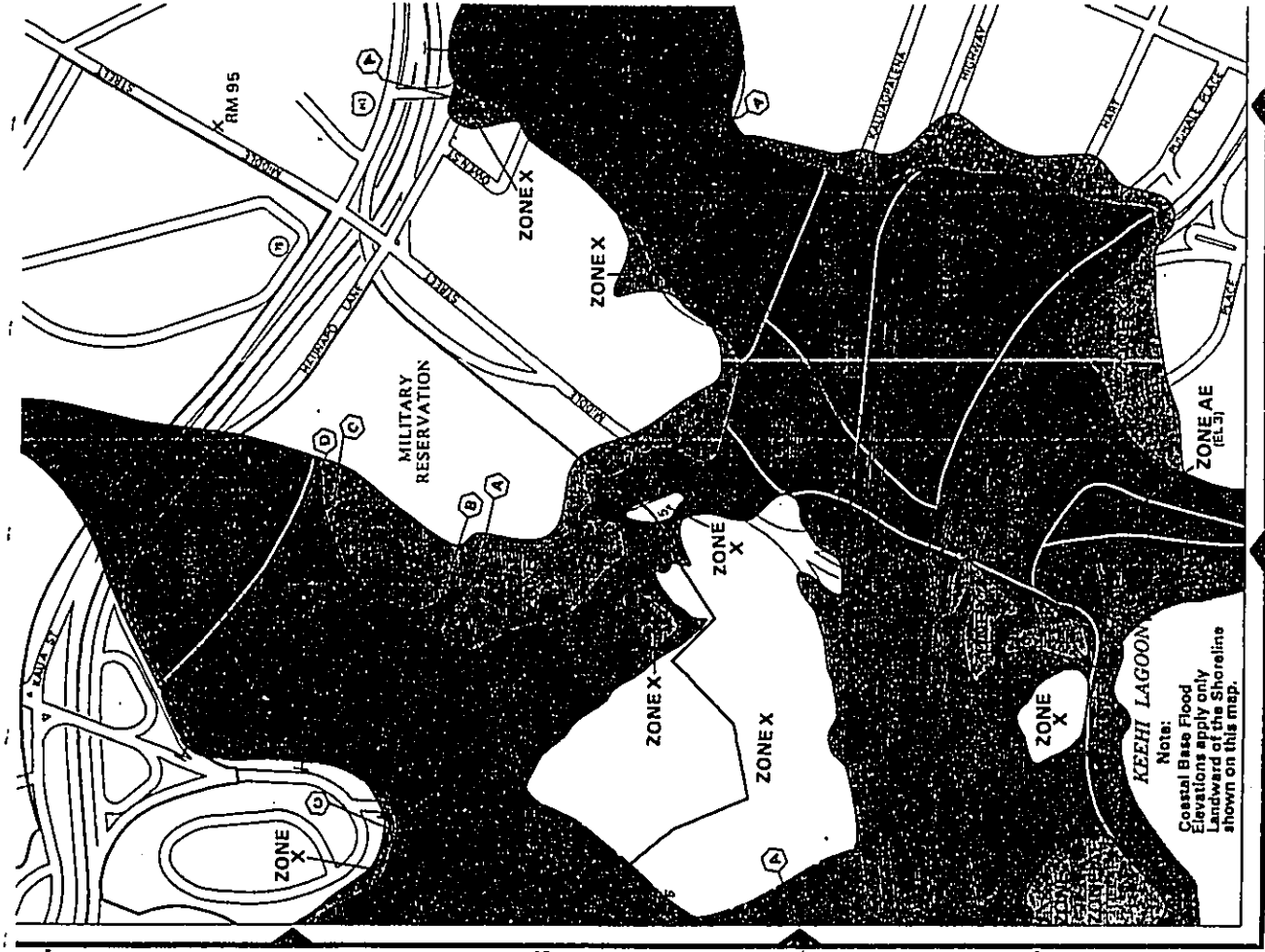
Areas of special flood hazard (100-year flood) include Zones A, AI, AO, AE, AH, AV, V, VI, X and VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic calculations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline. Elevations referred marks are described in the Flood Insurance Study Report.



PAPER NO. 150001 01100
Sept. 20, 1990

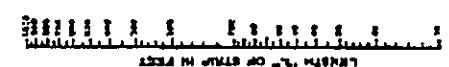
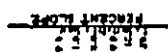
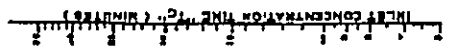
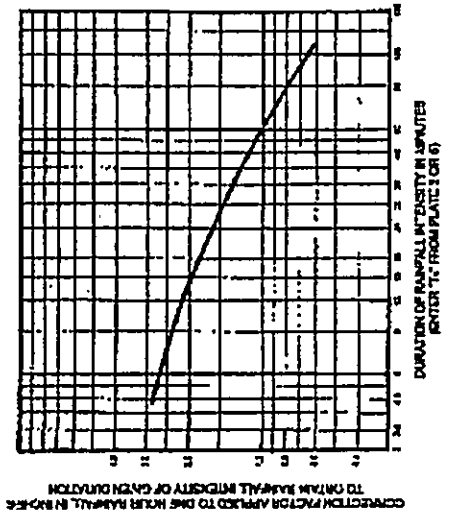
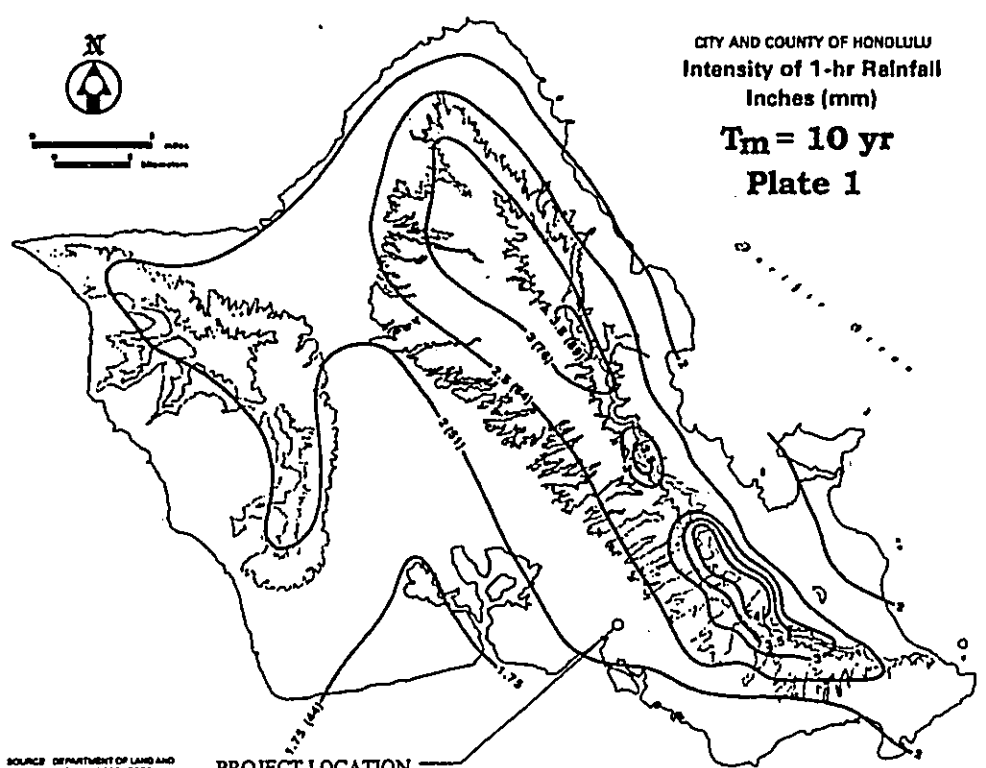


Plate 3
Overland
Flow
Chart

Plate 4
 $T_c = 5 \text{ min.}$
CORRECTION FACTOR FOR COMPUTING 1-HR. RAINFALL TO RAINFALL INTENSITY OF VARIOUS DURATIONES TO BE USED FOR AREA LESS THAN 10 ACRES (See Plate 8 for area from Plate 50 1978)

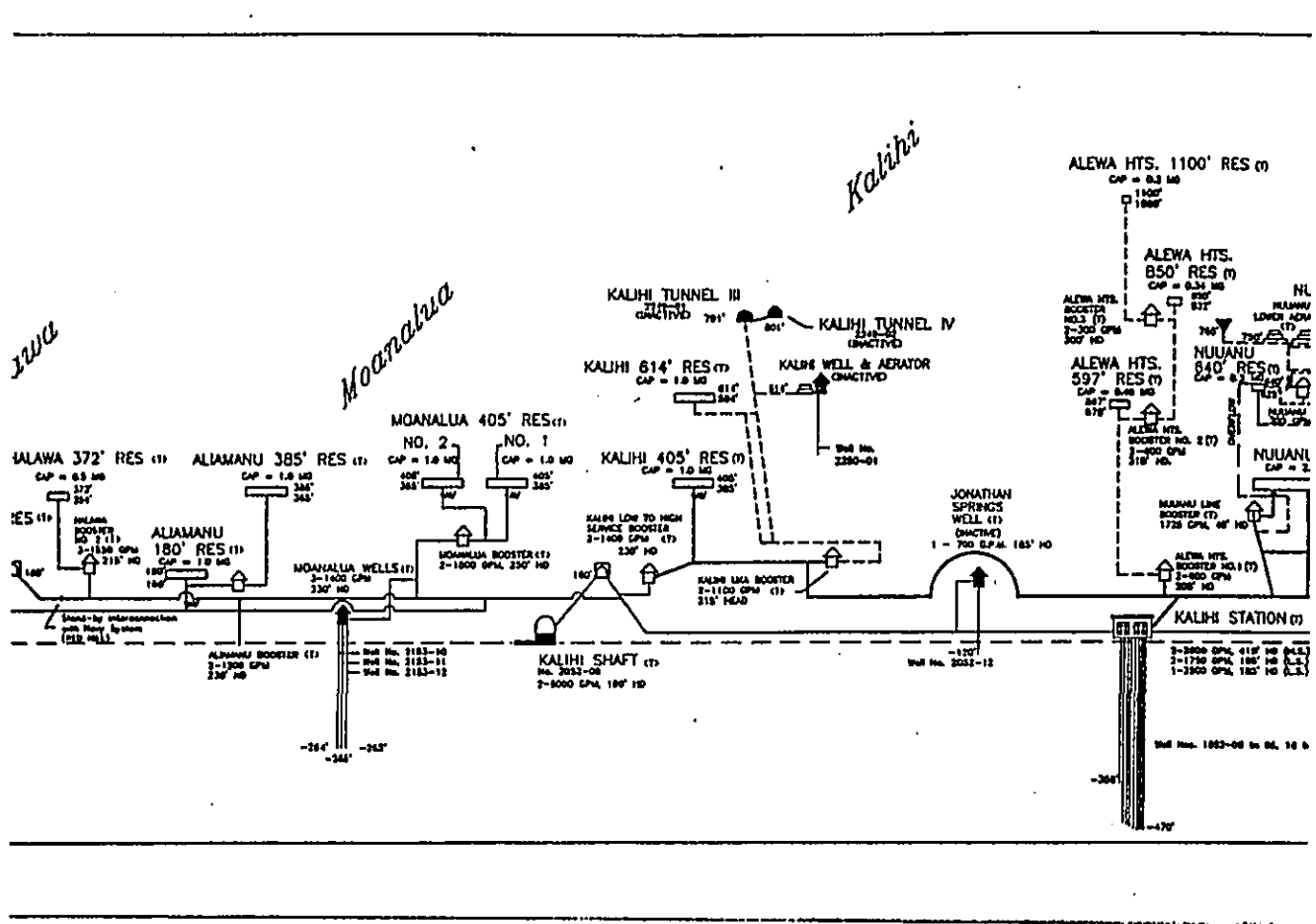


CITY AND COUNTY OF HONOLULU
Intensity of 1-hr Rainfall
Inches (mm)
 $T_m = 10 \text{ yr}$
Plate 1



SOURCE: DEPARTMENT OF LAND AND NATURAL RESOURCES, STATE OF HAWAII

PROJECT LOCATION



10' OFF

10

20



MITSUMAGA & ASSOCIATES, INC.
 747 AMANA STREET SUITE 216
 HONOLULU, HAWAII 96814
 PHONE (808) 945-7482
 FAX (808) 945-2567
 email: mitsunaga001@hawaii.rr.com

May 29, 2002

Mr. Clifford S. Jamile
 Manager and Chief Engineer
 Board of Water Supply
 630 South Beretania Street
 Honolulu, Hawaii 96843

Subject: Middle Street Transit Center

Dear Mr. Jamile:

We are requesting an assessment of water availability, as well as estimated flows and pressures for a City Transit Center to be located at the intersection of Kamehameha Highway and Middle Street.

The Middle Street Transit Center project (TMK: 1-2-18:01, 02, 03, 09, 10) is proposed at a site on Middle Street, between Kamehameha Highway and North King Street, adjacent to the existing Kalihi-Palama Bus Facility. The City is currently in the process of acquiring the site. The approximate land area of the property is 10.53 acres.

Existing warehouse buildings on the site will be demolished, except for a cold-storage warehouse, which will be retained as its current use. In addition, the site will include three major components: 1) Handi-Van program facilities; 2) bus transit center and; 3) parking structure.

If you have any questions, please call me at 945-7882 (x156).

Very truly yours,

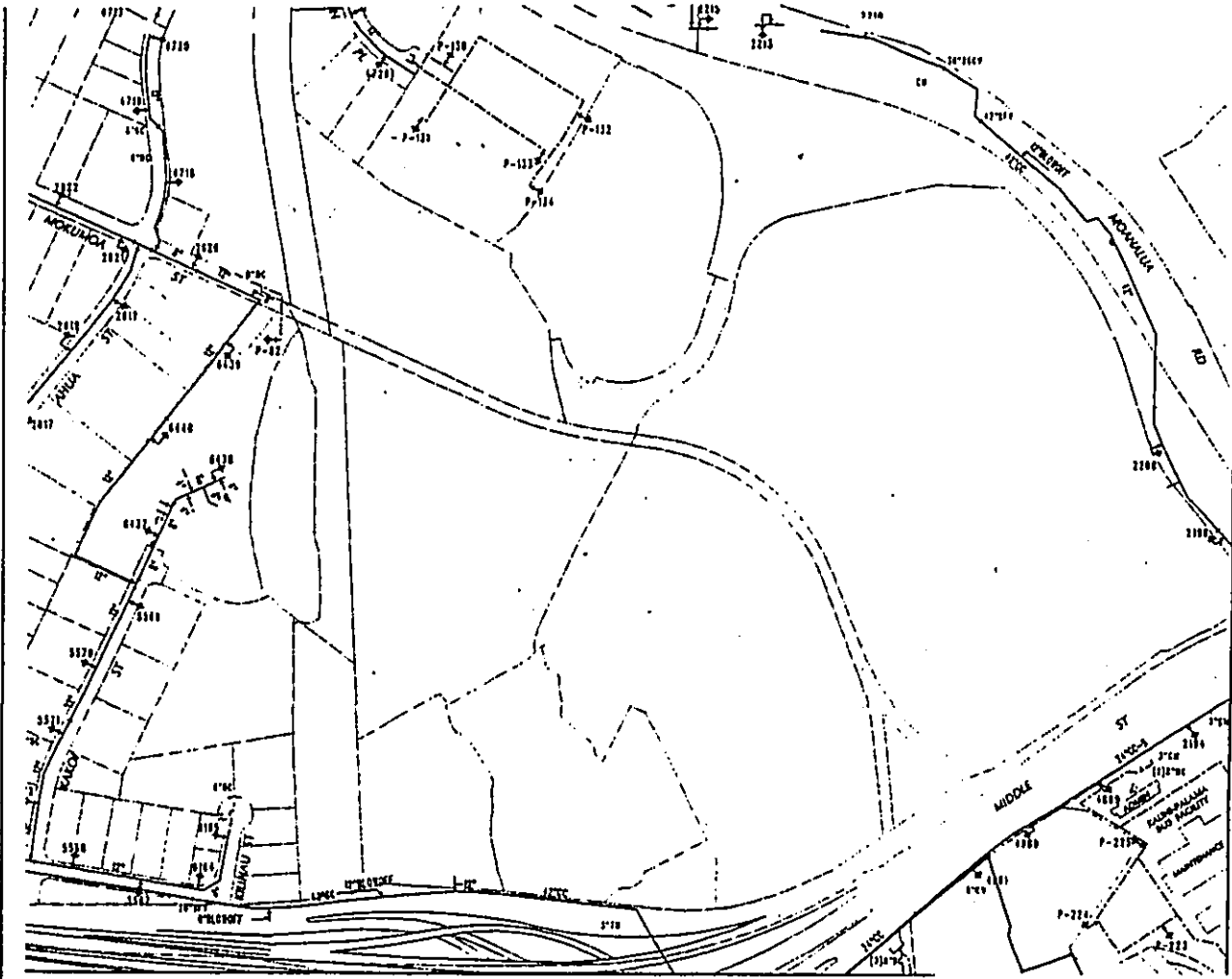
MITSUMAGA & ASSOCIATES, INC.

Chad M. McDonald

Chad M. McDonald, P.E.

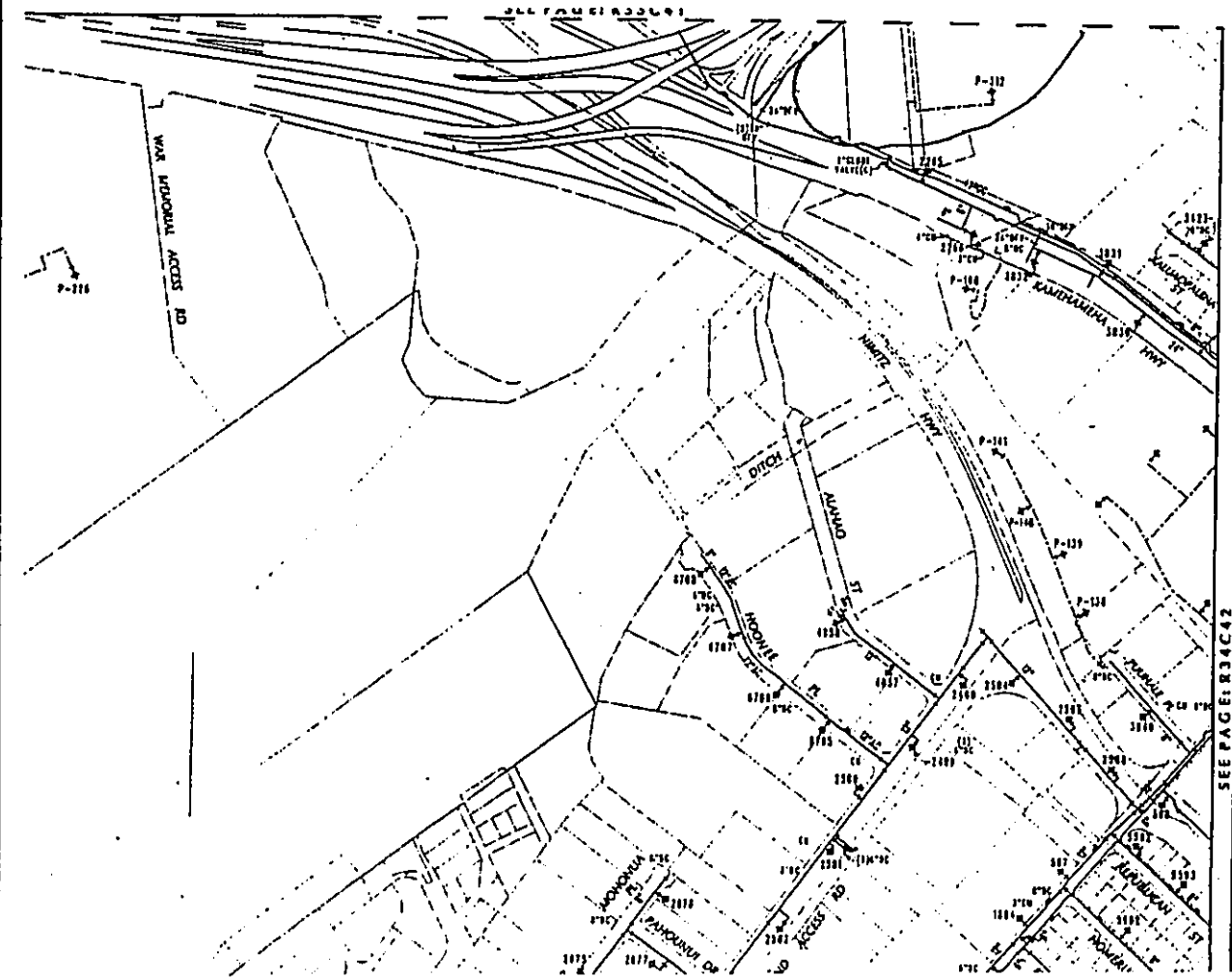
Attachment

ARCHITECTURE • ENGINEERING • PLANNING • PROJECT MANAGEMENT • CONSTRUCTION MANAGEMENT

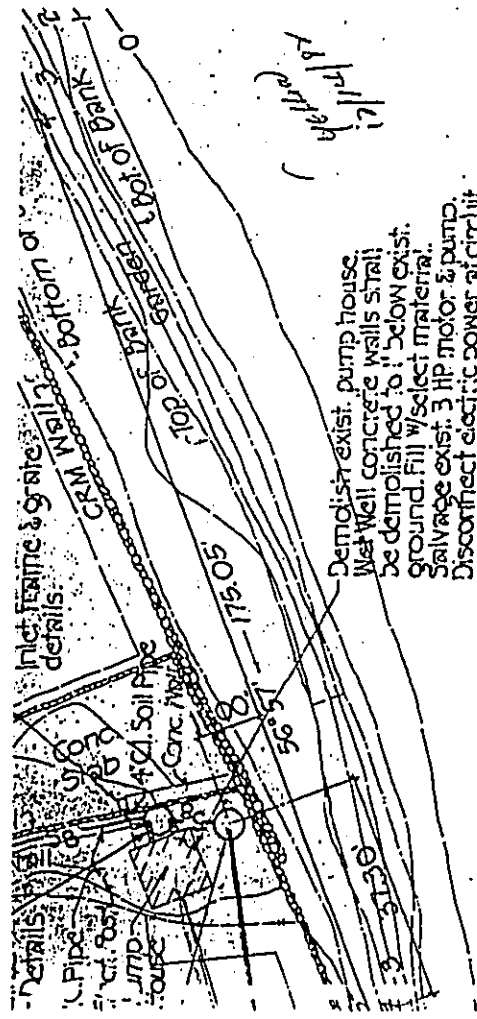


SEE PAGE: R33C42

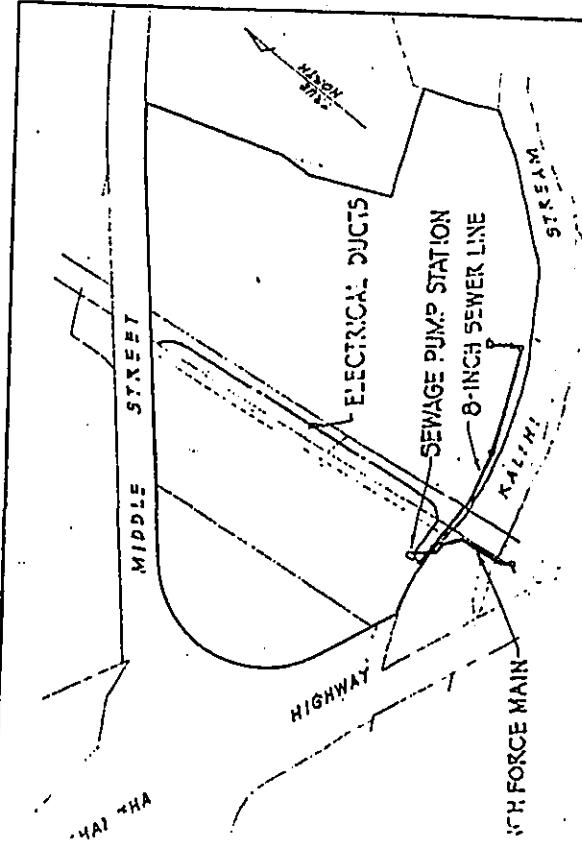
3C41



SEE PAGE: R34C42



Demolish exist. pump house.
 Wet well concrete walls shall
 be demolished to 1' below exist.
 ground. Fill w/ select material.
 Salvage exist. 3 HP motor & pump.
 Disconnect electric power at circuit
 breaker & remove overhead wiring.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

CITY OF ALBANY

GENERAL PLAN

Scale: 1" = 200'

- WATER SYSTEM ANALYSIS (PRELIMINARY)**
- SERVICE ZONE: 100' SECTION (1.0 MGD ANNUAL DEMAND)
 - STATIC PRESSURE: 100' - 15' - 100' = 10 PSI (STATIC HEAD)
 - SERVICE HEAD
 - SERVICE OFF 6" WATERMAIN ALONG KANAWASTA HIGHWAY (PER BUS CURRENT SPECIFIC)
 - TYP: 1-2-10
 - PAVEMENT: 1" = 0.10710; PERMISS 10: 11111111 (1" HEAD)
 - PAVEMENT: 1" = 0.00000; PERMISS 10: 104444 (1" HEAD)
 - PAVEMENT: 1" = 0.00000; PERMISS 10: 111111 (1 1/2" HEAD)
 - ESTIMATED WATER DEMANDS (REF: BUS WATER SYSTEM STANDARDS, VOLUME 1, 1966)
 - ALL-DAY DEMAND: 1.0 MGD (1.0 MGD) → 1000 GPD (10.0 MGAL) × 1440 GPD
 - MAXIMUM DAILY DEMAND: 1.6 × ALL-DAY: 1.6 × 1000 GPD = 1600 GPD (1.6 MGD)
 - PEAK HOUR DEMAND: 3.0 × ALL-DAY: 3.0 × 1000 GPD = 3000 GPD (3.0 MGD)
 - FIRE FLOW REQUIREMENT: 1000 GPM @ 20 PSI (HIGH PRESSURE)

DESCRIPTION	BY	CHECKED
WATER SYSTEM ANALYSIS	Mitsunaga & Associates, Inc.	
PROJECT: MIDDLE STREET TRANSMIT TOWER	JOB NO.	SHEET
	DATE	OF

WATER TREATMENT SYSTEM (EXIST. CAPACITY)

(REF: SPECIAL CALCULATIONS OF THE DEPARTMENT OF WATER TREATMENT MANAGEMENT, YONKERS.)

QTY: QUANTITY OF TONNAGE, JULY 1973.)

- ESTIMATED WATER TREATMENT FUND:
 - AVE. WATER TREATMENT FUND:
 - ASSUMES: 1500 EMP. / DAY (LIGHT INDUSTRY) → (REF: WATER TREATMENT EQUIPMENTALLY 500 ESTIMATED, MICHIGAN: 1970-1971)

1500 GPD x 10.75 \$/GPD = 16,125 GPD

- MAXIMUM WATER TREATMENT FUND:
 - FUND FACTOR = 5 (BABBITT CHART) → 16,125 GPD x 5 = 80,625 GPD

- DAY TREATMENT 3/5:
 - 5 GPD FOR CHEMICALS LAID ABOVE NORMAL CIRCUMSTANCES TABLE
 - ASSUMES: 100 GPD (CHEMICALS INDUSTRY - PER GLO DESIGN STANDARDS)
 - 100 GPD x 10.35 \$/GPD = 1035 CAPITAL

1035 CAPITAL x 5 GPD = 5175 GPD

- DESIGN AVE. FUND: 16,125 GPD + 5175 GPD = 21,300 GPD
- DESIGN MAXIMUM FUND: 80,625 GPD + 5175 GPD = 85,800 GPD

- BEST WATER 3/5:
 - 1500 GPD FOR CHEMICALS LAID ABOVE NORMAL CIRCUMSTANCES TABLE
 - 1500 GPD x 10.35 \$/GPD = 15,525 GPD
 - DESIGN PEAK FUND: 85,800 GPD + 15,525 GPD = 101,325 GPD

DESCRIPTION	BY:	CHECKED
WATER TREATMENT	Mitsunaga & Associates, Inc.	
DATE: 7/1/73	PROJECT: MIDTOWN STREET TRAILWAY CENTER	JOB NO. _____
		DATE: 7/1/73
		SHEET OF 1

WATER TREATMENT SYSTEM (PROPOSED IMPROVEMENTS)

- ESTIMATED WATER TREATMENT FUND

- AVE. WATER TREATMENT FUND:
 - ASSUMES: 300 EMPLOYEES → 30 GPD (REF: WATER TREATMENT EQUIPMENTALLY, 300 ESTIMATED, MICHIGAN: 1970-1971)
 - 1000 PPM CHEMICALS → 5 GPD

Ave. Fund = (300 EMP x 30 GPD) + (1000 PPM x 5 GPD) = 15,000 GPD

- MAXIMUM WATER TREATMENT FUND:
 - FUND FACTOR = 5 (BABBITT CHART) → 15,000 GPD x 5 = 75,000 GPD

- DAY TREATMENT 3/5:
 - 5 GPD FOR CHEMICALS LAID ABOVE NORMAL CIRCUMSTANCES TABLE
 - (300 EMP. + 1000 PPM) x 5 GPD = 1500 GPD

DESIGN AVE. FUND: 15,000 GPD + 1500 GPD = 16,500 GPD

DESIGN MAXIMUM FUND: 75,000 GPD + 1500 GPD = 76,500 GPD

- BEST WATER 3/5:
 - 1500 GPD FOR CHEMICALS LAID ABOVE NORMAL CIRCUMSTANCES TABLE
 - 1500 GPD x 10.35 \$/GPD = 15,525 GPD

DESIGN PEAK FUND: 76,500 GPD + 15,525 GPD = 92,025 GPD

DESCRIPTION	BY:	CHECKED
WATER TREATMENT	Mitsunaga & Associates, Inc.	
DATE: 7/1/73	PROJECT: MIDTOWN STREET TRAILWAY CENTER	JOB NO. _____
		DATE: 7/1/73
		SHEET OF 7

Appendix K

**Traffic Assessment Report
Julian Ng, Inc.**

TRAFFIC ASSESSMENT REPORT
MIDDLE STREET TRANSIT CENTER
HONOLULU, HAWAII

Prepared for: CITY AND COUNTY OF HONOLULU
DEPARTMENT OF TRANSPORTATION SERVICES

August 2002

Prepared by: Julian Ng, Inc.
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**Traffic Impact Assessment
Middle Street Transit Station
Honolulu, Hawaii**

August 2002

The City and County of Honolulu proposes to develop a transit station near the intersection of Kamehameha Highway and Middle Street. The transit station will include a mechanized park-and-ride facility for 1,000 vehicles and an integrated bus terminal to facilitate a regional 'hub-and-spoke' system. The site will also serve Handi-Van vehicles. Limited commercial areas will also be included within the site. Exhibit 1 shows the project location.

Vehicular access to the project site will be through driveways to Middle Street and a driveway to Kamehameha Highway. A major driveway to Middle Street will serve the parking facility/bus terminal and will be located opposite an existing access road to a City refuse transfer station. This intersection would be signalized to accommodate the expected traffic demand at the intersection. Two additional site driveways are proposed between the major driveway and Kamehameha Highway to serve the commercial site. The project will also have a driveway to Kamehameha Highway for exiting buses only; a traffic signal will provide the buses the opportunity to enter the highway without any opposing traffic. Exhibit 2 shows the preliminary site plan.

The project's most significant impact to traffic would occur during morning and afternoon commuter peak hours, when traffic in and out of the site will coincide with peak conditions on the nearby roadways. This traffic impact assessment evaluates the projected peak hour conditions at the existing signalized intersection of Kamehameha Highway and Middle Street and at the proposed site access driveways.

The analyses were based on the concepts described in the *Highway Capacity Manual*¹. Traffic conditions are described by "Levels of Service" (LOS) which range from LOS A (good conditions) to LOS E (poor conditions). Level of Service F describes over capacity conditions or very long delays. Overall LOS D or better is considered acceptable for urban conditions. In urban and other built-up areas, traffic conditions are usually constrained at intersections.

The *Highway Capacity Manual* procedure for the analysis of unsignalized intersections was also used. In this analysis, estimates of average delays to vehicles that must stop or yield to other traffic are determined from the main road's volumes and capacities. The *Highway Capacity Manual* operational procedure for signalized intersections was used to evaluate the signalized intersections. In the signalized intersection analysis, the average

¹ Transportation Research Board Special Report 209, *Highway Capacity Manual*, 2000.

delay for each approach is estimated considering the signal phasing and timing, and the average delay for all vehicles using the intersection is calculated and an overall intersection level of service is determined. Criteria for levels of service are:

<u>LOS</u>	<u>General Description of Estimated Delay</u>	<u>Average Delay at Unsignalized Intersection</u>	<u>Average Delay at Signalized Intersection</u>
A	Little or no delay	(≤ 10 seconds)	(≤ 10 seconds)
B	Short traffic delays	(> 10 and ≤ 15 seconds)	(> 10 and ≤ 20 seconds)
C	Average traffic delays	(> 15 and ≤ 25 seconds)	(> 20 and ≤ 35 seconds)
D	Long traffic delays	(> 25 and ≤ 35 seconds)	(> 35 and ≤ 55 seconds)
E	Very long traffic delays	(> 35 and ≤ 50 seconds)	(> 55 and ≤ 80 seconds)
F	Very long traffic delays	(> 50 seconds)	(> 80 seconds)

Existing Traffic Conditions

The project site is located at the mauka-kokohead corner of the intersection of Kamehameha Highway and Middle Street. Kamehameha Highway is a State highway that begins east of the intersection as a continuation of Dillingham Boulevard, a major radial arterial feeding traffic in and out of downtown Honolulu. Kamehameha Highway to the west is a six-lane arterial street located under the viaduct supporting the H-1 Freeway. Ramps connect Kamehameha Highway from the east with both the H-1 Freeway and the roadway under the viaduct to the west. Fronting the project site, there are five westbound lanes on Kamehameha Highway: two lanes go across the intersection to the on-ramp to westbound H-1, two lanes lead to the ramp to westbound Kamehameha Highway, and the fifth lane is a right turn only lane to Middle Street. Two eastbound lanes on the off-ramp from eastbound H-1 continue across the intersection; a single lane on a ramp from westbound Kamehameha Highway (under the viaduct) joins Kamehameha Highway east of the Kalihi Stream bridge. Two-lane left turns are provided from eastbound Kamehameha Highway to northbound Middle Street and from southbound Middle Street to eastbound Kamehameha Highway.

Middle Street is a four-lane collector street that links the major radial arterial roadways that enter central Honolulu from the ewa (west) side. Fronting the project site, Middle Street has two lanes for traffic in each direction plus a center lane for left turns. Separate lanes are provided for right turns to the ramps to westbound Kamehameha Highway and to westbound H-1. The movement from eastbound Kamehameha Highway under the viaduct is on a separate ramp that bypasses the signalized intersection and right turns from westbound Kamehameha Highway to northbound Middle Street is channelized and yields; all other movements are controlled by the traffic signal.

Traffic counts in the area from Year 2000 are listed in Appendix A. Daily count totals are shown in Exhibit 3 and peak hourly volumes are shown in Exhibits 4 and 5. The counts indicate that peak volumes occur at various times during the morning peak period and during the afternoon peak period. The highest volume entering the intersection of

Kamehameha Highway and Middle Street occurred between 7:30 AM and 8:30 AM and between 4:15 PM and 5:15 PM).

Exhibit 6 shows the estimates of peak hour volumes for a typical day. Capacity analyses of the existing signalized intersection assumed optimization of the signal timing. Levels of service for each approach and for overall conditions at the intersection are based on average delays, as described above. Table 1 summarizes the results of the analyses.

Table 1
Existing Conditions – Kamehameha Highway and Middle Street

	AM Peak Hour			PM Peak Hour		
	v/c	ADPV	LOS	v/c	ADPV	LOS
Overall signalized intersection	0.78	28.9	C	0.50	23.5	C
Makaibound approach	0.61	38.5	D	0.54	39.9	D
Kokoheadbound approach	0.85	24.9	C	0.27	16.0	B
Ewabound approach	0.45	32.2	C	0.59	21.9	C

v/c = volume-to-capacity ADPV = average delay per vehicle, in seconds LOS = Level of Service

Future Conditions Without Project

An existing access road to the Keehi (solid waste) Transfer Station is located directly across Middle Street from the project site. The City and County of Honolulu Department of Environmental Services plans to relocate the Honolulu Collection Yard to an area accessed by this roadway, increasing the traffic in and out of the access road, within two years. Increases in other traffic due to increased population and economic activity have also been accounted for by adding 30% to other traffic movements. Exhibit 7 shows the estimates of future (Year 2025) traffic.

Intersection conditions for future peak hours are summarized in Table 2 and 3.

Table 2
Future Conditions (Year 2025) Without Project
Kamehameha Highway and Middle Street

	AM Peak Hour			PM Peak Hour		
	v/c	ADPV	LOS	v/c	ADPV	LOS
Overall signalized intersection	0.99	49.2	D	0.65	26.2	C
makaibound approach	0.93	73.3	E	0.69	43.0	D
kokoheadbound approach	1.00	44.2	D	0.34	16.7	B
ewabound approach	0.55	42.0	D	0.77	25.3	C

v/c = volume-to-capacity ADPV = average delay per vehicle, in seconds LOS = Level of Service

Table 3
 Future Conditions (Year 2025) Without Project
 Middle Street and Keehi Access Road

	AM Peak Hour			PM Peak Hour		
	v/c	ADPV	LOS	v/c	ADPV	LOS
eastbound approach	1.48	>200	F	0.51	33.8	D
northbound left turn	0.33	20.8	C	0.06	13.1	B

v/c = volume-to-capacity ADPV = average delay per vehicle, in seconds LOS = Level of Service

Traffic demand during the morning peak hour at the unsignalized intersection of Middle Street and the access road to the Keehi Transfer Station will require improvements, such as traffic signals.

Proposed Project

The proposed project will construct a transit center that will include a bus terminal and parking for 1,000 cars and parking for Handi-Van vehicles. The transit center will be a major transfer point between bus routes. The numbers of bus trips in and out of the center during future peak hours were provided by the City and County of Honolulu, as shown in Table 4.

Table 4
 Bus Assignments

	AM Peak Hour *		PM Peak Hour	
	Entering	Exiting	Entering	Exiting
Middle Street mauka	13	19	19	13
North King Street (mauka-kokohead)	45	36	36	45
Moanalua (mauka-ewa)	31	9	22	22
H-1 Freeway (west)	8	8	8	8
Kamehameha Highway west	--	13	--	9
Kamehameha Highway east	9	11	11	9

* Source: City and County of Honolulu, Department of Transportation Services.

Buses will enter the site from Middle Street through a driveway located opposite the existing access road to the Keehi Transfer Station. Buses that will travel in the mauka direction from the site will leave the site using this driveway. Buses that leave the site destined for Kamehameha Highway or westbound H-1 will leave the site using a driveway to Kamehameha Highway. Both driveways will be signalized.

The major portion of the parking provided is intended for transit users who access the transit system by driving to the center and parking their cars. Seven hundred spaces are expected to be available for park-and-ride use. The remainder of the parking will be used

by employees (drivers and other employees of the bus and HandiVan operators). Commercial activity at the site would serve people already at the site and is not expected to generate significant volumes of traffic during peak hours. Table 5 shows the traffic generation rates that were applied and Table 6 show the trip estimates for the site.

Table 5
Traffic Generation Rates

	AM Peak Hour		PM Peak Hour	
	Rate	Entering	Rate	Entering
Park & Ride (per stall) *	0.75	80%	0.63	22%
Employee Parking (per stall)	0.20	80%	0.20	22%

Source: Institute of Transportation Engineers, *Trip Generation, 6th Edition*

Table 6
Traffic Generation

		AM Peak Hour		PM Peak Hour	
		Entering	Exiting	Entering	Exiting
700 stalls	Park & Ride	420	105	95	345
300 stalls	Employee	50	10	15	45
1,000 stalls	Total for Site	470	115	110	390

All automobile traffic will enter and leave the site through the Middle Street driveway. Two lanes will be provided for exiting traffic so that right turns can proceed when northbound traffic on Middle Street is stopped.

Site generated traffic volumes were distributed onto the roadway network based on the expected use of the site, the locations of residential and other uses in the area, and the roadway linkages that are available. Table 7 shows the distribution factors used.

Table 7
Traffic Distribution Factors

	AM Peak Hour		PM Peak Hour	
	Entering	Exiting	Entering	Exiting
Middle Street mauka	23%	9%	14%	16%
North King Street (mauka-kokohead)	23%	9%	14%	16%
Moanalua (mauka-ewa)	45%	9%	27%	16%
Kamehameha Highway west	--	14%	--	30%
Kamehameha Highway east	9%	59%	45%	22%

The project traffic was applied to the future (Year 2025) without project traffic assignments. Some of the traffic attracted to the site would be drawn from the traffic already on the adjacent roadway, while other traffic will be diverted from nearby roads. Exhibit 8 shows the future with project traffic assignments.

At the intersection of Kamehameha Highway and Middle Street, delays will increase with the higher volumes of traffic. In the AM Peak Hour, the intersection would be at capacity; the makaibound left turns from Middle Street will have very long delays and Level of Service F condition. Average delay for all vehicles using the intersection would fall in the Level of Service D range. The intersection would remain under capacity in the PM Peak Hour and Level of Service D or better would describe conditions on all approaches. Table 8 shows the results of the analyses.

Table 8
Future Conditions (Year 2025) With Project
Kamehameha Highway and Middle Street

	AM Peak Hour			PM Peak Hour		
	v/c	ADPV	LOS	v/c	ADPV	LOS
Overall signalized intersection	1.00	50.9	D	0.65	26.8	C
Makaibound approach	0.98	82.1	F	0.69	43.8	D
Kokoheadbound approach	1.00	44.3	D	0.36	17.1	B
Ewabound approach	0.57	40.8	D	0.78	25.2	C

v/c = volume-to-capacity ADPV = average delay per vehicle, in seconds LOS = Level of Service

A new traffic signal is proposed at the site's driveway to Kamehameha Highway. This signal would be interconnected with the nearby signal at Kamehameha Highway and Middle Street and would be timed to minimize any impact to traffic on Kamehameha Highway. The signal would stop traffic on Kamehameha Highway to allow buses from the site to safely enter the highway. The new signal would have little impact as shown in Table 9.

Table 9
Future Conditions (Year 2025) With Project
Kamehameha Highway and Site's Bus Exit

	AM Peak Hour			PM Peak Hour		
	v/c	ADPV	LOS	v/c	ADPV	LOS
Overall signalized intersection	0.54	5.1	A	0.51	5.2	A
makaibound approach	0.27	34.9	C	0.21	30.5	C
kokoheadbound approach	0.60	5.8	A	0.43	4.7	A
ewabound approach	0.17	3.1	A	0.57	5.1	A

v/c = volume-to-capacity ADPV = average delay per vehicle, in seconds LOS = Level of Service

At the new traffic signal at the intersection of Middle Street, the City Refuse Transfer Station access road, and the site driveway, a single makaibound left turn was assumed, with right turns off of Middle Street being made from the curb lane shared with through traffic. The new driveway is assumed to have two lanes entering and two lanes exiting. With this configuration, it would operate at capacity during the AM Peak Hour, with volumes about 98% of capacity. Overall intersection condition would be Level of Service E with the makaibound approach on Middle Street and the kokohead approach (Transfer Station Access Road) both operating at Level of Service F. Conditions at the intersection are Level of Service C in the PM Peak Hour. Table 10 summarizes the results of the analyses.

Table 10
Future Conditions (Year 2025) With Project
Middle Street Driveway

	AM Peak Hour			PM Peak Hour		
	v/c	ADPV	LOS	v/c	ADPV	LOS
Overall signalized intersection	0.95	62.2	E	0.79	31.0	C
Makaibound approach	0.92	44.5	D	0.92	32.5	C
Maukabound approach	0.98	100.9	F	0.83	34.2	C
Kokoheadbound approach	0.95	93.6	F	0.46	22.2	C
Ewabound approach	0.21	18.4	B	0.73	25.8	C

v/c = volume-to-capacity ADPV = average delay per vehicle, in seconds LOS = Level of Service

A review of the traffic estimates indicates that a second lane for makaibound left turns into the site is warranted for AM Peak Hour volumes. If a second lane is provided for makaibound left turns from Middle Street, the signal timing could be adjusted so that all approaches operate at under capacity levels. Table 11 shows the results of the analyses with this mitigation.

Table 11
Future Conditions (Year 2025) With Project
Middle Street Driveway (mitigated)

	AM Peak Hour			PM Peak Hour		
	v/c	ADPV	LOS	v/c	ADPV	LOS
Overall signalized intersection	0.83	35.2	D	0.73	27.7	C
Makaibound approach	0.82	30.4	C	0.47	22.4	C
Maukabound approach	0.89	47.8	D	0.83	34.2	C
Kokoheadbound approach	0.85	47.7	D	0.46	22.2	C
Ewabound approach	0.18	10.1	B	0.73	25.8	C

v/c = volume-to-capacity ADPV = average delay per vehicle, in seconds LOS = Level of Service

Short-Term Impacts

The Handi-Van maintenance and storage facilities would be the first phase of development of the site. This facility would be located near the Middle Street driveway and would not require improvements along the Kamehameha Highway frontage. The Handi-Van facility will include parking for up to 120 vehicles but is not expected to have a significant traffic impact. It will generate minor traffic volume (less than ten vehicles per hour in either direction) during the morning peak hour, since these vehicles will already be on the road at that time. Similar traffic impact has been projected during the PM Peak Hour since, again, the Handi-Van vehicles will be in use elsewhere on Oahu.

The peak volumes for Handi-Vans, however, would occur during an hour earlier than the AM Peak Hour and an hour later than the PM Peak Hour. The peak hourly volume is estimated based on start-up occurring evenly over a one-and-a-half hour period, or a volume of 80 vehicles per hour in each direction (80 employees arriving, 80 Handi-Vans leaving). Evening volumes would be reversed and similar in magnitude. The peak volume is less than the guideline suggested by the Institute of Transportation Engineers that "a traffic access/impact study be conducted whenever a proposed development will generate 100 or more added (new) trips to or from the site during the adjacent roadways' peak hours or the development's peak hour." (from *Traffic Access and Impact Studies for Site Development, A Recommended Practice*, 1991).

The traffic generated by the Handi-Van facility only and its peak occurrence during hours of when there is less other traffic would not satisfy traffic signal warrants at the Middle Street driveway. The second makaibound lane that would be needed at full development also would not be needed.

Conclusions

The proposed project will have a slight impact on future conditions at the existing signalized intersection of Kamehameha Highway and Middle Street.

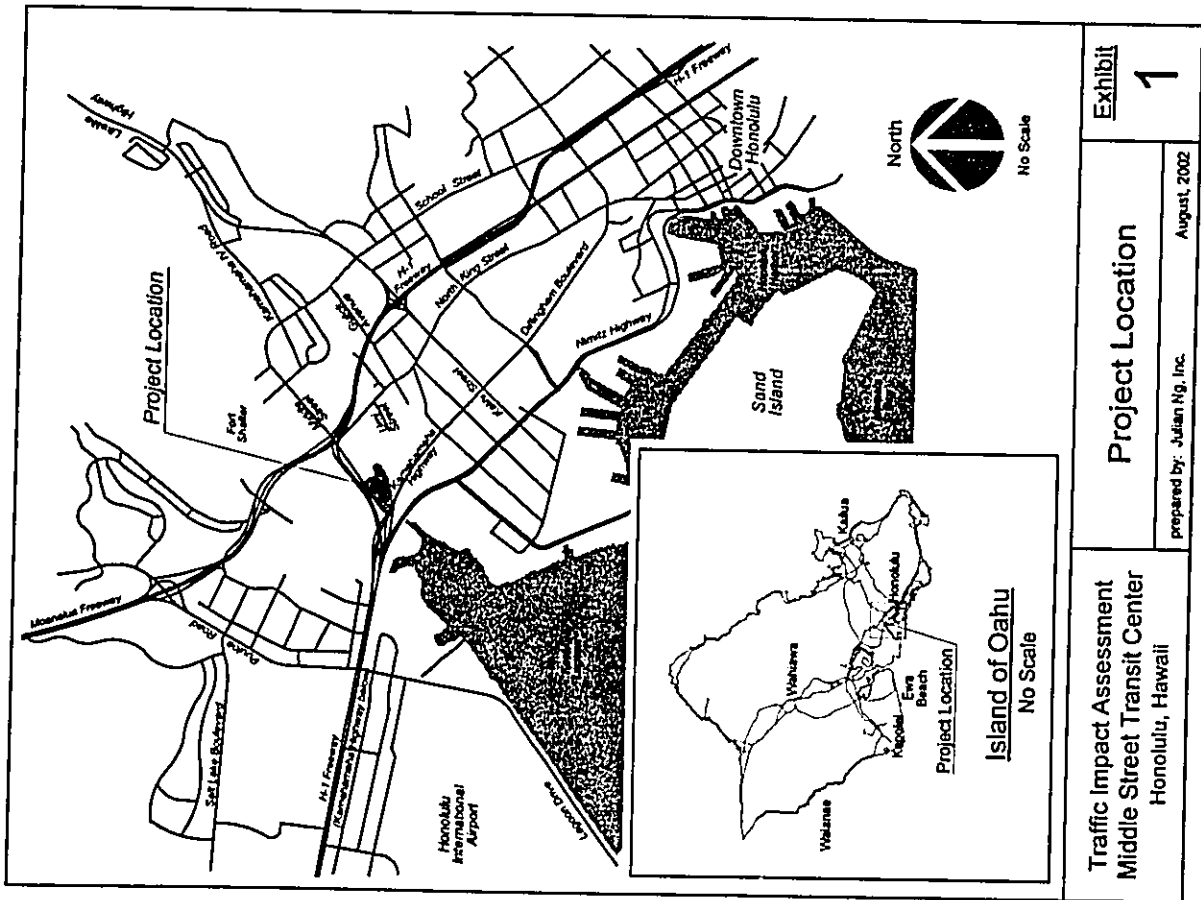
At the existing unsignalized intersection of Middle Street and the access road to the refuse transfer station, increases in traffic volumes are expected even without the proposed transit station. These increases will result in very long delays as the unsignalized intersection's ability to serve the stop-controlled traffic from the refuse station will be exceeded during the AM Peak Hour. The proposed Middle Street Transit Station will add a driveway to Middle Street opposite the access road to the refuse transfer station and signalize the intersection. With signalization, conditions in the AM Peak Hour will be improved; however, further improvement to acceptable level of service can be accomplished with the addition of a second lane for makaibound left turns from Middle Street into the transit station.

The proposed new traffic signal at the transit center's bus exit to Kamehameha Highway would have little effect on traffic conditions.

Recommendations

The following recommendations apply for the full development of the site.

- a. A second left turn lane should be provided for the turn from makaibound Middle Street into the Transit Station.
- b. The operation of the two new signals proposed at the Transit Station's main entry from Middle Street and at the bus exit to Kamehameha Highway should be coordinated with the operation of the existing signal at the intersection of Kamehameha Highway and Middle Street.

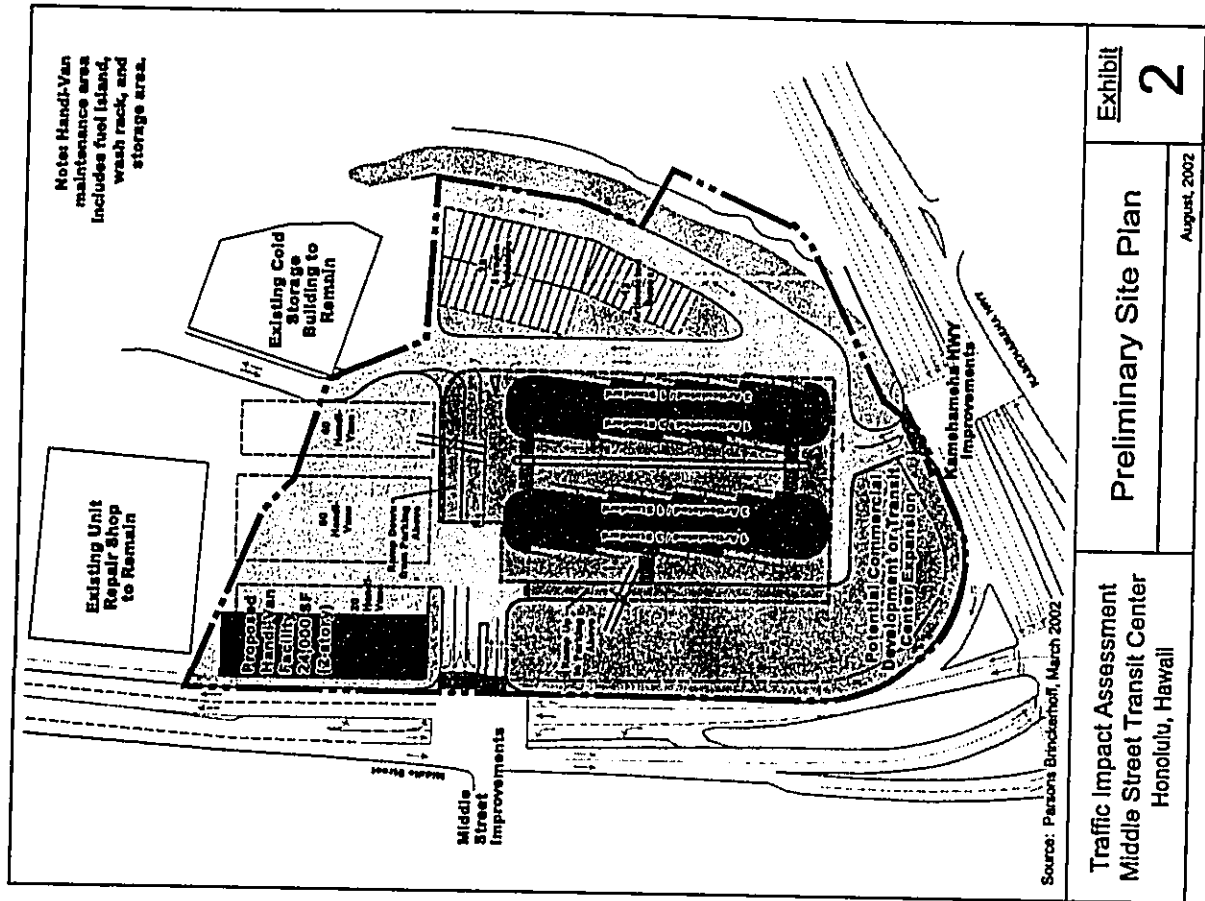


Traffic Impact Assessment
Middle Street Transit Center
Honolulu, Hawaii

Project Location

prepared by: Julian Ng, Inc.
August, 2002

Exhibit
1

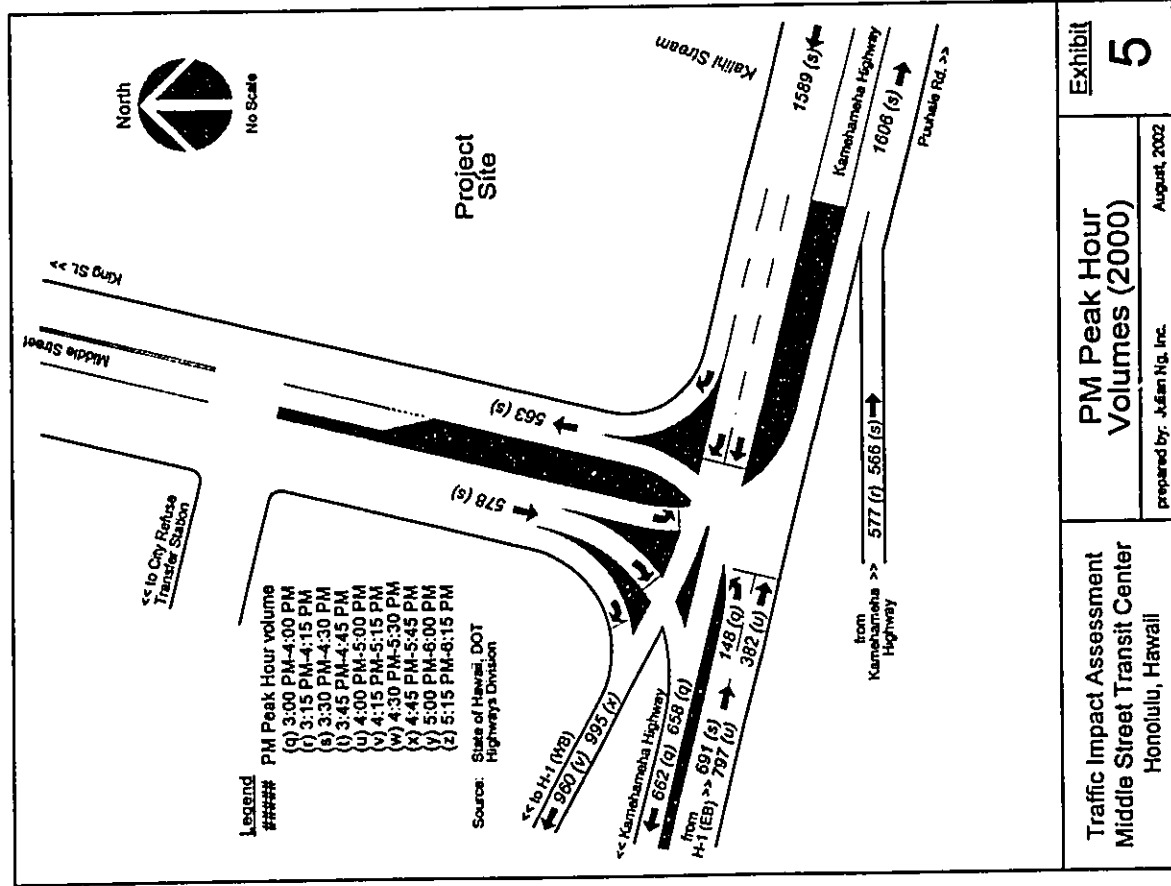


Traffic Impact Assessment
Middle Street Transit Center
Honolulu, Hawaii

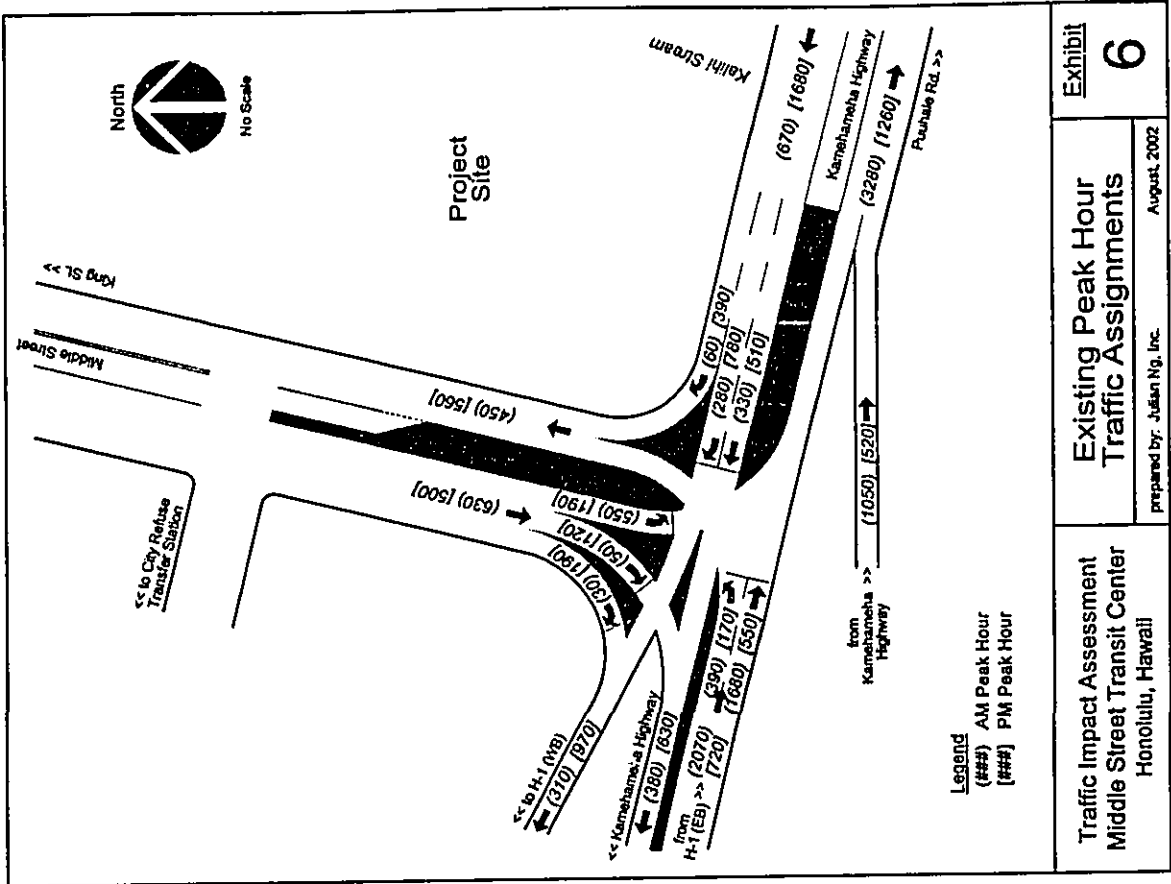
Preliminary Site Plan

August, 2002

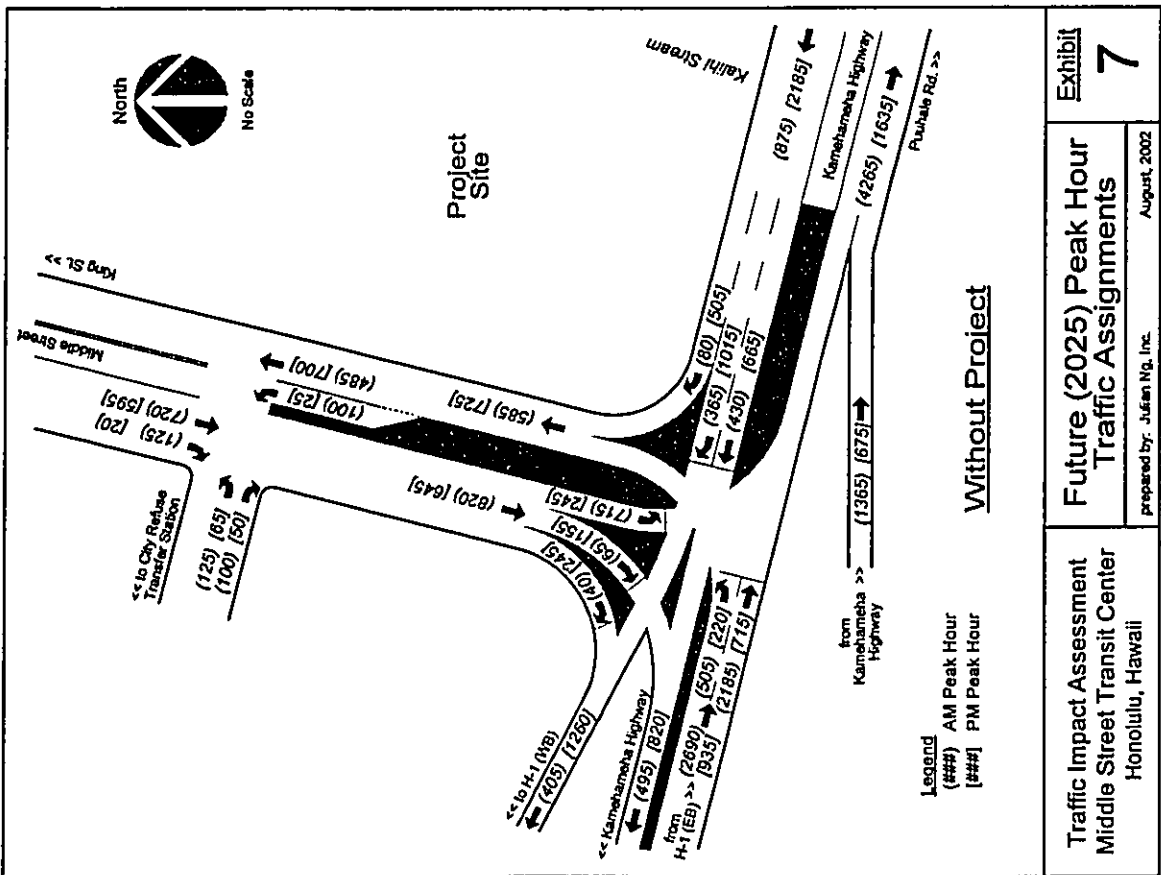
Exhibit
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Traffic Impact Assessment Middle Street Transit Center Honolulu, Hawaii	PM Peak Hour Volumes (2000)	Exhibit 5
	prepared by: Julian Ng, Inc. August, 2002	



Traffic Impact Assessment Middle Street Transit Center Honolulu, Hawaii	Existing Peak Hour Traffic Assignments	Exhibit 6
	prepared by: Julian Ng, Inc. August, 2002	

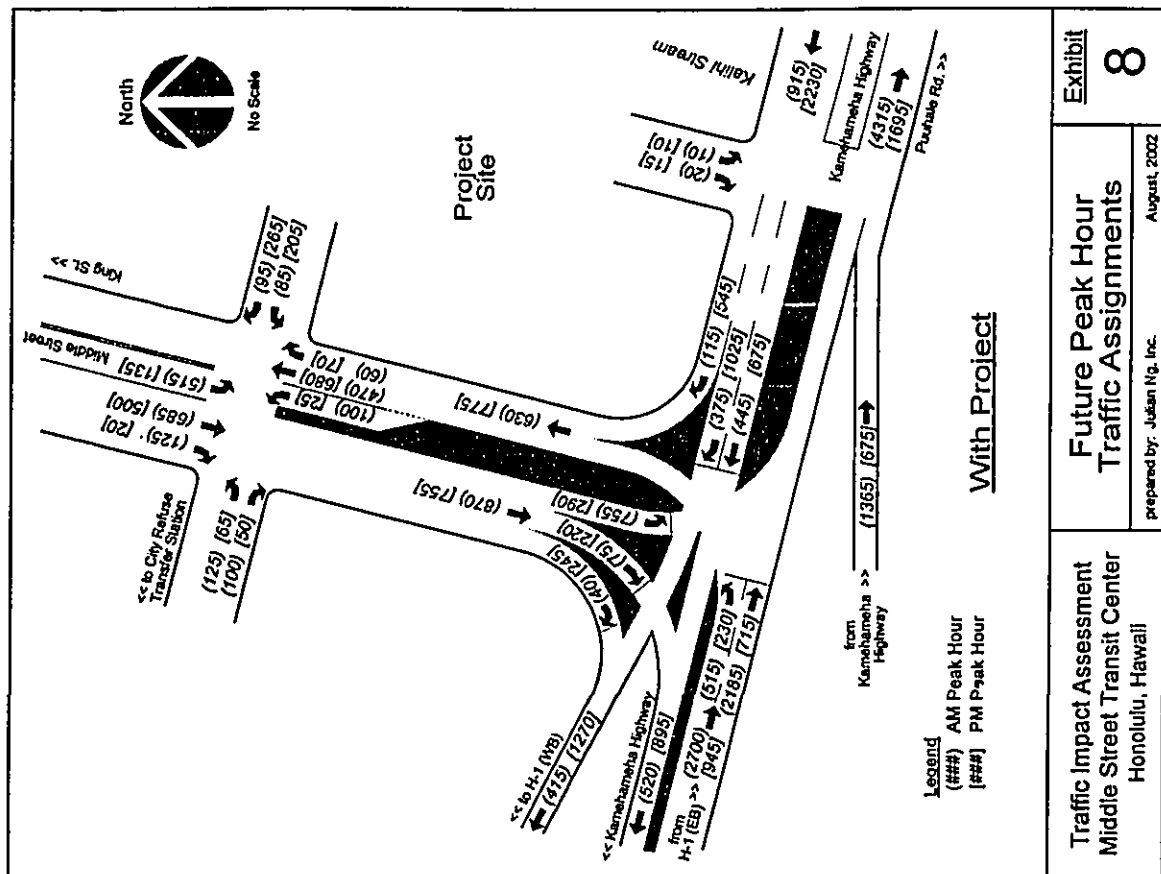


Traffic Impact Assessment
 Middle Street Transit Center
 Honolulu, Hawaii

Future (2025) Peak Hour
 Traffic Assignments

Exhibit 7

prepared by: Julian Ng, Inc. August, 2002



Traffic Impact Assessment
 Middle Street Transit Center
 Honolulu, Hawaii

Future Peak Hour
 Traffic Assignments

Exhibit 8

prepared by: Julian Ng, Inc. August, 2002

Appendix - Traffic Count Data

2000 traffic counts	Station 2		Station SL-11		Station H1-18K		Station H1-18C		Station SC-0051		Station H1-18H		Station H1-18F	
Source: State of Hawaii DOT-Highways Division	Middle St. NE leg		Kam @ Kalihl Strm		H-1 to Kam EB		H-1 to Kam/Middle, turns 10/4-5/00		Kam WB to Kam		Kam WB to H-1			
	IN	OUT	IN	OUT	2/01/00	2/02/00	2/01/00	2/02/00	LT to M	TH to K	2/01/00	2/02/00	2/01/00	2/02/00
24-hour totals	8,220	6,756	17,587	24,189	7,976	7,970	16,358	13,727	2,355	8,070	8,153	8,206	9,272	9,458
00:00 - 00:15	8	15	43	25	14	18	89	19	4	4	13	25	18	18
00:15 - 00:30	9	18	42	19	6	13	92	10	1	15	13	15	15	12
00:30 - 00:45	9	14	35	19	9	7	149	11	4	6	7	24	16	15
00:45 - 01:00	6	11	27	14	8	5	47	3	2	6	14	12	14	9
01:00 - 01:15	13	9	31	19	11	8	114	8	5	2	16	17	13	16
01:15 - 01:30	14	8	17	18	5	5	82	6	0	3	8	13	18	15
01:30 - 01:45	10	12	27	19	5	8	117	6	1	4	11	11	5	9
01:45 - 02:00	9	8	31	11	4	5	105	8	3	9	7	16	4	14
02:00 - 02:15	11	9	30	22	7	4	61	2	1	3	5	12	14	16
02:15 - 02:30	8	3	12	14	5	8	59	5	2	3	9	17	9	8
02:30 - 02:45	10	2	17	18	6	8	146	5	0	4	10	8	6	11
02:45 - 03:00	9	4	10	13	9	1	198	5	1	7	4	7	11	6
03:00 - 03:15	8	5	21	14	5	2	62	7	3	3	4	12	8	11
03:15 - 03:30	3	6	21	12	5	4	72	4	0	3	4	12	7	12
03:30 - 03:45	17	9	15	36	7	4	51	12	5	7	11	16	12	6
03:45 - 04:00	18	7	23	29	8	7	71	17	3	17	16	3	16	17
04:00 - 04:15	19	11	51	47	6	9	128	13	3	16	7	16	16	23
04:15 - 04:30	27	8	31	46	13	9	107	161	2	14	11	22	17	20
04:30 - 04:45	45	7	24	98	13	15	112	215	7	31	21	27	27	27
04:45 - 05:00	48	21	43	98	13	14	192	85	10	49	27	32	34	34
05:00 - 05:15	54	24	59	170	34	21	253	99	19	70	43	31	21	40
05:15 - 05:30	72	32	88	283	32	28	270	242	15	99	49	45	37	34
05:30 - 05:45	118	37	93	398	57	69	327	278	28	200	80	75	38	50
05:45 - 06:00	108	56	128	388	82	55	301	342	34	215	76	60	67	58
06:00 - 06:15	133	85	136	585	103	94	353	308	61	260	57	84	89	86
06:15 - 06:30	159	111	143	742	142	147	427	312	79	266	95	95	87	95
06:30 - 06:45	190	104	151	858	205	231	480	394	119	295	122	112	86	93
06:45 - 07:00	168	128	129	839	281	313	389	359	129	337	112	107	95	108
07:00 - 07:15	140	125	158	851	275	285	452	394	120	353	88	82	77	71
07:15 - 07:30	144	113	174	859	267	279	469	425	80	382	77	94	92	81
07:30 - 07:45	179	113	177	886	245	237	507	467	66	374	108	88	73	99
07:45 - 08:00	151	136	159	813	281	288	456	465	75	310	108	109	87	102
08:00 - 08:15	159	121	171	865	249	248	596	581	94	362	97	110	87	80
08:15 - 08:30	146	110	167	852	286	269	544	537	92	343	92	88	107	79
08:30 - 08:45	147	99	197	595	241	248	502	502	45	262	101	102	65	81
08:45 - 09:00	163	98	216	368	248	255	523	351	35	124	109	94	87	81
09:00 - 09:15	130	100	215	328	194	152	321	193	19	123	106	88	102	90
09:15 - 09:30	122	102	215	340	91	113	269	138	15	105	101	102	81	104
09:30 - 09:45	113	86	218	308	105	104	259	139	13	100	118	131	105	91
09:45 - 10:00	137	91	249	280	113	110	273	216	21	97	125	119	109	114
10:00 - 10:15	144	85	255	329	87	94	216	248	19	117	123	119	107	112
10:15 - 10:30	140	103	240	328	104	80	264	256	15	90	128	110	121	109
10:30 - 10:45	117	93	265	292	101	83	236	313	28	103	123	122	129	121
10:45 - 11:00	124	98	288	308	103	107	216	188	27	106	129	119	114	115
11:00 - 11:15	155	106	296	297	91	107	232	215	26	96	155	176	122	123
11:15 - 11:30	135	78	288	325	105	99	313	189	20	96	146	160	155	144
11:30 - 11:45	167	95	304	330	125	111	219	148	30	96	169	165	146	139
11:45 - 12:00	139	106	326	283	82	89	299	115	26	93	142	160	158	135
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13:45 - 14:00	135	112	358	335	96	92	113	119	28	51	154	162	129	137
14:00 - 14:15	131	111	337	325	90	120	103	125	29	64	161	144	172	193
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19:00 - 19:15	62	62	216	109	41	50	48	62	19	37	80	53	143	124
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19:30 - 19:45	45	44	160	88	40	41	34	48	15	30	67	48	103	84
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20:00 - 20:15	38	37	152	68	38	27	39	26	8	24	55	50	98	88
20:15 - 20:30	46	37	108	65	37	29	33	52	13	17	48	57	73	81
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22:00 - 22:15	30	40	94	43	28	19	22	18	6	8	32	42	60	55
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**FINAL
ENVIRONMENTAL ASSESSMENT**

**(MIDDLE STREET
TRANSIT CENTER)**



**CITY AND COUNTY OF HONOLULU
DEPARTMENT OF TRANSPORTATION SERVICES**



**U.S. Department of Transportation
Federal Transit Administration**

November 2002

**FINAL
ENVIRONMENTAL ASSESSMENT**

**MIDDLE STREET
TRANSIT CENTER**

Prepared for:



**CITY AND COUNTY OF HONOLULU
DEPARTMENT OF TRANSPORTATION SERVICES**

and the



**U.S. Department of Transportation
Federal Transit Administration**

Prepared by:



KIMURA INTERNATIONAL INC.

November 2002

COVER SHEET

Proposed Action: Construction of a regional transit center and consolidated Handi-Van facilities. Proposed action includes site acquisition, demolition of existing structures, environmental remediation, and construction of Handi-Van parking and maintenance facilities, bus terminal and 1,000-stall, automated parking structure.

Type of Document: Environmental Assessment (EA)

Lead Agencies: City and County of Honolulu, Department of Transportation Services and U.S. Department of Transportation, Federal Transit Administration

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This EA has been prepared in accordance with both State of Hawaii (HRS Chapter 343) and the federal (National Environmental Policy Act) environmental regulations and requirements. The City and County of Honolulu Department of Transportation Services (DTS) and the Federal Transit Administration propose to construct the Middle Street Transit Center on a 9.15 acre site on Middle Street between North King Street and Kamehameha Highway in an industrial area of Honolulu. The site is directly adjacent to the existing Kalihi-Palama Bus Facility. The project includes three major components: 1) Handi-Van program facilities; 2) bus transit center; and 3) park-and-ride parking structure. Proposed Handi-Van facilities to support the City's Handi-Van paratransit program include a parking area, service bays and vehicle maintenance facility. The proposed transit center will replace the existing transit center at the Kalihi-Palama Bus Facility, and support the proposed "hub and spoke" bus network. A 1,000-vehicle, automated parking structure will be built over the transit center to accommodate park-and-ride patrons and transit employees. An area of the site fronting Middle Street is reserved for future commercial/retail/community facilities in support of the transit center, and/or long-term transit center expansion.

Should a future Bus Rapid Transit (BRT) system be implemented, the Middle Street Transit Center would be a major BRT terminal linking the "Regional" and "In-Town" BRT components. A portion of the site will be allocated for BRT vehicle storage. If the BRT is not implemented, the area will be used for articulated bus parking. The BRT parking storage will be implemented as the final phase of the project, should the BRT system be funded. However, the project is needed regardless of whether or not the BRT is developed, and a separate environmental documentation is being prepared for the BRT. As such, the BRT is not a part of this EA.

The project will have minimal short-term and long-term environmental impacts. There will be short-term, construction period impacts on air quality, noise and traffic. Once the project is completed, the presence of a transit center and 1,000-stall park and ride facility will increase vehicular traffic in the immediate area. However, the project will include new traffic signals at the project's Middle Street and Kamehameha Highway driveways that will help minimize traffic congestion and delays that may occur. Cumulatively, the project will reduce regional traffic by supporting the City's long-term transit strategy. Existing contamination on site will be remediated prior to development. The physical appearance of the site and surrounding area will change and the project will probably have a positive impact on the visual environment, since the site currently consists of old industrial warehouse and a used car lot. Although an archaeological reconnaissance survey has been conducted with no significant findings, a subsurface archaeological survey will be done prior to construction. Should the survey reveal significant findings, mitigation measures will be implemented. Other impacts would be moderate or negligible. The project is consistent with all State and County land use controls.

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List of Acronyms

ADA	Americans with Disabilities Act
AST	aboveground storage tank
AQIR	air quality impact report
BRT	Bus Rapid Transit
CATV	cable television
CEQ	Council on Environmental Quality
DLNR	Department of Land and Natural Resources
DOH	(State) Department of Health
DTS	(City) Department of Transportation Services
DP	Development Plan
EA	Environmental Assessment
E.O.	Executive Order
ESA	environmental site assessment
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FTA	Federal Transit Administration
gpd	gallons per day
gpm	gallons per minute
HRS	Hawaii Revised Statutes
HDOH	Hawaii Department of Health
HECo	Hawaiian Electric Company
HVOC	halogenated volatile organic compounds
kV	kilo volt
LOS	level of service
MIS/DEIS	Major Investment Study/Draft Environmental Impact Statement
MSL	mean sea level
NEPA	National Environmental Policy Act
OTS	Oahu Transit Services, Inc.
PAH	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyls
PUC	Primary Urban Center
SAL	soil action levels

SDEIS	Supplemental Draft Environmental Impact Statement
SHPD	State Historic Preservation Division
SF	square foot
SMA	special management area
TMK	tax map key
UBC	Uniform Building Code
UST	underground storage tank

EXECUTIVE SUMMARY

PROJECT SUMMARY

Item	Description
Project Name	Middle Street Transit Center
Applicant	Department of Transportation Services City and County of Honolulu
Landowner	Yee Hop Realty, Ltd. (site will be acquired by City and County of Honolulu)
Address	Middle Street, between North King St. and Kamehameha Highway
Tax Map Key	Developable Land: 1-2-18: 01 (portion) ¹ , 02, 03, 09, 10 Submerged Land (Kalihi Stream areas): 1-2-17: 03, 04, 05
Project Area	9.15 acres ² (developable land) 0.48 acres (submerged land)
Existing Uses	Warehouses (owned by Yee Hop Realty, Ltd.) occupied by various commercial and light industrial tenants.
Proposed Project	Develop a major transit center and consolidate Handi-Van facilities adjacent to existing City Kalihi-Palama Bus Facility. Proposed project will provide dedicated Handi-Van parking and maintenance facilities, bus terminal and 1,000-stall, automated parking structure for "park and ride" patrons and transit employees. Area reserved for future transit-related commercial/retail/community support or transit center expansion. Landscaping improvements along Kalihi Stream include a possible linear park and/or buffer zone.
State Land Use Designation	Urban
Zoning Designation	Developable Land: I-2, General Submerged Land: IMX-1, Industrial Mixed Use
Flood Insurance Rate Map	Zone AO (area with flood depths 1-3 feet [usually sheet flow on sloping terrain]; average depths determined.) Zone X (shaded) (area of 500-yr flood; area of 100-yr flood with average depths less than 1 ft or drainage areas less than 1 sq mi; areas protected by levees from 100-yr flood.)

¹ Developable land acreage does not include cold storage warehouse. Parcel 1-2-18:01 will be subdivided and the warehouse portion retained by its current owner. It will not be part of this project.

² Acreage does not include cold storage warehouse.

Item	Description
Special Management Area	No
Action Requested	Compliance with National Environmental Policy Act (NEPA) and Chapter 343, Hawaii Revised Statutes
Basis for the Environmental Assessment	Use of Federal and County funds
Anticipated Determination	Finding of No Significant Impact (FONSI)
Approving Agency	Department of Transportation Services for the Mayor, City and County of Honolulu

INTRODUCTION

This Environmental Assessment (EA) is being prepared in accordance with both State of Hawaii and federal environmental regulations and requirements, as the project will utilize both federal and City and County of Honolulu funds.

This EA is subject to Chapter 343, Hawaii Revised Statutes (HRS), Act 241, Session Laws of Hawaii (SLH) 1992, and Chapter 200 of Title 11, Department of Health (DOH) Administrative rules, "Environmental Impact Statement Rules."

This EA is also being prepared pursuant to Section 102 (2)(c) of the National Environmental Policy Act (NEPA) of 1969, 42 U.S.C. §4332, as implemented by the Council on Environmental Quality (CEQ) regulations, 40 CFR Parts 1500-1508. It is also being prepared in accordance with Section 4(f) of the Department of Transportation Act of 1966, 49 U.S.C. §303.

PURPOSE AND NEED FOR ACTION

The Middle Street Transit Center is being proposed by the City and County of Honolulu's Department of Transportation Services (DTS). The project is needed to support both the City's Handi-Van program and bus transit system. Currently, Handi-Van maintenance is conducted at the Kalihi-Palama Bus Facility, and vehicles are temporarily stored at the nearby Kalihi Shopping Center, located on North King Street. The City leases space at the Kalihi Shopping Center for Handi-Van parking on a temporary basis. Permanent, dedicated facilities are required to improve operational efficiency.

The project will construct a new bus transit center to replace the existing transit center at the Kalihi-Palama Bus Facility. The new Middle Street Transit Center will be an integral component of the proposed "hub and spoke" bus network, which will reconfigure the current predominantly "radial" bus route network to one where circulator, local and express routes are organized around "hubs." The transit centers are the "hubs," where riders make transfers. The Middle Street Transit Center will be one of five regional transit centers on Oahu.

In addition to providing a new transit center and passenger terminal, the project will construct a 1,000-stall automated parking structure. The parking is required to support the transit center's park-and-ride component, as well as provide parking for transit employees. Approximately 300 stalls will be designated for transit employees and the remaining 700 stalls will be reserved for park-and-ride commuters. An innovative, automated technology will allow the structure to accommodate 1,000 vehicles. This parking technology has been utilized extensively in Japan and Europe and should provide parking in less space and at less cost than a conventional parking structure. The project also includes an area for potential future transit-related commercial support development and/or transit center expansion.

Should a future Bus Rapid Transit (BRT) system be implemented, the proposed Middle Street Transit Center will accommodate the BRT vehicles, and would be a major transit terminal for passengers arriving from west Oahu and connecting to in-town routes. However, the project is required regardless of when, or if, the BRT system is implemented.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

The EA evaluates four major alternatives, including the proposed action. The alternatives are:

1. Proposed Action
2. No Action
3. Alternative Sites
 - J.C. Penney Warehouse
 - Kalihi Shopping Center
 - Shafter Flats
4. Alternative Designs at Middle Street Site

Proposed Action

The proposed project will be developed in three phases. The first phase of the project will include site acquisition, relocation of existing lessees, demolition, environmental remediation, and the development of on and off-site infrastructure. In addition, improvements will be completed to accommodate the relocation of the consolidated Handi-Van facilities to the site. The proposed Handi-Van improvements include vehicle parking and maintenance facilities.

The second phase of the project will involve the construction of the transit center facility. The center will consist of a sheltered passenger service platform and bus bays for loading and unloading bus passengers. There will be some interior space for comfort stations, ticket purchase, customer service and waiting areas, and some storage.

The last phase of the project will include the construction of a 1,000 stall automated park-and-ride facility over the transit center, and parking/storage (should the Bus Rapid Transit system be implemented) for BRT vehicles. The parking structure will utilize an automated technology that will be less costly to build and operate than a conventional parking structure. Because the facility

does not require the vehicle maneuvering areas of a conventional parking garage, the structure will be much smaller than a conventional parking structure with comparable capacity.

An area of the site is being reserved for possible transit-related commercial/retail/community support facilities or for future transit center expansion. If commercial/retail/support facilities are developed, they would be limited to uses that directly support the transit center. No stand alone or regional retail use is proposed. The reserved land area could accommodate up to 16,000 SF of commercial/retail or community support use.

No Action

The no action alternative would preserve the status quo. The site would remain in its present use as commercial and light industrial warehouses. The adjacent Kalihi-Palama Bus Facility would continue its current operations. Handi-Van parking and maintenance would remain unconsolidated at scattered locations. Handi-Van parking may remain at Kalihi Shopping Center, an unsatisfactory and unsecured site. Handi-Van maintenance would be conducted at the bus maintenance facility. Should the City lose its lease of the Kalihi Shopping Center site, a replacement parking site would be needed. There are no comparable, City-owned sites large enough to locate Handi-Van parking. The no action alternative was judged to be unsatisfactory, as the existing bus facility is not large enough to support a bus hub and spoke system. In addition, because the existing facility does not have a park and ride facility, its function as a transit "hub" would be limited.

Alternative Sites--Summary

Several alternative sites for a new transit center and Handi-Van facilities were considered during preliminary planning. In addition to the proposed Middle Street site, the others were the J.C. Penney Warehouse site, Kalihi Shopping Center site, and Shafter Flats. All four sites are within a one-mile radius of the existing Kalihi-Palama Bus Facility.

The J.C. Penney warehouse site is located adjacent to and east of the existing Kalihi-Palama Bus Facility on Umi Street. Although the site is close to the existing Kalihi-Palama Bus Facility, it includes only 5.14 net usable acres, about half the size of the Middle Street site. There is no direct access between the J.C. Penney site and the existing Kalihi-Palama Bus Facility. Access to and from the freeway is also poor. For these reasons, the site was eliminated from further consideration.

The Kalihi Shopping Center site is located on North King Street near the intersection with Umi Street, about a half-mile northeast of the Middle Street site. A portion of the site fronting North King Street is currently used by the Handi-Van program for vehicle parking. The site is approximately four acres in size. Because the site is not adjacent to the existing Kalihi-Palama Bus Facility, its use for Handi-Van facilities would not be optimal. In addition, its small area and less direct freeway access make this a less preferable site.

The area known as Shafter Flats is located on the west side of the Middle Street/H-1 Freeway project boundary, and is part of the U.S. Army's Fort Shafter Complex. It is currently occupied by a number of Army warehouse and office buildings. Although the site is large and has direct freeway access, the major disadvantage was its availability. Acquisition or use of Shafter Flats would require the federal government to declare the site "surplus," a lengthy process with an uncertain outcome. In addition, existing Army uses on the site could be incompatible with a transit center. For this reason, Shafter Flats was eliminated from further consideration.

Overall, none of the alternative sites compared favorably to the preferred Middle Street site. None of the sites provided the same combination of proximity to the existing Kalihi-Palama bus maintenance facility, good freeway access, adequate acreage and availability.

Alternative Designs at Middle Street Site

Alternative transit center designs at the Middle Street site were also considered. The primary alternative design was construction of a conventional, rather than an automated parking garage. However, a conventional parking structure was determined to be more expensive to build and operate compared to an automated facility. A conventional structure would have had greater visual impact due to its larger size, and may be less safe and more vulnerable to crime than an automated structure.

Another design alternative was to utilize the existing cold storage building currently occupied by Commercial Enterprises and Yee Hop Realty, Ltd., as a Handi-Van maintenance facility. Although this was part of the original development plan, Yee Hop Realty, Ltd., the owner of the project site, requested that they retain the cold storage building in its current use, and exclude it from the sale to the City.

AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION

The project will have minimal direct, indirect or cumulative adverse impacts. All project impacts can be adequately mitigated. None of the alternatives to the proposed action (no action, alternative sites, alternative designs) will have major adverse impact.

The findings of the environmental analysis are summarized below:

Topography, Slopes and Soils

There will be no adverse impacts to topography, slopes or soils. Site work will be done in accordance with all City and County of Honolulu rules and standards, including, but not limited to the Rules Relating to Storm Drainage Standards. A preliminary geotechnical study for the site has been completed. Prior to final design, a detailed subsurface geotechnical study will be conducted to more accurately delineate areas with certain soil characteristics. The pilings for the multi-story parking structure will be designed to accommodate the existing soil conditions, and plans will be developed in consultation with the geotechnical engineers.

Air Quality

No long-term, adverse air quality impacts would occur as a result of any of the project alternatives. There will be temporary, construction period impacts associated with demolition, earthwork and construction of roads and buildings. Dust control measures such as frequent watering of unpaved roadways and areas of exposed soil will be implemented. Based on projected traffic volumes for future year 2025, both the federal and state 1-hour carbon monoxide (CO) standards will continue be met, even under worst case meteorology and traffic conditions. As a result, no special mitigation for the operation of the transit center is required.

Natural Hazards

There will be no adverse impacts as the result of the project or any of the alternatives considered. The proposed site is within an area impacted by 100-year flood. Structures will have floor elevations above the expected flood elevations. Buildings will be located on site away from the stream, and will be buffered by the linear park along the stream. Structures will be built in conformance with FEMA regulations and certification for construction within FEMA floodway or flood fringe will be provided. There is a history of flooding at Kalihi Stream near the Nimitz Highway bridge, due to build up of stream debris. The City will be acquiring a portion of Kalihi Stream adjacent to the site as part of the project, and will keep the stream banks and stream bed clear of debris that could contribute to downstream flooding during storm conditions.

Hydrology

There will be no adverse impacts on ground or surface water resources. The potential for construction period runoff will be mitigated through use of best management practices. The site improvements are expected to slightly decrease on-site runoff because of a reduction in impervious surfaces and increased landscaping improvements.

Hazardous Materials

A Phase II Environmental Site Assessment has confirmed that contamination is present in localized area of the site. These include underground and above ground storage tanks, petroleum contamination and pesticide in the soil under buildings. Appropriate mitigation to protect public health and safety will be identified through further consultation with the State Department of Health. During demolition activities, asbestos and lead-containing material will be removed and disposed of in accordance with applicable federal and State regulations. The contractor will develop a Contaminant Management Plan and an Emergency Response Plan to establish procedures should contaminated materials be encountered during construction. Thus, any impacts related to existing soil contamination will be mitigated so that the construction of the project will not pose a public health hazard.

Noise

There will be no long-term, adverse noise impacts due to any of the project alternatives. There will be temporary, construction period noise impacts due to the use of pile drivers and earth moving equipment. A permit from the State Department of Health will be obtained for pile driving activity, which is expected to exceed the State's "maximum permissible" noise levels at the property line. Notification of the surrounding affected areas will be required. Once the project is completed, the increase in noise level due to the project will not be perceptible. Industrial land uses along Middle Street and Kamehameha Highway are already exposed to traffic noise, the minor increase in traffic noise due to the project will be negligible.

Flora

There will be no impact on threatened or endangered species or species of concern. The project site is dominated by introduced, weedy species common to disturbed areas throughout the islands. Two native species were identified along the Kalihi Stream, but none of the plants on site are threatened, endangered or species of concern.

Terrestrial Fauna

There will be no impact on threatened or endangered species or species of concern. The terrestrial habitat is heavily urbanized and not suitable for native forest birds. The Kalihi Stream channel provides little habitat for waterbirds. There are no known threatened or endangered species in the area.

Stream Biology

There will be no direct, indirect or cumulative impact on stream biota. Due to historical circumstances and upstream land uses, the lower section of Kalihi Stream in the project area is biologically impaired and has very poor habitat quality. This is due primarily to the lack of riparian vegetation, heavy siltation of the stream bottom, large volumes of trash in and around the stream and modification of the banks and channel. Best management practices will be used during construction to prevent runoff into the stream. The project includes vegetation of the stream banks. As a future owner of a portion of the stream, the City will be responsible for long-term maintenance of the stream banks and bed in the project area, including trash removal.

Population and Employment

The project will displace existing tenant businesses on the site, with an estimated 50 to 75 employees. These businesses will experience substantial disruption. It is unknown what the long-term impacts to the impacted businesses will be, and whether existing employees will be retained after the businesses relocate. These impacts will be mitigated by following federal Uniform Relocation Assistance and Real Property Acquisition Policies Act guidelines.

The project will generate construction-related employment. There will be no change in transit operations, and no increase in the number of employees. The project may result in some long-term, indirect and cumulative impacts on employment in the project vicinity. Development of a major transit center could lead in the long term to redevelopment of surrounding properties and some commercial and retail development. However, no further development is planned at present, and the project is consistent with official City plans and policies for the area. The surrounding area is zoned for industrial use. Future redevelopment, if any, is not likely to result in a population increase in the area, as the area is fully developed and designated for industrial use.

Displacement and Relocation

Approximately 14 existing businesses on the project site, all tenants of Yee Hop Realty, may be displaced by the project. The tenant businesses include Sunburst Design, Shelton Contracting, Inc., Andy's Cycles, Akamai Glass, Gemini Signs, J.C. & Co. Welding, A-1 Painting, Pineridge Farms, B& K Upholstery, Toledo Scale, Brandon's Aloha Country Store, K. Yamada, Martin Trucking, and Trucks, Cars and Equipment. It is estimated that these businesses employ between 50 to 75 persons. Displaced businesses are subject to the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. These businesses may be eligible for reimbursement of moving expenses, payment for direct loss of tangible personal property, expenses in finding a replacement site, reestablishment expenses, or under certain circumstances, a fixed payment. The affected businesses will be given ample notification, and will be encouraged to plan moves in advance so that relocation occurs with minimal delays and inconvenience.

Archaeological, Historic and Cultural Resources

There are not expected to be adverse impacts on archaeological, historic and cultural resources. An archaeological assessment of the project area was conducted. Further subsurface work is required and will be conducted after the City completes purchase of the project site. The subsurface testing will be focused within a limited portion of the proposed project area, and will focus on the recovery of paleoenvironmental samples associated with the formation and/or construction of a former fishpond. If significant historic sites are shown to be present in the project area and if the project will have an "adverse effect" on them, mitigation actions will be developed and implemented prior to construction.

A cultural impact assessment was conducted to assess the project impacts on native Hawaiian culture and traditional customs. The study attempted to contact eighteen people who may have information regarding traditional cultural practices in the area or vicinity, with the focus on the Nahinu *Ohana*. None of the informants interviewed had historical knowledge as to what the study parcel was like prior to the slaughterhouse that began operation on the site in the late 1800s. However, some general concerns were expressed by the informants, including the potential for burials in the project area. Although this is a remote possibility, if burials are inadvertently discovered, the Nahinu *Ohana* requested that they be contacted. Concern was also

expressed over non-point source pollution of Kalihi Stream and Keehi Lagoon over the years and its impact on fishing.

The project site is approximately 0.3 miles from Keehi Lagoon, and would not contribute to the non-point source pollution of the stream or lagoon. According to the habitat and biological assessment of Kalihi Stream (Kido, 2002), pollution of the stream is a result of upstream sources.

Visual Resources

There will be no adverse impact on visual resources. The project site is industrial in appearance, and there are no important views or view planes. The project will improve the physical appearance of the site. The proposed 50-foot high parking structure will not obstruct important view planes or impact valuable scenic resources. The height of the structure is within the maximum 60-foot height limit allowed under the site's I-2 zoning. In the long-term, construction of a new transit center could have an indirect, cumulative impact by encouraging redevelopment of the surrounding area. However, no adverse visual impacts are anticipated.

Utilities and Infrastructure

The project will not have an adverse impact on water, electrical, telephone or other utility service. The project includes appropriate on and off-site improvements, and existing infrastructure capacity is adequate to support the development. In the long term, there may be indirect and cumulative impacts on utility demand, if redevelopment of surrounding properties occurs. These impacts are not expected to be substantial.

Traffic

Two major entry/exit driveways are proposed—on Middle Street and Kamehameha Highway. All automobile traffic will enter and exit the site through the Middle Street driveway. Buses will enter the site from Middle Street, and will leave the site via either Middle Street or Kamehameha Highway. New traffic signals will be installed at both driveways as part of the construction of the transit center in Phase 2 of the project. The construction of the Handi-Van facilities in Phase 1 would not warrant construction of a traffic signal, based on projected Handi-Van traffic and because Handi-Van peak traffic does not coincide with other peak traffic times.

Based on the recommendations of the traffic assessment report, when the Middle Street traffic signal is installed, the access intersection will include two *makai*-bound left turn lanes into the transit center. It was also recommended that operation of the two new signals at the project entrance at Middle Street and the bus exit at Kamehameha Highway be coordinated with the existing traffic signal timing at the intersection of Kamehameha Highway and Middle Street.

It should be noted that approval of a Kamehameha Highway entry/exit driveway by the State of Hawaii Department of Transportation remains an unresolved issue.

Public Services and Facilities

The project will not have an adverse impact on public services and facilities, including police, fire and emergency services, solid waste, parks or schools.

The police department has indicated the project will have a positive impact on police services by relocating the Handi-Vans from their current location and redeveloping the Middle Street site. The proposed automated parking structure will be less vulnerable to criminal activity than a conventional parking structure. The proposed parking structure is described further in Chapter 2. By supporting the City's transit strategy to reduce vehicular congestion, the project will indirectly improve emergency response time for fire and EMS vehicles in the long-term.

Section 4(f) Department of Transportation Act

Section 4(f) of the Department of Transportation Act (49 USC §303) states that it is national policy to preserve public parks, recreation areas, wildlife and waterfowl refuges, and historic sites. The project will not directly or indirectly impact any Section 4(f) resources. There are no wildlife or waterfowl refuges in the area. The nearest public park, Keehi Lagoon Park, is approximately 0.5 mile from the project site and will not be impacted. If significant historic sites are found to be present and if the project will have an "adverse effect" on them, mitigation actions will be developed and implemented prior to construction.

Executive Order 12898 Environmental Justice

Executive Order 12898, Environmental Justice, requires projects utilizing federal funds to identify and address potential for disproportionately high and adverse human health or environmental effects on minority and low-income populations. The proposed project is located in an industrial area, but there are residential neighborhoods within a half mile of the site, with many minority and low-income residents.

Extensive public outreach was conducted for the project, including early consultation letters and presentations at Neighborhood Board meetings. Public hearings were also held as part of the City's 2001 amendments to the Development Plan Public Facilities Map which designated the site for a future transit center.

Overall, the project will not have a disproportionate adverse environmental impact on low income or minority populations. While there may be temporary, construction related impacts, these impacts are not expected to be severe, given the distance of the nearest residential areas. The project will have a positive impact on the surrounding low income and minority community by enhancing public transportation service in the area.

1 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION AND ORGANIZATION OF THIS ENVIRONMENTAL ASSESSMENT

This Environmental Assessment (EA) is being prepared in accordance with both State of Hawaii and federal environmental regulations and requirements, as the project will utilize both City and County of Honolulu and federal funds.

This EA meets the requirements of Chapter 343, Hawaii Revised Statutes (HRS), Act 241, Session Laws of Hawaii (SLH) 1992, and Chapter 200 of Title 11, Department of Health (DOH) Administrative rules, "Environmental Impact Statement Rules."

This EA is also being prepared pursuant to Section 102 (2)(c) of the National Environmental Policy Act (NEPA) of 1969, 42 U.S.C. §4332, as implemented by the Council on Environmental Quality (CEQ) regulations, 40 CFR Parts 1500-1508. It is also being prepared in accordance with Section 4(f) of the Department of Transportation Act of 1966, 49 U.S.C. §303.

This document generally follows the format established in the federal guidelines for NEPA environmental assessments and is organized into the following chapters:

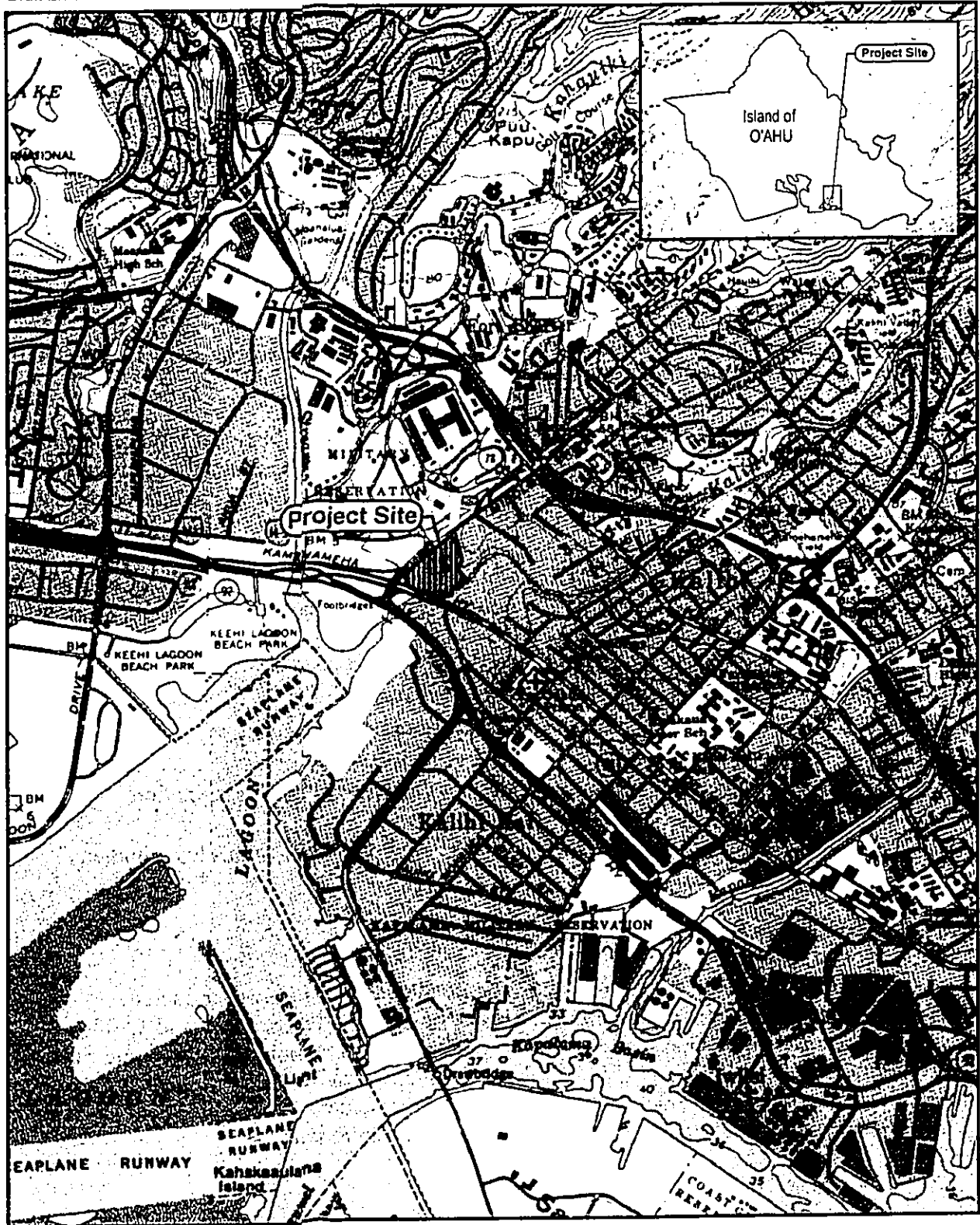
- Chapter 1 Purpose and Need for Action
- Chapter 2 Alternatives Including the Proposed Action
- Chapter 3 Affected Environment and Environmental Consequences
- Chapter 4 Environmental Consequences—Other Considerations
- Chapter 5 Findings and Reasons Supporting the Anticipated Determination
- Chapter 6 References
- Chapter 7 Persons and Agencies Involved in the Preparation of this Environmental Assessment

1.2 DESCRIPTION OF THE PROPOSED ACTION

The proposed action is the development of a Middle Street Transit Center, to include consolidated Handi-Van program facilities, a major bus transportation center and 1,000-vehicle parking structure. The parking structure will be automated and accommodate park and ride patrons and transit employees. (An area of the site fronting Middle Street is reserved for future transit-related commercial/retail/community support development, or transit center expansion). The project includes landscaping improvements along Kalihi Stream.

1.3 LOCATION OF THE PROPOSED ACTION

The Middle Street Transit Center site is located in an industrial area of Kalihi, approximately three miles northwest of downtown Honolulu and two miles east of the Honolulu International Airport (Figure 1).



November 2002

0 SCALE IN FEET 2000



Figure 1
Location

The project site is located on Middle Street between North King Street and Kamehameha Highway. The site is bounded by Middle Street to the north, the Kalihi-Palama Bus Facility to the east, Kalihi Stream to the south and southwest, and Kamehameha Highway to the west (Figure 2). The project area includes 9.15 acres of developable land, identified by Tax Map Key (TMK) 1-2-18 parcels 01 (portion)³, 02, 03, 09 and 10. It also includes 0.48 acres of "submerged" (undevelopable) land within Kalihi Stream, identified as TMK 1-2-17 parcels 03, 04 and 05 (Figure 3). The entire site is currently owned by Yee Hop Realty, Ltd., and is being acquired by the City and County of Honolulu.

1.4 PURPOSE AND NEED FOR ACTION

The proposed Middle Street Transit Center is being proposed by the City and County of Honolulu's Department of Transportation Services (DTS). The project is needed to support both the City's Handi-Van program and bus transit system. Both transit programs are operated by the Oahu Transit Services, Inc., under contract with the City and County of Honolulu DTS.

1.4.1 Handi-Van Facilities

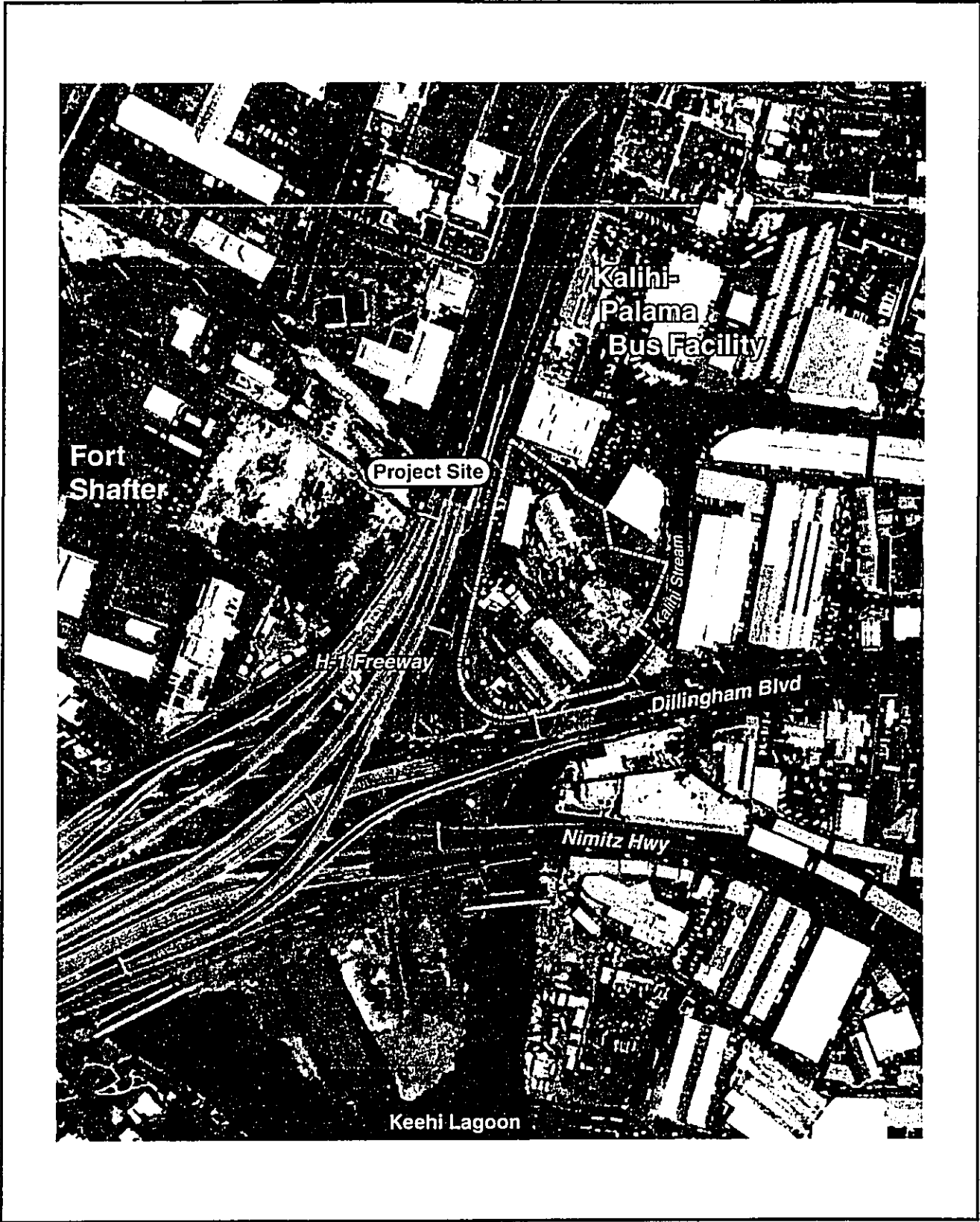
The Handi-Van program provides public transportation for persons with disabilities who are unable to utilize the public bus system. The program provides curb-to-curb service for those who are eligible for paratransit under the Americans with Disabilities Act (ADA) guidelines. The project will construct new Handi-Van parking and maintenance facilities. Currently, Handi-Van maintenance is conducted at the Kalihi-Palama Bus Facility, and vehicles are temporarily parked at the nearby Kalihi Shopping Center, located on North King Street. The Kalihi Shopping Center site is unsecured and vehicles are vulnerable to vandalism and theft. Having unconsolidated, scattered facilities is operationally inefficient. Moreover, it is unknown whether and for how long the City will be able to continue leasing the site. Permanent, dedicated facilities are required to improve program efficiency and security.

1.4.2 Bus Transit Center

A new, larger bus transit center is needed to replace the existing transit center at the Kalihi-Palama Bus Facility. The new Middle Street Transit Center will be an integral component of the proposed "hub and spoke" bus network. The existing transit center is too small and would be unable to accommodate conversion to a hub and spoke bus network.

The hub and spoke concept would reconfigure the current predominantly "radial" bus route network to a network where circulator, local and express routes are organized around "hubs." The bus routes are the "spokes" of the system, and the transit centers are the "hubs," where riders make transfers. The Middle Street Transit Center will be one of five regional transit centers on Oahu (the others being Alapai, Ala Moana Center, Kapolei, and Pearl City/Aiea). The Middle Street area was chosen for a regional transit center because major traffic congestion occurs between Middle Street and downtown Honolulu during peak hours. A transit center in the

³ TMK parcel 1-2-18:01 will be subdivided. The portion of the parcel with the Commercial Enterprises cold storage building will not be purchased by the City and will not be part of this project.

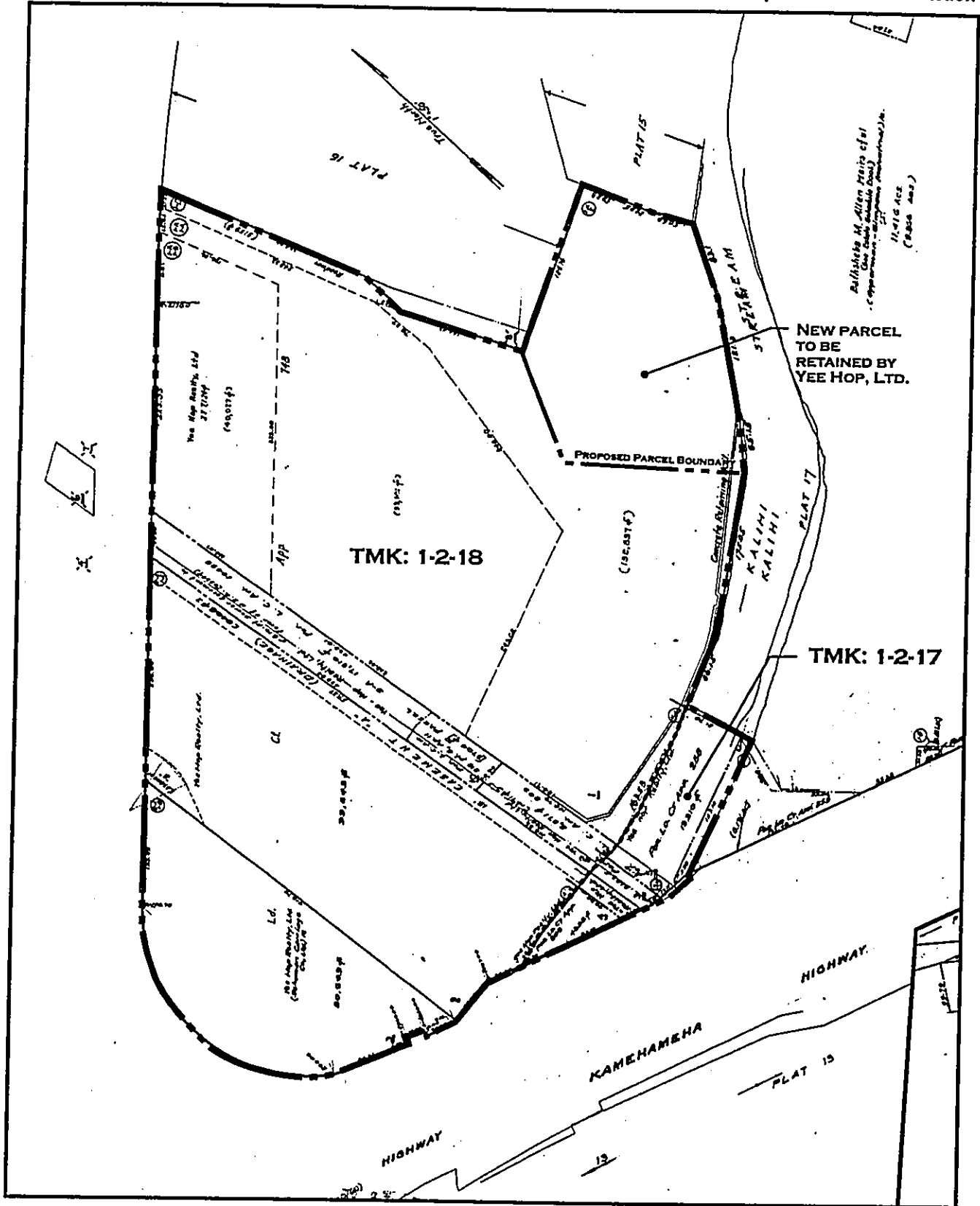


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Figure 2
Adjacent Uses



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Figure 3
Tax Map Key

vicinity would allow commuters to park their cars and utilize bus transit into and within the downtown area.

Upon completion of the new transit center, the existing stop at Middle Street will be reintegrated into the bus maintenance operation.

1.4.3 Park and Ride Structure

In addition to providing a larger transit center and passenger terminal, the project will construct a 1,000-stall automated parking structure. The parking is required to support the transit center's park-and-ride component, as well as provide parking for transit employees. Of the 1,000 parking stalls, approximately 300 will be designated for transit employees. The remaining 700 stalls will be reserved for park-and-ride commuters. The 700 park and ride stalls are based on an estimated parking demand of about 1,600 transit users at the Middle Street facility, with an average occupancy of 1.6 persons per car (City and County of Honolulu, 2000).

The City has been seeking a more cost-effective parking system as an alternative to conventional parking structures. An innovative, automated technology is being proposed, which will allow the structure to accommodate 1,000 vehicles in less space and less cost than a conventional parking structure.

Should a future Bus Rapid Transit (BRT) system be implemented, the proposed Middle Street Transit Center would accommodate the BRT vehicles, and would be a major transit terminal for passengers arriving from west, central, north shore, and windward Oahu, and connecting to in-town routes.

1.4.4 Need for an Appropriate Site

In order to accommodate the project components identified above, a site with an appropriate location and of adequate size was needed. The site needed to be large enough to accommodate all proposed facilities--the consolidated Handi-Van maintenance facilities, bus transit center and park and ride structure. The site needed to be located in the general Middle Street vicinity for several reasons—first, a location near the existing Kalihi-Palama Bus facility ensures greater efficiency in bus maintenance operations. Second, a transit center in this area is able to alleviate existing traffic congestion in the Middle Street to downtown corridor, as well as support the bus hub-and-spoke concept. Convenient freeway access was also a consideration. Alternatives considered are discussed in Chapter 2.

1.5 SCOPE OF THIS ENVIRONMENTAL ASSESSMENT

The major project components covered by this EA are the transit center building, park-and-ride parking structure, and Handi-Van maintenance facilities.

These project components are being designed and proposed to support the existing Handi-Van program and the bus hub and spoke network. Although the Middle Street Transit Center could

support a future BRT system, the project is required regardless of whether or not a BRT system is implemented. Separate environmental documentation is being prepared for the BRT. As such, any future BRT system is not a part of this Middle Street Transit Center project, and is not a part of this EA.

1.6 POSSIBLE ENVIRONMENTAL PERMITS AND APPROVALS

The following is a summary of environmental approvals and consultations that may be required for the proposed action. Chapter 4 (Environmental Consequences—Other Considerations) includes a more detailed discussion of the project's consistency with federal, State and local land use plans, policies and controls.

Table 1-1: Possible Environmental Permits and Approvals

Approval/Consultation	Agency
Federal	
National Environmental Policy Act, Finding of No Significant Impact (NEPA FONSI)	U.S. Department of Transportation, Federal Transit Administration
Section 4(f), Department of Transportation Act of 1966	U.S. Department of Transportation, Federal Transit Administration
Department of the Army Permit, Section 404 or Section 10 <i>(may be required if landscape/stream side improvements are proposed below "higher high tide water line" or "mean high water line.")</i>	Department of the Army U.S. Army Engineer District
State of Hawaii	
Chapter 343 Hawaii Revised Statutes	Office of Environmental Quality Control
Section 106, National Historic Preservation Act consultation and HRS Chapter 6E review	Department of Land and Natural Resources, State Historic Preservation Division
Noise Permit	Department of Health
National Pollutant Discharge Elimination System (NPDES) permit <i>(for construction related storm water runoff, hydrotesting and dewatering)</i>	Department of Health, Clean Water Branch
Stream Channel Alteration Permit <i>may be required if landscaping improvements alter stream channel banks)</i>	Department of Land and Natural Resources Commission on Water Resource Management
Disability and Communication Access Board Approval	Department of Health, Disability and Communication Access Board
City and County of Honolulu	
Grubbing, Grading, Excavation and Stockpiling Permit	Department of Planning and Permitting
Flood Hazard Certification	Department of Planning and Permitting
Sewer Connection Permits	Department of Planning and Permitting
Building Permit	Department of Planning and Permitting

2 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 INTRODUCTION

This chapter describes the alternatives considered to meet the overall objective of providing new, dedicated Handi-Van facilities and a bus transit center. Alternatives discussed in this chapter include:

1. Proposed Action
2. No Action
3. Alternative Sites
 - J.C. Penney Warehouse
 - Kalihi Shopping Center
 - Shafter Flats
4. Alternative Designs at Middle Street Site

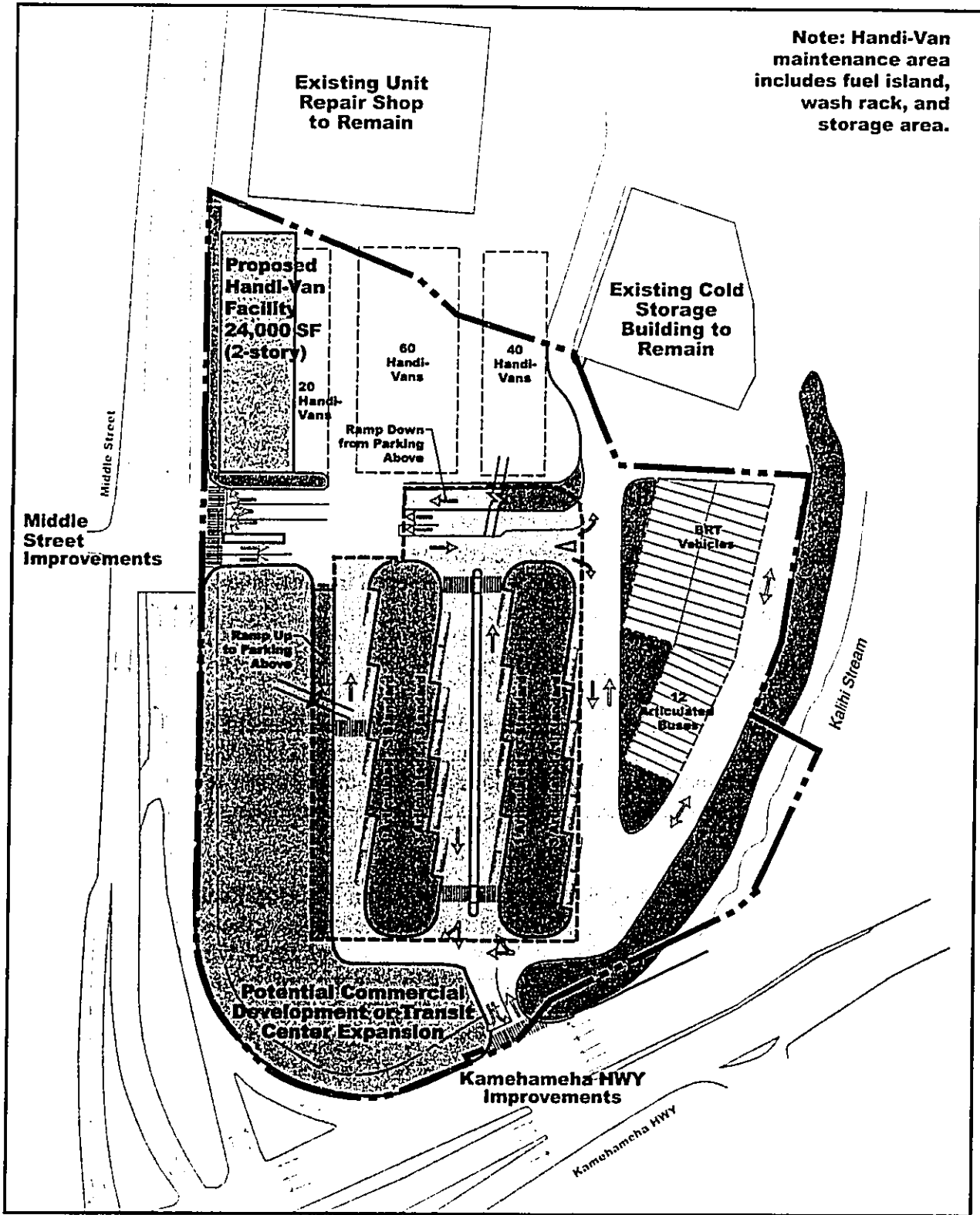
This chapter also summarizes and compares the environmental impacts of the proposed action and the alternatives. A complete discussion of environmental impacts is in Chapter 3, Affected Environment and Environmental Consequences.

2.2 DESCRIPTION OF THE PROPOSED ACTION

Figure 4 illustrates the preliminary site plan for the Middle Street Transit Center. The major components shown include the Handi-Van maintenance building, Handi-Van parking areas, bus parking area, transit terminal building with parking structure on the upper levels, and a reserved area for either future commercial development or transit center expansion. These components are described below.

The Middle Street site will be subdivided and purchased from Yee Hop Realty, Ltd. by the City and County of Honolulu. An existing cold storage warehouse at the northeastern end of the site will be retained by Yee Hop Realty, Ltd. and remain in its current use. Therefore, that parcel (TMK 1-2-18:01) will be subdivided prior to acquisition, and the warehouse portion will not be part of this project. However, the City will grant Yee Hop Realty, Ltd. an access easement through the Middle Street driveway. Overall, the land to be acquired by the City includes 9.15 acres of developable land and 0.48 acres of submerged land (Kalihi Stream).

The proposed action includes site acquisition, demolition of existing structures on the site, environmental clean up and remediation as required, subsurface archaeological survey, and construction of the Middle Street Transit Center. The project is proposed to be built in the following three phases:



Source: Parsons Brinckerhoff, March 2002

November 2002

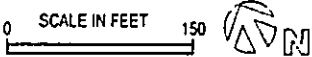


Figure 4
Preliminary Site Plan

Phase 1

- Site Acquisition, demolition and tenant relocation
- Environmental remediation/clean-up
- Subsurface archaeological survey
- Construct infrastructure and roads
- Construct Handi-Van facilities
- Landscaping improvements

Phase 2

- Construct transit center
- Construct parking deck (roof of transit center)

Phase 3

- Construct automated parking structure

The phases and the project components are discussed below.

2.2.1 Phase 1

The first phase of the project will include site acquisition, demolition, relocation of existing tenants, demolition of existing industrial structures, environmental remediation/clean-up, and the development of necessary on and off-site infrastructure. In addition, improvements will be completed to accommodate the relocation of Handi-Van operations to the site. These improvements include: Handi-Van vehicle parking, Handi-Van maintenance and accessory offices for the system. Landscaping improvements will be made along Kalihi Stream.

Site Acquisition, Demolition and Tenant Relocation

Parcel 1-2-18:01 within the project area will be subdivided to separate out the cold storage warehouse, and the remainder of the project area (TMK 1-2-18:01, 02, 03, 09 and 10; 1-2-17: 03, 04 and 05) will be purchased from Yee Hop Ltd. The City will grant Yee Hop Realty, Ltd. an easement for access to their cold storage warehouse via the Middle Street driveway.

The project will involve demolition and removal of all existing structures within the project site. The structures to be demolished include four large warehouses and several smaller buildings, sheds and equipment. Most of the buildings on site are between 40 and 50 years old. Tenants will be relocated in accordance with the federal Uniform Relocation Act.

Environmental Remediation/Site Clean-Up

Prior to development, removal of several underground storage tanks and site remediation may be required. A Phase II Environmental Site Assessment identified specific areas of concern. These areas are discussed in Chapter 3. Specific remediation activities will be identified by the City once the property has been acquired and plans for the site are developed further. The City will

work closely with the State of Hawaii Department of Health to identify and implement an appropriate remediation plan to protect public health and safety.

Subsurface Archaeological Survey

A subsurface archaeological survey within a limited portion of the project area is required. As discussed in Chapter 3 (Section 3.4.2), an archaeological assessment (literature review and field check) of the site has been completed, but a subsurface survey is still needed. The State Historic Preservation Division (SHPD) agreed that the subsurface survey could be conducted after City purchase of the property and relocation of tenants, in order to minimize disruption to existing businesses. If significant historic sites are present in the project area and if the SHPD determines the project will have an “adverse effect” on them, mitigation actions will be developed and implemented prior to construction.

Roads and Infrastructure

During Phase 1, on-site utilities and roadways will be constructed, and improvements will be made at the two major ingress/egress points—Middle Street and Kamehameha Highway. Various off-site, roadway improvements will be made at these two intersections. At the Middle Street entry, improvements include signalization, construction of a 70-foot wide access road, pavement reconstruction and roadway restriping. At the Kamehameha Highway entry, improvements will include relocation of an existing overhead sign, signalization, construction of a 50-foot wide access road, pavement and median reconstruction and roadway restriping.

The transit center structures will be constructed over (straddle) an existing federal sewer easement and a State drainage easement on the site, providing adequate access for maintenance.

Handi-Van Facilities

Figure 4 illustrates the location of the Handi-Van maintenance facility, including vehicle service bays and fueling and vehicle washing station. The Handi-Van maintenance facility is expected to be approximately 24,000 SF in size (2-story). Parking for up to 120 Handi-Van vehicles will be adjacent to the maintenance facility. The Handi-Van fleet, currently parked at the Kalihi Shopping Center site will be relocated to this site. If necessary, the adjacent Kalihi-Palama Bus Facility could be used for overflow Handi-Van parking.

Landscape Improvements

During this first phase, the project boundary fronting Kalihi Stream will be cleared and landscaped. The stream banks will be revegetated to prevent erosion and mitigate potential flooding. A linear park and/or vegetated buffer zone will be developed along the stream. The landscaping improvements will enhance the visual appearance of the stream from the site and surrounding areas.

Landsaped areas will also be provided at the corner of Dillingham Boulevard and Middle Street to enhance the visual approach to the site, as well as to soften the appearance of the multi-story parking structure. Street trees and other landscaping improvements will be provided along the street frontages. A pedestrian link will be provided from the site, along the existing Kalihi Stream bridge, to the adjacent businesses, including the Marukai Warehouse.

2.2.2 Phase 2

Transit Center

The transit center will be constructed during Phase 2, and is shown at the southwestern end of the project site on Figure 4. The center will consist of a sheltered passenger service platform and bus bays for loading and unloading passengers. There will be approximately 7,000 to 10,000 SF of interior space, including comfort stations, ticket purchase, customer service and waiting areas, and some storage space.

Buses may enter from either Middle Street or Kamehameha Highway entrances, circulate in a clockwise direction around the buildings and unload and load passengers. The buses may then exit the site via Middle Street or Kamehameha Highway, depending on their destination.

If a BRT system is implemented in the future, a similar circulation pattern will be used for the BRT vehicles. The exact configuration and operation of the loading area may change slightly depending on the particular BRT technology that is selected.

During this phase, the deck of the future parking structure will be constructed over the transit center. The parking structure will be completed during the third phase of development.

Articulated Bus Parking

The site plan illustrates a bus parking area adjacent to Kalihi Stream. This area could accommodate up to 40 articulated, 60-foot long buses. If the BRT is implemented, the area could accommodate BRT vehicles in the 60-foot bus parking area. Parking for standard (non-articulated) buses will remain at the adjacent Kalihi-Palama Bus Facility site.

2.2.3 Phase 3

Parking Structure

During Phase 3, the parking structure will be built above the transit center. The parking garage will accommodate 1,000 vehicles for park-and-ride patrons and transit employees. Rather than a conventional parking structure, this facility will utilize an automated technology. Although the concept of automated parking is fairly new in the U.S., it has been used extensively in Europe and Japan for the last 20 years. The technology will allow the structure to accommodate 1,000 vehicles in less space than a conventional structure. The current technology being considered

consists of an automated system that can park and retrieve vehicles automatically, with minimal interaction with the driver.

The automated parking structure is comprised of modular components that will be installed on site. It is estimated that the 1,000-vehicle structure will be 100 feet by 475 feet in area, or just over an acre in size. The entire structure (bus transit center and parking area) will be approximately 50 feet in height. The building facade will be designed to blend in with the other buildings on site.

Commercial and Support Services

The preliminary site plan identifies an area fronting Middle Street for future commercial development and/or long-term transit center expansion. Any future commercial or support services would directly support the transit center, and be geared primarily to transit patrons. No stand-alone or regional retail uses are proposed. If developed for commercial, retail or community support, this area could accommodate up to 16,000 SF. Potential uses include convenience retail establishments, or services such as a bank, post office or transit information center. A limited amount of ground level parking would be provided for short-term use.

2.3 NO ACTION

The no action alternative would preserve the status quo. The site would remain in its present use as commercial and light industrial warehouses. The adjacent Kalihi-Palama Bus Facility would continue its current operations.

There would be no permanent, dedicated facilities to support the Handi-Van program. Handi-Van parking would continue at the Kalihi Shopping Center, provided an amenable lease is extended. Handi-Van maintenance would continue to be done at the existing Kalihi-Palama Bus Facility, sharing facilities with ongoing bus maintenance. Operational inefficiencies due to the unconsolidated Handi-Van facilities would continue.

When the City implements its proposed hub and spoke bus routing, the existing Kalihi-Palama Bus Facility would serve as a transit center in the area. Because the existing site does not have a park and ride facility, its success as a transit "hub" would be limited. Under a hub and spoke concept, a transit center or hub is where passengers make "intramodal" and "intermodal" transfers, that is, transfer between local and regional bus routes, as well as from one mode of travel to another (e.g., automobiles and buses). The availability of convenient, and low cost parking is critical to encourage and support these intermodal transfers. Under the no action alternative, no parking facilities would be available. As a result, the Middle Street area would not adequately function as a hub in the proposed hub and spoke bus network.

2.4 ALTERNATIVE SITES

Several alternative sites for a new transit center and Handi-Van facilities were considered during preliminary planning. Originally, four major sites (the Middle Street site and 3 alternatives) were identified as having development potential for a multi-function transit center. In addition to the proposed Middle Street site, the others were the J.C. Penney Warehouse site, Kalihi Shopping Center site, and Shafter Flats. All four sites are within a one-mile radius of the existing Kalihi-Palama Bus Facility, and are shown in Figure 5. The three alternatives to the proposed Middle Street site are described below.

2.4.1 J.C. Penney Warehouse Site

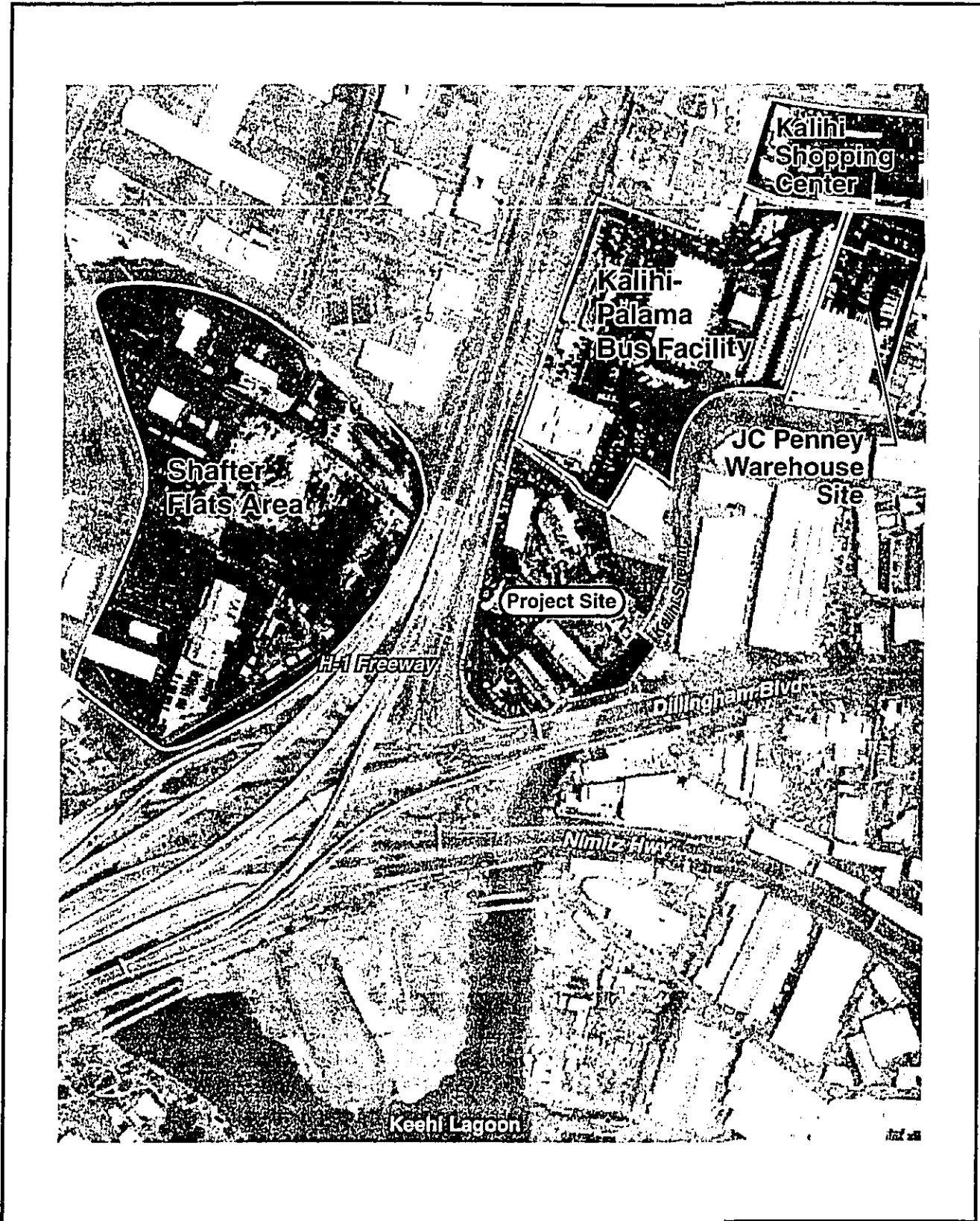
This site is located adjacent to and east of the existing Kalihi-Palama Bus Facility, and is located at 716 Umi Street. The rectangular-shaped site is approximately 5.18 acres in size, owned by Black Development Corporation and leased to J.C. Penney. The site is identified as TMK number 1-2-15: por 9. An approximately 11,983 SF area on the western portion of the site is deeded in a perpetual easement in favor of the State of Hawaii and City and County of Honolulu for the free flowage of the waters of Kalihi Stream. As a result, the net usable site area is only 5.14 acres.

Existing facilities on the site include a two-story, rectangular-shaped, concrete masonry structure constructed in 1970. The structure includes a ground floor warehouse, mezzanine, a second floor warehouse and offices, a parking deck and a yard area. The facilities appear to be in good condition. The ground floor of the facility is currently occupied by J.C. Penney, and the second floor warehouse is occupied by Dreyer's Ice Cream.

Like the preferred alternative, this site is close to the existing Kalihi-Palama Bus Facility, and would allow shared facilities and increase operational efficiency. However, the site was judged to be less preferable than the Middle Street site because of its smaller size (about half the size of Middle Street site) and less direct freeway access. For these reasons, the site was eliminated from further consideration.

2.4.2 Kalihi Shopping Center Site

The Kalihi Shopping Center site is located on North King Street near the intersection with Umi Street, about a half-mile northeast of the Middle Street site. This rectangular site is approximately four acres in size. It is identified as TMK 1-2-15:02 and 05 and 1-2-14:49. All three parcels that comprise the site are owned by U. Yamane Ltd. and leased to First Federal Savings and Loan, Sav-Mor Drug Company and Kalihi Development Ltd. A portion of the shopping center parking lot fronting North King Street is currently used by the Handi-Van program for vehicle parking.



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Figure 5

Location of Alternatives Considered

Like the J.C. Penney warehouse site, this site is close to the existing Kalihi-Palama Bus Facility, but because it is not adjacent, Handi-Van operations would still be somewhat inefficient. In addition, it is less than half the size of the Middle Street site, and would not provide adequate area for all proposed facilities. H-1 Freeway access is less direct, and heavy bus traffic at this site could conflict with existing vehicular traffic on North King Street. For these reasons, the Kalihi Shopping Center site was eliminated from further consideration.

2.4.3 Shafter Flats

This site is located on the west side of the Middle Street/H-1 Freeway project boundary, on an area known as Shafter Flats. The site is owned by the U.S. government and is part of the U.S. Army's Fort Shafter Complex. It is currently occupied by a number of Army warehouse and office buildings. The City and County's Keehi Waste Transfer Station is on City property adjoining the Shafter Flats site. A portion of the waste transfer station is on the Shafter Flats site. Shafter Flats has sufficient area to accommodate a mixed-use transit center and has direct freeway access. However, a major disadvantage, especially for Handi-Van facilities, is that it is separated from the existing Kalihi-Palama Bus Facility by the H-1 Freeway, and therefore shared use of maintenance and storage facilities would be difficult.

Site acquisition or control was also perceived to be difficult. Shafter Flats is actively used for Army administrative and warehouse functions, including the headquarters of the Regional Support Command (Army Reserves). Acquisition or use of Shafter Flats would require the federal government to declare the site "surplus." This process is lengthy and its outcome uncertain. Historically, there is little precedent for acquisition or long-term lease of federal property for a project of this magnitude. Even if site acquisition or long-term lease were possible, future development could be restricted or limited due to potential incompatibility with adjacent uses. For example, Army functions require a secured compound with limited public access, which is incompatible with a public bus transit station. Also the presence of a waste transfer station at the site could be incompatible with future transit and other public uses.

Finally, freeway access is less direct. For example, access by *CityExpress* buses from west Oahu using the freeway zipper lanes would involve a circuitous route to Shafter Flats. Overall, the site was found to be less preferable than the Middle Street alternative, and eliminated from further consideration.

2.4.4 Summary of Alternative Sites

Overall, none of the alternative sites compared favorably to the preferred Middle Street site. The proposed site's proximity to the existing bus maintenance facility and administrative offices will provide more efficient Handi-Van and bus operations and coordination. Maintenance, storage and bus parking facilities on the two sites could be jointly used by Handi-Vans and buses. In addition, the site provides superior access to freeway on and off ramps, and two major thoroughfares (Middle Street and Kamehameha Highway). Unlike the J.C. Penney and Kalihi Shopping Center sites, the proposed site provides adequate acreage to accommodate the proposed Handi-Van, transit center and parking garage.

Should a BRT system be implemented in the future, the Middle Street Transit Center would provide a convenient transit point for riders transferring between the BRT regional line (from west Oahu) and the in-town system.

None of the alternative sites provide a comparable combination of adequate size and superior location. For this reason, the Middle Street site is the preferred alternative.

2.5 ALTERNATIVE DESIGNS AT MIDDLE STREET SITE

2.5.1 Conventional Parking Structure

Alternative transit center designs at the Middle Street site were also considered. The primary alternative design was construction of a conventional, rather than an automated parking garage. Park-and-ride patrons would still bring their automobiles to the site, but would self-park in the parking garage.

When compared, a conventional parking structure was determined to be more expensive to build and operate compared to an automated facility. A conventional structure would have a more massive physical appearance and a greater visual impact. Also, a conventional parking structure may be less safe and more vulnerable to crime than an automated structure.

The construction and operational costs of the proposed automated technology were determined to be lower than a conventional structure. Compared to traditional parking structures with average construction costs (Hawaii) of up to \$20,000 per stall, construction of an automated structure is approximately \$12,000-\$15,000 per stall. This lower cost is due to the modular and prefabricated nature of the components. (In addition to the actual construction costs, construction of a multi-story parking structure at the Middle Street site would require foundation costs of an additional \$3 to \$5 million, due to the poor soil condition. This cost would be the same for a conventional or an automated structure.) As shown in the table below, the total development cost for an automated structure would be about \$6 million less (approximately \$6,000 per stall, assuming 1,000 stalls) than a conventional structure.

Table 2-1: Development Cost Comparison: Automated vs. Conventional Parking

	Conventional Garage	Automated Garage
Land	\$8 mil	\$8 mil
Construction Costs	1,000 stalls x \$20,000*= \$20 mil	1,000 stalls x \$14,000** = \$14 mil
Foundation Costs (specific to Middle St site)	\$3 to \$5 mil***	\$3-5 mil
Soft Costs	\$0.5 mil	\$0.5 mil
Total Development Costs (Land + Construction +Foundation + Soft Cost)	\$31.5-\$33.5 mil or \$31,500 to \$33,500/stall	\$25.5-\$27.5 mil or \$25,500 to \$27,500/stall

* J. Uno & Associates, 2002

**Robotic Parking, Inc., 2002

***Geolabs-Hawaii, 2002

Although automated parking requires higher maintenance and repair costs, long-term operational costs are lower, because of reduced personnel and staffing (e.g., parking attendants, security, and liability issues) compared to conventional parking structures.

A conventional parking structure was perceived to be more vulnerable to property and personal crime than an automated structure. Because users of an automated system remain outside the structure and do not enter the vehicle area, the risk of vehicle damage or theft, as well as the risk of personal injury or robbery in the structure is minimized.

Moreover, unlike conventional structures where drivers waste time looking for a parking space, an automated structure provides more efficient and rapid vehicle throughput. This not only saves commuting time, but also reduces air pollution and emissions, as cars are not running inside the structure. Because drivers spend much less time looking for a parking space, there will be fewer emissions (and less traffic) from cars driving at a slow pace for an extended period of time.

2.5.2 Utilize Existing Cold Storage Building

Another design alternative was to utilize the existing cold storage building currently occupied by Commercial Enterprises and Yee Hop Realty, Ltd., as a Handi-Van maintenance facility. Although this was part of the original development plan, Yee Hop Realty, Ltd., the owner of the project site, requested to retain the cold storage building in its current use, and exclude it from the sale to the City.

2.6 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The table below summarizes the environmental effects of the proposed action and alternatives evaluated in this environmental assessment. The information from the table is summarized from the environmental analysis in Chapter 3. The no action (status quo) alternative is not included in the table, but would have no impact on any of the resource areas.

Table 2-2: Summary of Impacts and Mitigation for Project Alternatives

Affected Resource	Preferred Alternative (Middle St. Transit Center)	Alternative Sites			Alternative Design
		J.C. Penney Warehouse	Kalihi Shopping Center	Shafter Flats	
Physical Topography & Slopes	No impact.	Same as proposed action.	Same as proposed action.	Same as proposed action.	Same as proposed action.
	No impact.	Same as proposed action.	Same as proposed action.	Same as proposed action.	Same as proposed action.
Air Quality	Short-term construction related impacts. Increase in bus and vehicle emissions in immediate area, but overall decrease regionally due to improved bus system and increased public use of transit.	Same as proposed action.	Same as proposed action.	Same as proposed action.	Same as proposed action.
Natural Hazards	City maintenance of Kalihi Stream banks and bed within project area will reduce debris and chance of downstream flooding.	No impact.	No impact.	No impact.	Same as proposed action.
Hydrology	Potential for construction related erosion and runoff into stream. Will be mitigated by use of Best Management Practices during construction. No increase in storm runoff. Runoff mitigated by proposed landscaping. Downstream flooding hazard mitigated by maintenance of stream banks and bed.	Same as proposed action.	Same as proposed action, but no impact on Kalihi Stream.	Same as proposed action, but no impact on Kalihi Stream.	Same as proposed action.
Hazardous Materials	Contamination in localized areas on site may need to be remediated prior to demolition and construction. No long-term impact to public health or safety.	Unknown.	Unknown.	Unknown.	Same as proposed action.

Table 2-2 (continued)

Affected Resource	Preferred Alternative (Middle St. Transit Center)	Alternative Sites			Alternative Design
		J.C. Penney Warehouse	Kalihi Shopping Center	Shafter Flats	
Noise	Short-term construction period noise. Imperceptible long-term increase in traffic-related noise due to project.	Same as proposed action.	Same as proposed action.	Same as proposed action.	Conventional Parking Garage Same as proposed action.
Biological					
Flora	No impact to threatened or endangered species.	Unknown, but likely similar to proposed action.	Unknown, but likely similar to proposed action.	Unknown, but likely similar to proposed action.	Same as proposed action.
Terrestrial Biology	No impact to threatened or endangered species.	Unknown, but likely similar to proposed action.	Unknown, but likely similar to proposed action.	Unknown, but likely similar to proposed action.	Same as proposed action.
Stream Biology	No impact due to current high level of Kalihi Stream impairment. Revegetation and long-term maintenance of stream banks will have positive impact on stream conditions.	Same as proposed action.	None.	None	Same as proposed action.
Socio-Economic					
Population & Employment	Creates construction jobs. No direct impact, but potential indirect/cumulative impact on future land use of the area. Transit center will attract more people to area, encouraging redevelopment and new commercial/retail uses.	Same as proposed action.	Displacement of existing retail merchants at shopping center site.	Same as proposed action.	Same as proposed action.
Archaeological, Historic, Cultural	Subsurface survey to be conducted at later date. If project determined to have "adverse effect" on significant historic sites, appropriate mitigation will be developed.	Unknown.	Unknown.	Unknown.	Same as proposed action.

Table 2-2 (continued)

Affected Resource	Preferred Alternative (Middle St. Transit Center)	Alternative Sites			Alternative Design
		J.C. Penney Warehouse	Kaihi Shopping Center	Shafter Flats	
Visual Resources	Will alter and improve site appearance. No impact on important, identified scenic resources.	Same as proposed action.	Same as proposed action.	Same as proposed action.	Conventional Parking Garage Same as proposed action.
Utilities & Infrastructure	Will involve various on and off-site improvements for water, electrical, sewer systems. No adverse impact to utility systems.	Same as proposed action.	Same as proposed action.	Same as proposed action.	Same as proposed action.
Traffic	Long-term increase in bus and vehicle traffic in project area mitigated by new traffic signals at Middle Street and Kamehameha Highway entrances. Project will contribute to overall decrease in regional traffic by supporting improved bus/transit system and operations	Same as proposed action. Appropriate site specific mitigation would need to be identified.	Same as proposed action. Appropriate site specific mitigation would need to be identified.	Same as proposed action. Appropriate site specific mitigation would need to be identified.	Same as proposed action.
Public Services					
Police	Relocation of Handi-Vans and new transit center expected to have positive impact on police services.	Same as proposed action.	Same as proposed action.	Same as proposed action.	Conventional parking structure may be more vulnerable to criminal activity than automated structure. Same as proposed action.
Fire and Emergency Medical Services	Positive indirect and cumulative impact due to reduction in traffic congestion and improved emergency response times.	Same as proposed action.	Same as proposed action.	Same as proposed action.	Same as proposed action.
Parks	No impact.	Same as proposed action.	Same as proposed action.	Same as proposed action.	Same as proposed action.
Schools	No impact.	Same as proposed action.	Same as proposed action.	Same as proposed action.	Same as proposed action.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This chapter describes the existing environment, potential project impacts and proposed mitigation. This chapter is organized by resource area, and is generally divided into: 1) physical environment, 2) biological environment, 3) socio-economic environment, 4) utilities and infrastructure, 5) traffic, and 6) public facilities and services.

The discussion of environmental impacts includes both direct and indirect impacts. Direct impacts are those caused by the action and occur at the same place and time. Indirect effects may occur later in time or farther in distance, but are still reasonably foreseeable. The analysis in this chapter also identifies possible cumulative environmental impacts. Cumulative impacts are defined as the results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

In addition to evaluating the environmental impact of the preferred alternative, this chapter evaluates the impact of the project alternatives. The alternatives, discussed in Chapter 2, included three alternate sites, and an alternate design at Middle Street (conventional parking structure). The environmental analysis in this chapter provides the analytic basis for comparing the proposed action and the alternatives.

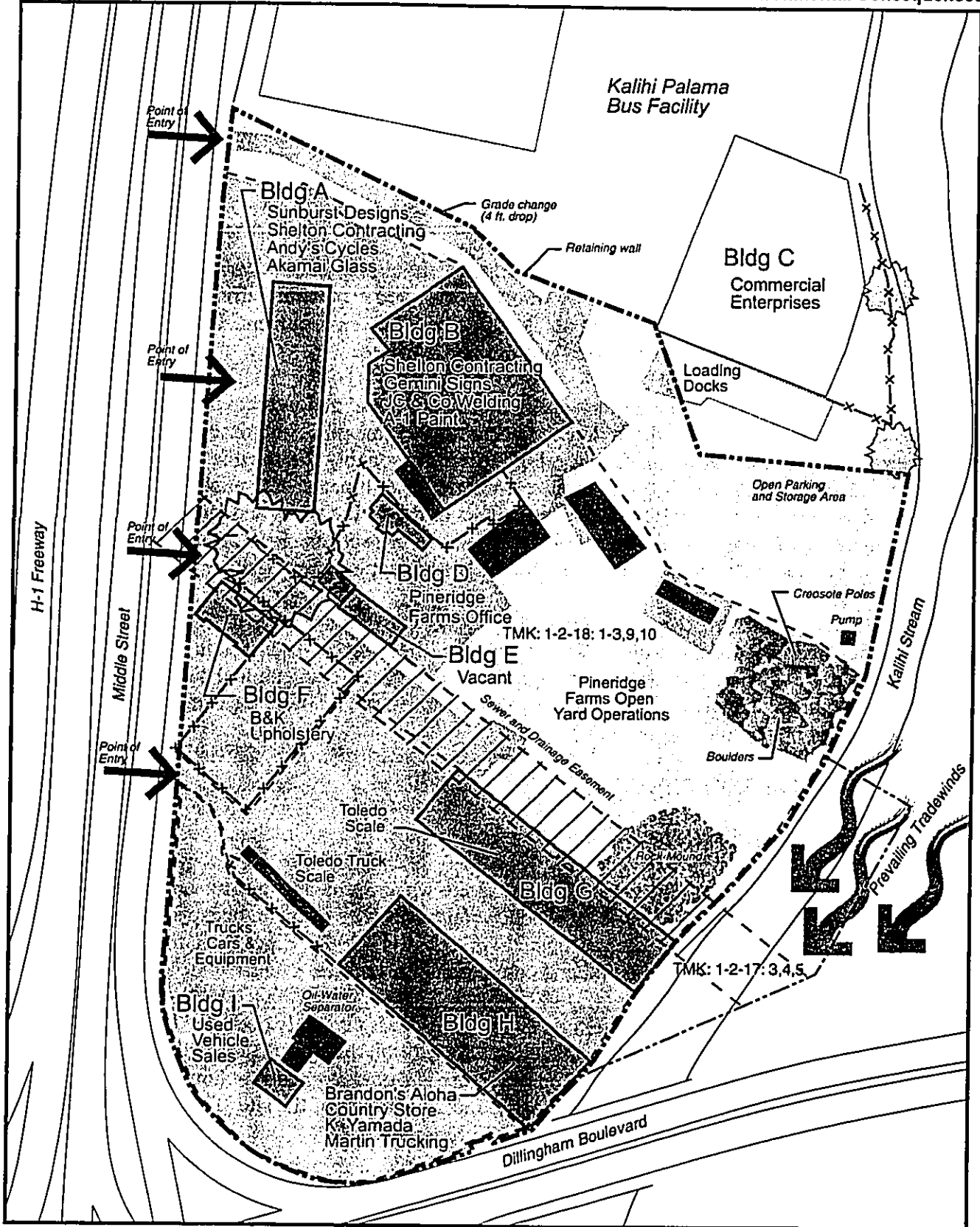
3.2 PHYSICAL ENVIRONMENT

3.2.1 Existing and Past Uses of the Site

From the late 1800's until the early 1990's, the site was occupied by a cattle and hog slaughterhouse. In the 1960's and 70's, additional businesses began to occupy the site. Slaughterhouse operations ceased completely in the early 1990's. Since then, the site has been leased to a variety of light industrial and commercial businesses.

Figure 6 illustrates the existing uses on the site. The site is currently occupied by several large warehouses and smaller structures (labeled A through I on the figure). Most of the facilities are old and in poor condition. Building C on the figure is a cold storage warehouse occupied by Commercial Enterprises and Yee Hop Realty, Inc., the owner of the site. This structure is not part of the project area and will remain in its current use.

All structures are owned by Yee Hop Realty, Ltd. and leased to various light industrial and commercial tenants. The tenants are listed in the table below. In addition to the buildings, large areas of the site are used by tenants as open storage for machinery and equipment, pallets, drums, creosote pilings, large rocks, gravel, soil, etc.



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Figure 6
Existing Site Conditions

Table 3-1: Existing Uses on Site

Building	Current Occupants	Type of Use
A	Sunburst Designs	Office space, design company
	Shelton Contracting, Inc.	Building renovation
	Andy's Cycles	Motorcycle sales and service
	Akamai Glass	Glass supply
B	Shelton Contracting, Inc.	Lumber and equipment storage, equip. maintenance
	Gemini Signs	Sign printing
	J.C. & Co Welding	Welding
	A-1 Painting	House paint sales
C	Commercial Enterprises	Cold storage for food distribution
D (trailer)	Pineridge Farms	Heavy equipment leasing
E	Vacant	
F	B& K Upholstery	Upholstery
G	Toledo Scale	Weighing service for vehicles, trucks, vehicle maintenance
H	Brandon's Aloha Country Store	Grocery store
	K. Yamada	Styrofoam manufacturing
	Martin Trucking	Stores 18-wheel trucks
I	Trucks, Cars and Equipment	Car lot

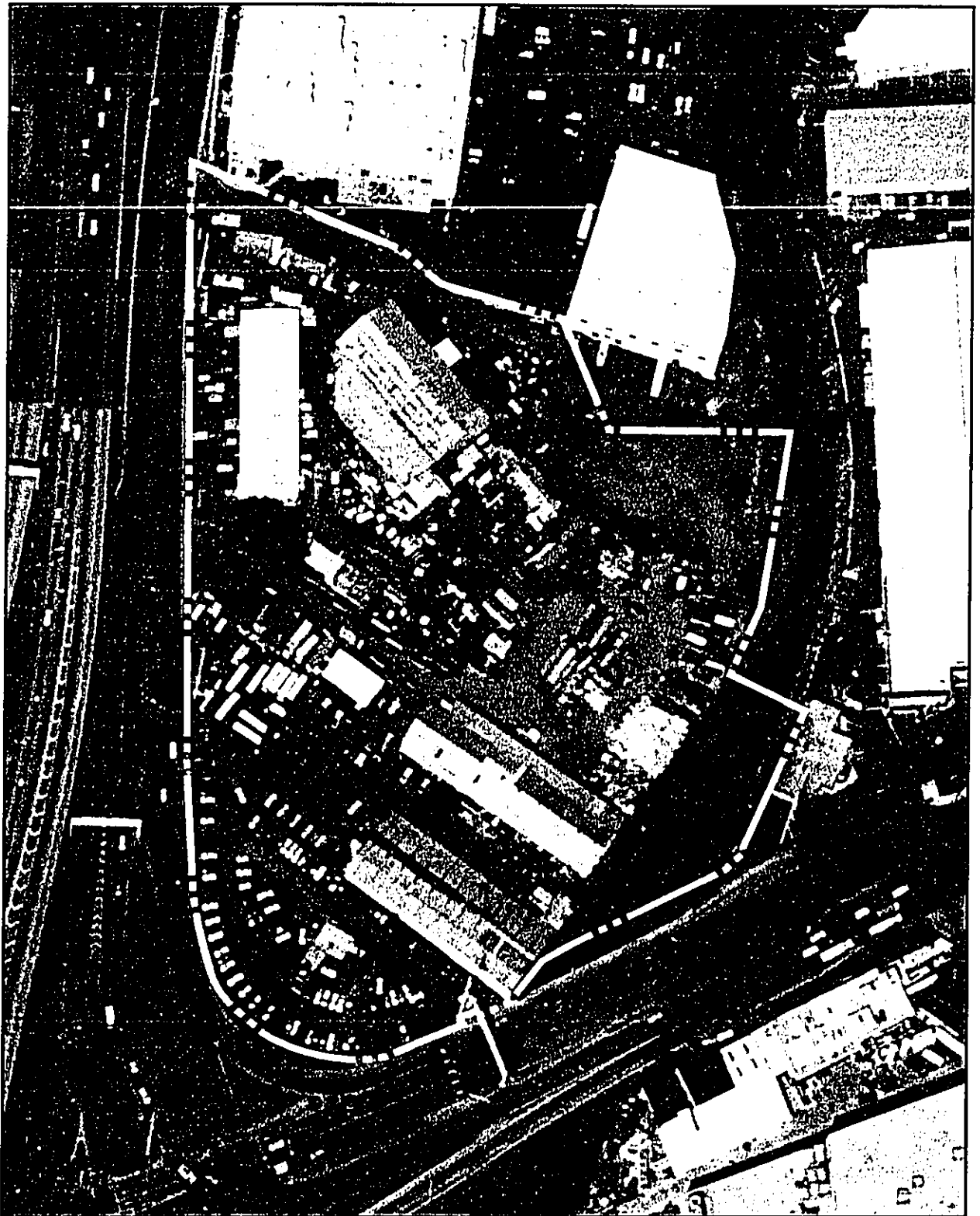
Source: Masa Fujioka & Associates, September 2001

3.2.2 Adjacent Land Uses

The property is bounded on the east by the City's Kalihi-Palama Bus Facility, which occupies about 14 acres. The bus facility is operated by Oahu Transit Services (OTS), Inc., under contract with the City, and includes an administration building, bus maintenance and repair facilities, bus parking areas, and vehicle wash rack and fueling station. There is also a small bus passenger terminal and customer service office fronting Middle Street. The existing structures and uses at the Kalihi-Palama Bus Facility can be seen in the aerial photo in Figure 7.

The Kalihi Stream runs parallel to the site at its southern boundary. From the site, the banks of the stream slope down to the stream gradually, and the stream bed is located approximately six to eight feet below the elevation of the site. The stream is unlined in this area and the banks are periodically cleared of all vegetation and debris. During a January 2002 site visit, the water level was very low, exposing large areas of the stream bed. There was some debris in the stream (tires, trash). There is no fence along the stream for most of the site. There is a fence adjacent to the cold storage warehouse, which is just outside the project site. This chain link fence fronts the stream.

There is a large warehouse (G.E. Supply) and small commercial building (Dial Lighting Gallery) located across Kalihi Stream. These uses are outside the project area.



Date of Aerial: April 7, 1997

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Figure 7

Aerial Photograph

Uses to the north of the project site, across Middle Street and on the other side of the H-1 Freeway are predominantly related to the Fort Shafter Military Reservation. The City's Keehi Waste Transfer Station is located on the north side of Middle Street, adjacent to the Shafter Flats area.

3.2.3 Topography and Slopes

Existing Conditions

The site is relatively flat, and slopes gradually downward from north to south (*mauka* to *makai*). Elevations range from about 17 feet above mean sea level (MSL) at the *mauka* end near the Kalihi-Palama Bus Facility, to about 6 feet above MSL at the *makai* end near Kamehameha Highway. The site also slopes gradually toward Kalihi Stream. Ground slopes are approximately 0.5% to 2%. At the eastern (*mauka*) property boundary at former Slaughterhouse Road, there is a retaining wall and cut slope parallel to the road, with a drop of about five feet down to the project site.

On-site runoff generated within the property discharges into Kalihi Stream at the southern portion of the site. An existing 15 ft.-wide drainage and sewer easement bisects the property from north to south, as shown in Figure 6. The sewer easement is in favor of the federal government. The drainage easement is in favor of the State of Hawaii.

Project Impacts and Mitigation

Short-Term Construction Impacts

The proposed action will not have an adverse impact on site topography or drainage. The site is already fairly level and substantial grading will not be required. Grading will be done in conformance with the City and County of Honolulu Grading Ordinance and the recommendations of the project geotechnical engineer. Site grading will have slopes of 4:1 or flatter to provide for easier maintenance, to meet Americans With Disabilities Act (ADA) accessibility requirements, and for better pedestrian circulation.

Long-Term Impacts

There will be no adverse long-term impacts. The project structures will be constructed over (straddle) the existing 15 ft. wide drainage and sewer easements. However, adequate access will be provided for maintenance.

Overland sheet flow, swales, drain inlets and underground drain lines will be used to intercept and route the on-site runoff to existing drainage systems located within the site, or tie into the City and County system adjacent to the property. Due to the proposed landscaping improvements within the site and along Kalihi Stream, it is unlikely that there will be adverse long-term impact to storm water runoff from the site. Preliminary hydrologic analysis indicates that a decrease in

the storm runoff generated on-site is anticipated, due to landscaping improvements and a decrease in impervious pavement areas. As discussed in Section 3.2.7, Hydrology, there will be no adverse impacts due to bus wash operations, as all wash water will be contained with no discharge to the existing drainage system, Kalihi Stream or Keehi Lagoon.

Impact of Alternatives to Proposed Action

The no-action and other alternatives would not have an adverse impact on topography or slopes. The alternative sites are also relatively flat, and would not require massive grading or site work. Impacts would be similar to the proposed action.

3.2.4 Soils

Existing Conditions

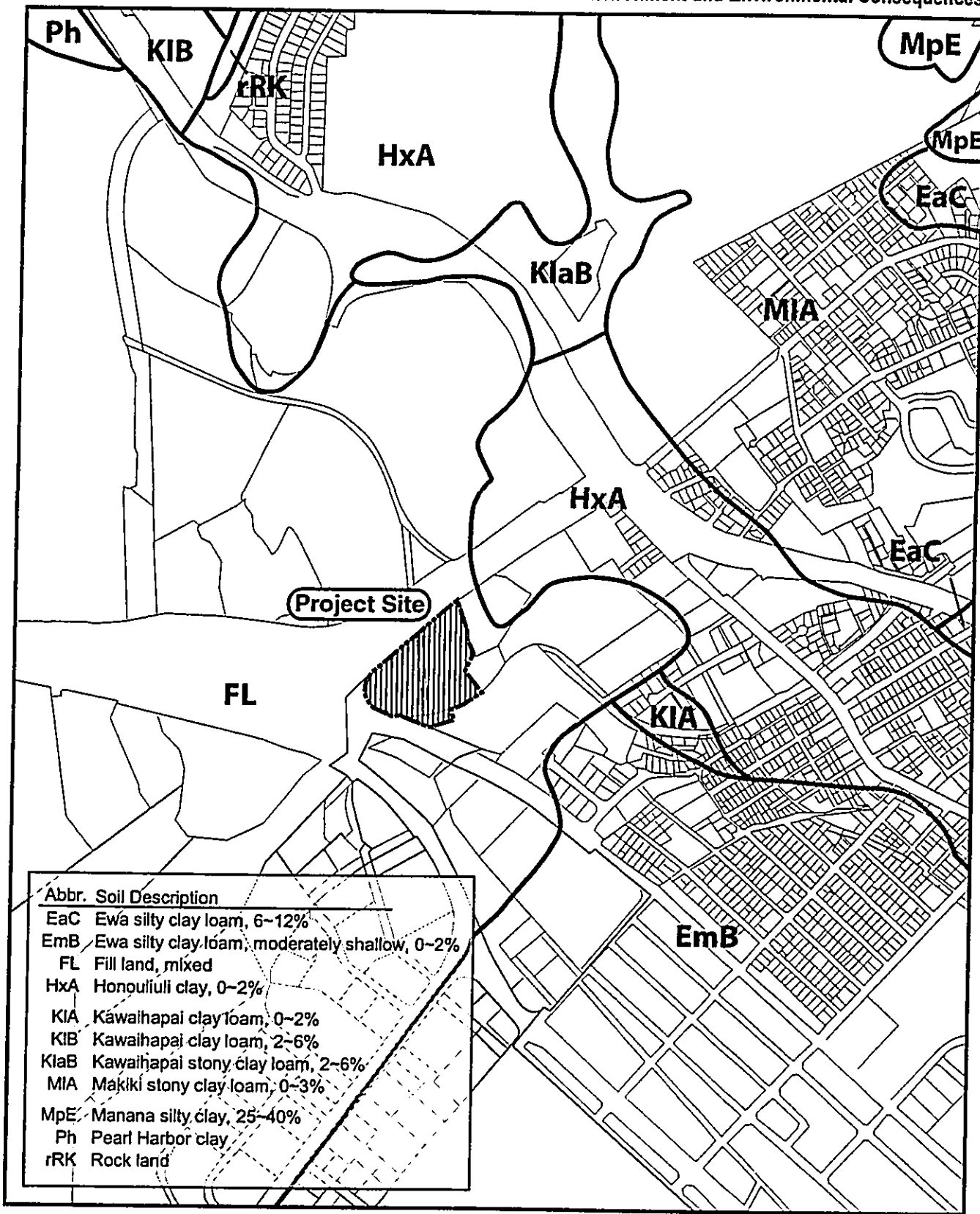
Soil Types

The soil at the entire project site is classified as Fill Land, mixed (FL) (see Figure 8). Fill land consists of areas filled with material dredged from the ocean or hauled from nearby areas, garbage and general material from other sources. This land type is found in Honolulu near the ocean and near Pearl Harbor. This land type is used for urban development, including airports, housing areas and industrial facilities.

Soil in the area just *mauka* of the site is classified as Honouliuli clay, 0 to 2 percent slopes (HxA). Honouliuli clay occurs in the lowlands along the coastal planes. Permeability is moderately slow, runoff is slow and the erosion hazard is no more than slight. Workability is slightly difficult because of the very sticky and very plastic clay. Honouliuli clay has high shrink-swell potential.

Geotechnical Engineering Study

A preliminary geotechnical engineering exploration at the project site was conducted (Geolabs, Inc. 2002), and is included as Appendix A. Variable subsurface conditions were encountered at the site of the proposed transit center and multi-level parking structure. The southern portion of the site is underlain by very soft lagoonal deposits to depths in excess of 70 feet. The northern portion of the site included coralline deposits and alluvial boulders to depths of about 32 to 43 feet. These materials were underlain by a thick layer of stiff silty clay (older alluvium). The soft lagoonal deposits found in the southern portion of the site were not encountered in the northern portion of the site.



Source: U.S. Dept. of Agriculture, Soil Conservation Service, Soil Survey of the State of Hawaii, 1972

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Figure 8
Soils

Project Impacts and Mitigation

The project will not have a substantial direct, indirect or cumulative impact on soils in the area. The preliminary geotechnical engineering study noted that high column loads are anticipated for the parking structure. The soft lagoonal soils in the southern portion of the site are highly compressible and cannot support the structural loads of the building. Therefore, pile foundations extending through the soft soils and into the stiff alluvial clay are recommended. The study estimated that pile lengths of about 100 to 140 feet may be required for the southern portion of the parking structure.

The northern portion of the parking structure appears to be underlain with better soil conditions; however, pile foundations were recommended in order to reduce potential differential settlements between the southern and northern areas. The study estimated that pile lengths from 75 to 100 feet may be required in the northern portion.

The study noted that if fills are required to raise the site, loads on the piles would increase and substantially longer pile lengths may be required. The study noted that this is a critical design consideration in the foundation for the project.

Prior to final design, a detailed subsurface exploration will be conducted to delineate the boundaries between the soft lagoonal deposits and the more competent coralline deposits, in order to provide a better estimate of the pile lengths required. The structural foundation of the parking structure will be designed in consultation with the geotechnical engineers.

Impact of Alternatives to Proposed Action

The no action alternative would have no impact on soils at the Middle Street site. The J.C. Penney site and a large area of Shafter Flats are also on fill land. The Kalihi Shopping Center site is on Honouliuli clay (HxA) soil. However, because there have not been geotechnical studies of the alternative sites, subsurface conditions and suitability for construction are unknown. Appropriate studies would need to be conducted prior to development at those sites.

The alternative for a conventional parking structure would have impacts and require mitigation similar to the proposed action. As with the proposed action, piles would be required to support a multi-level structure, due to the soil condition.

3.2.5 Climate and Air Quality

An air quality impact report (AQIR) for the project was conducted (Morrow, August 2002) and is included as Appendix B. The purpose of the AQIR was to assess the short and long-term impacts of the proposed development on air quality. The project is considered an "indirect source" of air pollution as defined in the federal Clean Air Act, since its primary association with air quality is its inherent attraction for mobile sources, i.e., motor vehicles. Much of the focus of

the analysis, therefore, focused on the project's ability to generate additional traffic and the resultant impact on air quality.

Existing Conditions

Air Quality

The State Department of Health (DOH) maintains a network of air monitoring stations around the state to gather data on particulate matter (PM₁₀), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO) and ozone (O₃). There are no DOH monitoring stations in the project vicinity. However, recent published air quality data from sites at Honolulu, Sand Island and West Beach indicate generally good air quality in Honolulu County, and may be considered reasonably representative of existing air quality in the project area.

In conjunction with this project, air sampling was conducted in July 2002 at the Middle Street-Kamehameha Highway intersection. Carbon monoxide (CO) levels were measured during the AM and PM peak traffic hours, and were found to be very low, averaging 0.39 mg/m³ and 0.41 mg/m³ on two separate days.

Climate and Meteorology

Analysis of the monthly temperature and rainfall data at the National Weather Service station at Honolulu International Airport yields a precipitation/evaporation (P/E) index of 26.6, which classifies the area as "semi-arid." Temperatures at the weather station range from 84.4 to 70.0 degrees Fahrenheit. Annual mean precipitation is 22.02 inches. Mean wind speed is 11.4 miles per hour. Prevailing winds are northeast trades, with more light, variable wind conditions starting in the fall, and occurring through the winter and into early spring. It is during these times that Honolulu generally experiences elevated pollution levels. During these winter months with light wind conditions, there is a higher potential for air pollutant build up from ground level sources (e.g., motor vehicles).

Project Impacts and Mitigation

Short-Term Construction Impacts

The primary source of short-term air quality impact will be construction activity. Construction vehicle activity can at times increase automotive pollutant concentrations along adjoining streets as well as on the project site itself. During the construction period, there is a potential for particulate matter (PM) emissions during demolition of existing structures, earth moving and construction of new buildings and roadways.

Because climatic conditions at the site are considered to be "semi-arid," there is an increased potential for fugitive dust. It will therefore be important to employ adequate dust control measures during construction, particularly during the drier summer months. Dust control could

be accomplished through frequent watering of unpaved roadways and areas of exposed soil. The soonest possible paving of roadways and parking areas and landscaping of bare areas will also help.

Construction activities will comply with provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, Fugitive Dust. The contractor will provide adequate measures to control dust from the road areas and during the various phases of construction. These measures include, but are not limited to:

- a) Planning the different phases of construction, focusing on minimizing the amount of dust generating materials and activities, centralizing on-site vehicular traffic routes, and locating potentially dusty equipment in areas of least impact;
- b) Providing an adequate water source at the site prior to start up of construction activities;
- c) Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;
- d) Controlling dust from shoulders and access roads;
- e) Providing adequate dust control measure during weekends, after hours, and prior to daily start-up of construction activities; and
- f) Controlling dust from debris being hauled away from the project site.

In addition to onsite construction-related impacts, there will be offsite impacts due to the operation of concrete and asphalt batching plants needed for construction of buildings and parking areas. However, the batch plants that produce the concrete and asphalt are strictly regulated by the DOH Clean Air Branch and therefore these short-term air quality impacts should be minimal.

Long-Term Impacts

Long-term air quality impacts will be associated with the increase in bus and vehicular traffic in the area. The air quality analysis was based on the traffic impact assessment's estimate of existing and projected future peak hour traffic (Julian Ng, August 2002). Automotive emission factors for carbon monoxide (CO) were generated for calendar years 2002 and 2025 using the U.S. Environmental Protection Agency's Mobile Source Emissions Model (MOBILE-5B). Modeling was performed for these years with and without the project. The results of the modeling are included in Appendix B. The results suggest that even under *worst case* conditions of meteorology and traffic, both the federal and state 1-hour CO standards would still be met. Therefore, the AQIR concluded that no special mitigation measures are required during operation of the transit center.

Impact of Alternatives to Proposed Action

The no action alternative would have no construction period or operational impacts. Development of a transit center at any of the alternative sites would have construction and operational period impacts similar to the proposed action. Similar construction-period mitigation

would be required at any of the alternative sites. There is a possibility that operational period air quality impacts at the Kalihi Shopping Center and J.C. Penney sites may be slightly higher than at Middle Street. This is because these sites are not as convenient to freeway on and off ramps, resulting in greater traffic congestion, longer vehicular delays and higher vehicle emissions. However, it is likely that federal and state CO standards would still be met even under worst case conditions at these other sites.

An alternative design utilizing a conventional (versus automated) parking structure could result in greater operational period air quality impacts, due to longer vehicle queuing times. Again, it is likely that federal and state CO standards would still be met.

3.2.6 Natural Hazards

Existing Conditions

Flood

The Flood Insurance Rate Map (FIRM) for the island of Oahu, prepared by the Federal Emergency Management Agency (FEMA) identifies flood hazard and flood prone areas. The project site is located in flood Zone AO (area with flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. Average flood depth on the site is two feet.⁴ The east portion of the site appears to be in Zone X (shaded). This is an area of the 500-year flood; area of 100-year flood with average depths less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood. The FIRM designations (Federal Emergency Management Agency, November 20, 2000) are shown in Figure 9.

There is a history of flooding downstream of the project area, at the bridge adjacent to Kamehameha Highway. During heavy rains, debris and sediment from the stream have piled up at the bridge, creating a dam and causing the water to overflow the stream bank onto adjacent properties. In the past, there has been damage to properties *makai* of Kamehameha Highway, including areas owned by Lenakona Development and First Hawaiian Bank (Department of Planning and Permitting, 2002). The State of Hawaii is responsible for maintaining the bridge as well as ten feet on both sides to ensure the free flow of water under the bridge. Private stream owners are also responsible for maintaining the stream beds and stream banks.

Seismic Activity

The Uniform Building Code (UBC) provides minimum design criteria to address the potential for damages due to seismic disturbances. The UBC scale is rated from Seismic Zone 1 through Zone 4, with 1 the lowest level for earthquake-induced ground movement. Oahu has a designation of Seismic Zone 2A.

⁴ A portion of Kalihi Stream (TMK 1-2-17: 03, 04, 05) will be purchased by the City as part of its purchase of the project site. This undevelopable area is also in Zone AO, areas of 100-year flood, average flood depth of three feet.

Project Impacts and Mitigation

Short-Term Construction Impacts

There will be no short-term construction related impacts on natural hazards.

Long-Term Impacts

Flood

As shown in Figure 9, there is a small risk of flooding at the project site, due to its location in the 100-year flood plain (Zone AO, average flood depth 2 ft.). Appropriate land use and siting will be utilized to mitigate the potential impacts of flooding. To minimize flood damage, permanent facilities will be located away from the Kalihi Stream and all proposed buildings and structures will have finished floor elevations that are higher than expected flood elevations. Structures will be built in conformance with FEMA regulations, and certification for construction within FEMA floodway or flood fringe will be provided to the City Department of Planning and Permitting. Landscaped areas alongside the stream could be bermed to provide additional flood protection to the site. Berming could also provide additional detention and retention of storm runoff that could reach the stream.

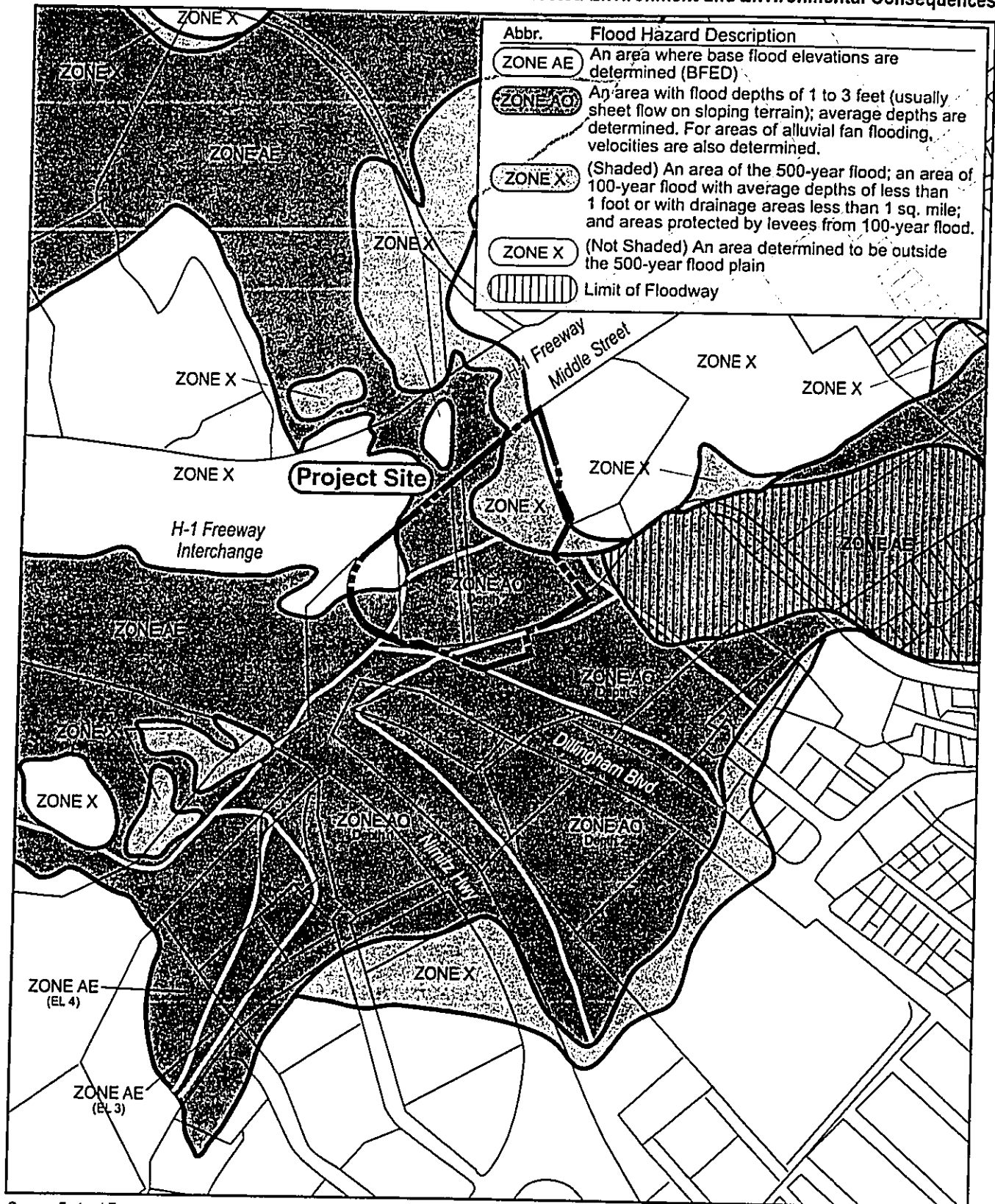
Because the City will be acquiring a portion of Kalihi Stream as part of the land purchase for this project, it will be responsible for maintaining the stream bed and stream banks adjacent to the project area. The City will keep the stream bed and banks clear of debris that could potentially contribute to on-site and downstream flooding during storm conditions.

Seismic Activity

The Island of Oahu has been assigned a low level of risk from earthquakes. The Uniform Building Code establishes standards of construction appropriate to the assigned level of seismic risk. All new construction will be designed in a manner that meets (or exceeds) the UBC safety standards.

Impact of Alternatives to Proposed Action

The no-action alternative will not impact flood conditions or the occurrence of natural hazards. The Kalihi Shopping Center and Shafter Flats sites are not adjacent to Kalihi Stream, but are at least partially in areas of 100 and 500-year flood. A transit center at any of these sites would meet the applicable base flood elevation. Although the J.C. Penney site is adjacent to Kalihi Stream, acquisition of this site would probably not involve City purchase of a portion of Kalihi Stream. Therefore, under the J.C. Penney site alternative, the City would not be responsible for maintaining the adjacent stream bed and banks as part of transit center operations.



Source: Federal Emergency Management Agency, Flood Insurance Rate Map (Nov. 20, 2000) Panel No. 15003C0353E

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Figure 9
Flood Insurance Rate Map

The alternative parking garage design would have no impact on flooding or natural hazards, and could also be sited and designed to mitigate flood hazard impacts.

3.2.7 Hydrology

Existing Conditions

Groundwater

Groundwater resources beneath the site include the Moanalua Aquifer System of the Honolulu Aquifer Sector (Mink and Lau, 1990 in Masa Fujioka & Associates, 2001). There are two aquifers beneath the project site. Both are considered basal aquifers (i.e., fresh water in contact with sea water).

The upper aquifer is classified as unconfined and occurs in sedimentary (non-volcanic) deposits. This upper aquifer is listed as having no utility for drinking water and no ecological importance. It has moderate salinity, is listed as replaceable and has a high vulnerability to contamination.

The lower aquifer is classified as confined and occurs in flank deposits (horizontally extensive lavas). The lower aquifer is fresh water, is currently used for drinking water, is listed as irreplaceable and has a low vulnerability to contamination.

According to the Department of Health (1984) map, one water supply well is located adjacent to the subject site. The well was formerly used for industrial purposes. The well was sealed in 1993 and is no longer in use (Masa Fujioka & Associates, 2001).

Surface Water

The southern corner of the project site includes a portion of Kalihi Stream. The stream is unlined in this area, with no riparian zone or vegetative buffer surrounding the stream. The stream empties into Keehi Lagoon, about a quarter mile from the site.

On-Site Drainage

The site generally drains from north to south, with the low area at the southern portion of the property along Kalihi Stream. The majority of the site is paved with weathered asphalt concrete and concrete. Surface drainage appears to be via Kalihi Stream, south toward Keehi Lagoon, located approximately 0.25 miles southwest of the project site. The existing runoff generated within the proposed project site for a 10-year storm is approximately 43.7 cubic feet per second (cfs).

Project Impacts and Mitigation

Short-Term Construction Impacts

There is the potential for temporary, short-term construction period erosion and runoff into Kalihi Stream. Construction period erosion and dust control will adhere to City standards and guidelines and all applicable State regulations. Best management practices will be followed during construction to prevent runoff into Kalihi Stream.

If there is construction period discharge as a result of storm water runoff, hydrotesting and dewatering effluent, a National Pollutant Discharge Elimination System (NPDES) permit will be obtained from the State of Hawaii Department of Health. The contractor will comply with all NPDES permit conditions.

Ground Water and Surface Water

The project will not have an adverse impact on groundwater resources. There will be no indirect or cumulative impacts on groundwater.

As discussed above, there is a history of flooding at the Kalihi Stream bridge at Kamehameha Highway, due to build up of debris at the bridge during storm conditions. The City will keep the stream bed and banks in the project area clear of debris. The currently bare, exposed stream banks will be vegetated to prevent further erosion and runoff from the project site.

On and Off-Site Drainage

Preliminary hydrologic analysis indicates that the proposed project is not expected to generate additional storm runoff or impact off-site drainage conditions.

The proposed project will not increase the current 10-year storm runoff. The site improvements are expected to slightly decrease on-site runoff because of a reduction in impervious surfaces and increased landscaping improvements. In order to further mitigate drainage impacts to the existing drainage system, runoff will be directed to grass or landscaped areas where possible.

There will be no adverse impacts due to bus wash operations. The proposed bus wash facility on the site will be covered, and the effluent from the bus wash operation will be collected and contained within the facility. An underground collection system will divert the effluent to a treatment system or holding tank, where the water will be recycled for reuse. The effluent that is not recycled will be directed to the sewer system. Therefore, all wash water will be contained within the facility and no discharge will be made to the existing drainage system, Kalihi Stream or Keehi Lagoon. Moreover, since the bus wash facility will be covered, storm water runoff will not be able to mix with the wash water effluent.

The project will provide adequate storm water drainage improvements. Portions of the existing drainage system will be removed, relocated or replaced to accommodate the new transit facility structure. Overland sheet flow, swales, drain inlets, and underground drain lines will be used to intercept and route the on-site runoff to existing drainage systems on-site or into the City and County system adjacent to the property. The on-site drainage system will conform to all City standards.

There are no anticipated cumulative or indirect drainage impacts.

Impact of Alternatives to Proposed Action

The no action alternative would have no impact on existing hydrological or drainage conditions on site. Development at alternate sites would have impacts similar to the proposed action, although the Kalihi Shopping Center and Shafter Flats sites would not involve potential impact to Kalihi Stream. The alternative for a conventional parking garage would have impacts similar to the proposed action.

3.2.8 Hazardous Materials

Existing Conditions

The presence of hazardous and potentially hazardous materials on site was documented through a Phase I survey (Masa Fujioka & Associates, 2001). A follow-on Phase II environmental site assessment (ESA) was conducted in March 2002 (Kimura International, 2002). That document is included as Appendix C. Based upon the findings and recommendations of the Phase I survey, a site reconnaissance targeted several areas for further investigation. The investigation was limited to targeted areas suspected of having a potential for contamination that may pose a health or environmental risk to future land users of the site, and did not include a comprehensive (grid-like) sampling of the entire site.

The approach of the Phase II ESA was to conduct a visual inspection of the site, identify potential problem areas, and sample areas of potentially affected media, based on the visual inspection and review of existing documentation. The objective of the Phase II ESA was to determine the presence or absence of chemical contamination at the site. A total of 16 soil samples were collected from thirteen (13) boring locations at various depths. Upon retrieval, the soil collected, for petroleum analysis, was visually inspected. Kimura International personnel then selected the soil sample based on field observations and the results of a photoionization detector (PID), used to screen for volatile organic compounds (VOC). When field observations and measurements did not indicate an obvious area of contamination, the soil was sampled at the water table. The biased sampling approach was designed to provide cost-effective screening of potentially impacted areas. Some of the soil sampling was focused at potential "hot" spot locations, determined by evaluating potential contaminant migration pathways and field screening techniques.

The Phase II ESA confirmed that contamination is present in localized areas of the property, as shown in Figure 10. Certain small "hot spots" of contamination are present and include the area around Building E, the soil under and around Buildings A and F, and surface soil around the Pineridge service area. The study recommended that these "hot spots" be further delineated and removed according to State Department of Health guidelines. The Phase II ESA recommendations are summarized below in Table 3-2.

Project Impacts and Mitigation

The project will not have adverse direct, indirect or cumulative impacts. During project design, the areas of concern identified during the Phase II ESA will be evaluated further in consultation with the State Department of Health. Appropriate mitigation and/or remediation will be identified, in accordance with federal and State regulations and standards. Underground storage tanks will be removed in accordance with current guidelines established by the State Department of Health. Tests will be conducted during removal to check for releases of fuel. If released fuel is discovered, it will be remediated in accordance with applicable regulations.

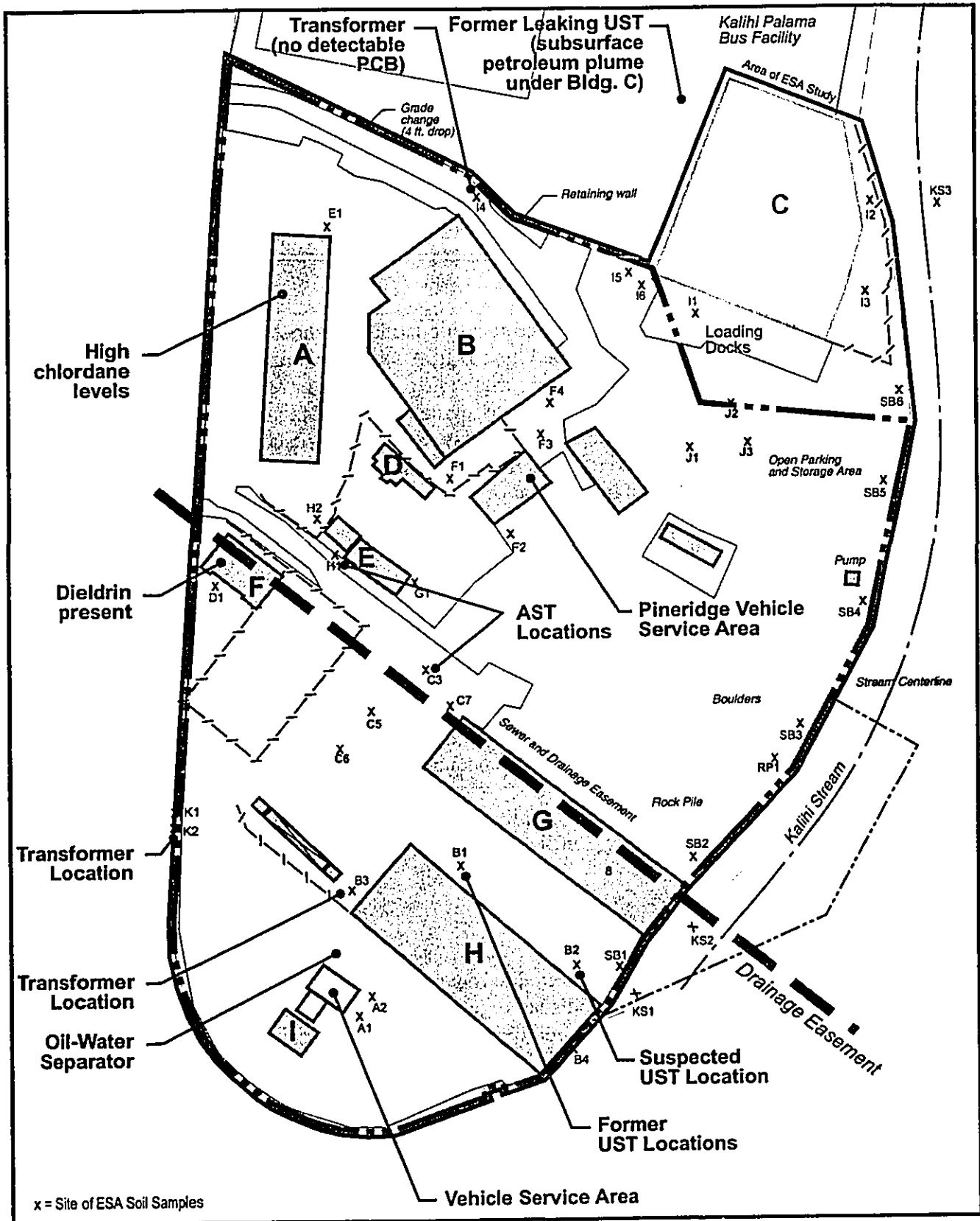
Short-Term Construction Impacts

There is a strong possibility that petroleum products or hazardous materials will be encountered during demolition, excavation and site work. Several areas of the site have been identified to have contaminated soils. Existing structures to be demolished have asbestos-containing material and lead-based paint. Several are known to have insecticides in the soil beneath the building. The contractor will develop a Contaminant Management Plan detailing contaminant handling procedures and remedial response actions; and an Emergency Response Plan to establish procedures should contaminated materials be encountered during the construction period.

The contractor will be responsible for compliance with air quality standards during demolition and construction. The contractor will utilize best management practices to prevent soil erosion and runoff into Kalihi Stream.

Long-Term Impacts

The construction contractor will be required to remove and dispose of all hazardous materials in accordance with applicable federal and state regulations. Overall, the level and type of mitigation required will depend partially on how well the tenants clean up the site, as well as the specific uses planned for various areas of the site. For example, in some areas, removal and remediation of soil may be required. In other areas, containment in place may be appropriate. The City will work closely with the State Department of Health as plans are developed and implemented to ensure that appropriate remediation is conducted to protect public health and safety. The project will not have indirect or cumulative impacts associated with hazardous materials.



Source: Kimura International, Inc., 2002

November 2002
0 SCALE IN FEET 100



Figure 10
Phase II ESA Findings

Table 3-2: Phase II ESA Findings and Recommendations

Target Area	Findings	Recommendations
Oil-Water Separator	Soil samples indicate no petroleum hydrocarbons, Polynuclear Aromatic Hydrocarbons (PAHs), Halogenated Volatile Organic Compounds (HVOCs), lead, and organochlorine pesticides at levels above Hawaii Department of Health (HDOH) Tier I Soil Action Levels (SAL).	<ul style="list-style-type: none"> No further action recommended for this target area.
Transformer Locations	Soil samples in area of pole-mounted transformers found to contain low levels of Aroclor 1260. Transformer along east boundary of the site also investigated and soil samples did not have detectable levels of polychlorinated biphenyls (PCB).	<ul style="list-style-type: none"> Investigate areas of the pole-mounted transformers where surface soils have been impacted with Aroclor 1260. Impacted soils may need to be removed.
Underground Storage Tank (UST) Locations	Two UST locations adjacent to Building H were investigated, no petroleum contamination that could be attributed to a release of fuel was found. However, one sample found to have lead at a level above HDOH Tier I SAL. One possible UST location was discovered on southeast side of Building H.	<ul style="list-style-type: none"> If subsurface soils in former UST location are removed, it should be managed properly. Investigate suspected UST site to confirm its presence and potential contamination of subsurface soils.
Aboveground Storage Tank (AST) Locations	Three ASTs located along the old railroad tracks. Two located on asphalt and a soil boring taken between them was found to have very low levels of petroleum constituents. Other AST located next to Building E is placed over bare soil. This AST has released some diesel. Sample was found to contain lead at levels above HDOH Tier I soil action level (SAL).	<ul style="list-style-type: none"> Remove contaminated soil at Building E. Soil under the AST along west side of building found to have elevated lead levels and potentially high petroleum hydrocarbons. Conduct further tests to confirm lead levels, which may be due to lead paint from the building. Remove petroleum contaminated soil near trailer, which appears to be due to fuel tank on the trailer.
Vehicle Service Areas	The service area for the car lot (Building I) is not impacted with petroleum, solvents or metal contamination. Pineridge vehicle service area has visible staining due to petroleum contamination. Borings in this area contained levels of petroleum hydrocarbons that warrant further actions.	<ul style="list-style-type: none"> No further investigation needed for vehicle service area I. Conduct further investigation of soil in Pineridge vehicle service area. Soil beneath the existing asphalt cap may also be affected.
Drum Storage Areas	No drum storage areas were found during the site reconnaissance and fieldwork.	<ul style="list-style-type: none"> No further action recommended for this target area.

Table 3-2 (continued)

Target Area	Findings	Recommendations
Subsurface Petroleum Plume	Previously investigated subsurface fuel oil plume (found to encroach beneath Building C, Commercial Enterprises) is still present. Soil borings taken along the southern and western sides of Building C had advanced to the groundwater level. Plume is approximately 15 feet below ground surface and does not pose a health risk.	<ul style="list-style-type: none"> • Target area may require future testing and investigation or remediation. • Removal of the contamination would involve excavation of the ground beneath the existing building, which may not be feasible. • Possible that natural attenuation of the oil will occur over time and no further actions will be necessary.
Chlordane Treatment	Soil samples from all of the old buildings were collected and analyzed for organochlorine pesticides. Only two of the oldest buildings were found to have insecticides used for termite treatment in the soil. Building A has high levels of chlordane and Building F has dieldrin present. Both insecticides are present at levels above HDOH Tier I SALs.	<ul style="list-style-type: none"> • Recommend additional testing of the treated soil under the building prior to demolition and grading. • If building foundations are graded, the soil must be treated as contaminated soil.

Source: Kimura International, Inc. July 2002

Impact of Alternatives to Proposed Action

The no action alternative would result in the Middle Street site remaining in its current state. Under this alternative, no further testing or remediation would occur. Ongoing light industrial activities would continue. Some of these ongoing activities may be contributing to the presence of hazardous materials, including releases of petroleum from vehicles and equipment, storage and disposal of hazardous items, and the presence of asbestos containing material and lead based paint in existing buildings (Masa Fujioka & Associates, 2001). These ongoing activities could continue.

The presence of hazardous materials at the alternative sites is unknown, and hazardous materials surveys would be required prior to demolition and construction at these sites. Due to the current and past uses at the alternate sites, as well as the age of the structures, it is likely that hazardous materials (e.g., asbestos containing materials, lead-based paint) will be encountered during demolition, and it is possible that site remediation will also be required. The alternative design at the Middle Street site would have impacts similar to the proposed action.

3.2.9 Noise

Existing Conditions

An environmental noise assessment was completed for the project (D.L. Adams Associates, Ltd., 2002) and is included as Appendix D. Ambient noise level measurements were conducted in February 2002. The project area and vicinity are currently exposed to daytime ambient noise levels of 52 to 72 dBA (A-weighted decibels), with the dominant noise sources being traffic on Middle Street, Kamehameha Highway and the H-1 Freeway. Other noise sources include flyovers from small and large aircraft, birds, wind and light industrial noise from on-site shops as well as shops located on the adjacent Kalihi-Palama Bus Facility. Due to its proximity to the Honolulu International Airport, the site is exposed to high levels of aircraft noise. The "Honolulu International Airport Master Plan Update and Noise Compatibility Program" indicates that the area is exposed to an average annual day-night (aircraft) noise level (Ldn) between 60 and 65.

Project Impacts and Mitigation

Short-Term Construction Impacts

There will be short-term, temporary noise impacts due to demolition of existing structures, excavation, grading, and construction of new buildings and infrastructure. Although these activities will generate noise, surrounding residences are not likely to be impacted by construction noise. The closest residences are located *mauka* of the existing Kalihi-Palama Bus Facility, as well as to the southeast (Diamond Head direction). The actual noise levels during construction will be a function of the methods used during each construction stage. Pile drivers, earthmoving equipment, e.g., bulldozers and diesel-powered trucks, will be used during construction.

All project activities will comply with the Department of Health (DOH) Administrative Rules Chapter 11-46 on "Community Noise Control." Where construction noise exceeds or is expected to exceed the State's "maximum permissible" property line noise levels, a permit must be obtained from the DOH to allow the operation of vehicles, construction equipment, power tools, etc. which emit noise levels in excess of the "maximum permissible" levels. Pile driving activity will exceed the maximum permissible property line noise levels, and a permit for their use will be obtained from the DOH. The DOH will require information on the number of pile drivers to be used, the number of piles to be driven, duration of operations, and a contact person responsible for responding to noise complaints. Notification of the surrounding affected areas will be required. At the DOH discretion, a public information meeting may be required to provide the surrounding community with information about the pile driving noise. Pile driving has the potential to impact noise sensitive areas within 470 feet of the pile driving activity. There are no zoned residential properties within 470 feet of the project, but there are occupied industrial facilities that could be impacted.

To mitigate noise impacts on surrounding areas, the use of pile drivers, hoe rams, jackhammers 25 lbs. or larger, high pressure sprayers, and chain saws may be restricted to 9:00 AM to 5:30 PM, Monday through Friday.

Vibration resulting from pile driving will have minimal impacts on areas surrounding the project site. The southern portion of the project site, where the parking structure location is planned and where the pile driving will occur, is underlain by very soft lagoonal deposits to depths in excess of 70 feet. Once a pile is initially driven through the soil crust, the pile will drive through the soft lagoonal deposits to the coral bed, lying 70+ feet below the surface, with little required additional pile driving effort, resulting in minimal vibration. Vibration from pile driving should occur for only short periods of time as the pile is driven through the soil crust. Annoyance from vibration is generally a result of audible noise due to induced radiation from vibrating surfaces. Appropriate mitigation measures, if required, could include hollow core piles or pre-drilled holes through the soil crust which require less impact to drive the piles.

Project-Generated Traffic Noise

Project-generated traffic noise was estimated using a noise model that considered projected traffic volume and vehicle mix. The noise model was used to calculate the peak hour traffic noise levels with and without the project at two measurement location—one near Middle Street and one near Kamehameha Highway. The results are shown in the table below. Predicted traffic noise level increases for the year 2025 with and without the project were calculated. Predicted maximum traffic noise level increase as a result of the project along the evaluated roadways is 0.4 dB. This is below the threshold of change in noise level that is perceptible to most people. Industrial land uses along Middle Street and Kamehameha Highway are already exposed to traffic noise, and the minor increase in traffic noise level due to the project will not be detectable.

**Table 3-3: Peak Hour Traffic Noise Levels and Predicted Noise Level Increases
(Equivalent Sound Level (Leq) in Units of dBA)**

	Existing		Year 2025 Without Project		Year 2025 With Project	
	AM	PM	AM	PM	AM	PM
Middle Street <i>(38 ft from centerline)</i>						
Peak Traffic Noise	72.1	72.5	73.2	73.6	73.5	74.0
Year 2025 Increase Above Existing	--	--	1.1	1.1	1.4	1.5
Year 2025 Increase Due to Project	--	--	--	--	0.3	0.4
Kamehameha Highway <i>(62 ft from centerline)</i>						
Peak Traffic Noise	72.2	72.5	73.3	73.6	73.4	73.7
Year 2025 Increase Above Existing	--	--	1.1	1.1	1.2	1.2
Year 2025 Increase Due to Project	--	--	--	--	0.1	0.1

Source: D.L. Adams Associates, Ltd. 2002

Noise Due to On-Site Equipment

Noise from on-site equipment such as pumps and compressors will be addressed during the design phase of the project. Noise at the property line from on-site equipment must be at a level of 70 dBA or less in order to be within the State's maximum permissible sound limit. If on-site equipment exceeds this limit, mitigation such as barriers, enclosures or silencers will be included in the design.

Impact of Alternatives to Proposed Action

The no action alternative would not have short or long-term noise impacts. Existing uses at the site would continue. Development of a transit center at any of the alternative sites would have construction period and operational period noise impacts similar to the proposed action. The alternative for a conventional parking structure would have impacts similar to the proposed action.

3.2.10 Airport Clear Zone

The site is not within the Honolulu International Airport's "runway protection zone." However, the site is within an area surrounding the airport with a 163-foot height restriction. None of the proposed structures will be above this height.

3.3 BIOLOGICAL ENVIRONMENT

3.3.1 Flora

An assessment of the botanic resources was conducted (Char and Associates, January 2002), and the Botanical Resources Study is included as Appendix E. The objectives of the field survey were to provide a general description of the vegetation on the site, search for threatened and endangered species and species of concern, identify areas of potential environmental problems or concerns and propose appropriate mitigation.

Existing Conditions

The majority of the project site is developed, and structures include warehouses surrounded by pavement. Ruderal or weedy roadside vegetation is found on the unpaved areas and soil and rubble piles are scattered throughout the site. Swollen fingergrass (*Chloris barbata*), bristly foxtail (*Setaria verticillata*), Spanish needle or beggar's tick (*Bidens pilosa*) and *Trianthema portulacastrum* are the predominant vegetation. Other species occurring here occasionally include wiregrass (*Eleusine indica*), spiny amaranth (*Amaranthus spinosus*), field bindweed (*Ipomoea obscura*), castor bean (*Ricinus communis*), and hairy merremia (*Merremia aegyptia*). Woody components are few, and include a kiawe sapling (*Prosopis pallida*), koa haole shrubs (*Leucaena leucocephala*), and opiuma (*Pithecellobium dulce*) and Chinese banyan (*Ficus microcarpa*) trees.

Landscape plantings are present next to Kalihi Stream and at the cold storage warehouse just outside the project area. A medium-sized tiger's claw tree (*Erythrina variegata*) and smaller trees of kumquat (*Fortunella japonica*), a citrus species, and chicle (*Manilkara zapota*) are found here. A garden supports plantings including banana (*Musa X paradisiaca*), chili peppers (*Capsicum annum cultivars*), ti leaf (*Cordyline fructicosa*), and eggplant (*Solanum melongena*).

The banks of Kalihi Stream are well-defined. No wetlands occur on the property. The vegetation on the stream banks is dominated by weedy species such as *Trianthema*, Spanish needle, Guinea grass (*Panicum maximum*), castor bean, lion's ear (*Leonotis nepetifolia*) and false mallow (*Malvastrum coromandelianum*). A few wetland indicator species are present, but occupy less than 10 percent of the total plant cover. These wetland species are barnyard rice (*Echinochloa crus-galli*), umbrella sedge (*Cyperus involucratus*), water hyssop (*Bacopa monnieri*) and kipukai (*Heliotropium curassavicum*).

Project Impacts and Mitigation

Short-Term Construction Impacts

There will be no adverse construction-period impacts to botanical resources. The vegetation on the project site is composed almost exclusively of introduced, weedy species common to disturbed areas throughout the islands. Two native species are found along the stream. These are the water hyssop and kipukai. Both are indigenous, i.e., native to Hawaii and elsewhere. None of

the plants observed on the parcel are threatened and endangered or species of concern. No trees on the City and County's list of exceptional trees occur on the site. There are no wetland areas on the site.

Long-Term Impacts

The project will not have adverse long-term impacts on botanical resources, for the reasons stated above. No indirect or cumulative impacts are anticipated.

Overall, there are no botanical reasons to impose any restrictions, conditions or impediments to the proposed use of the site (Char and Associates, 2002).

Impact of Alternatives to Proposed Action

Under the no-action alternative, there would be no change to existing site conditions or the biological environment. Existing conditions at the alternative sites would need to be investigated further. However, all the sites have been urbanized and developed for many years, are likely dominated by introduced species, and unlikely to contain threatened or endangered plant species. The alternative for a conventional parking structure would have impacts similar to the proposed action.

3.3.2 Terrestrial Fauna

A field survey of terrestrial fauna was conducted (Ohashi, December 2001) to assess the wildlife resources on the site. A copy of the report is included as Appendix F. The objectives of the survey were to provide a brief record of wildlife on and adjacent to the site and to determine whether the project would adversely impact any important wildlife resources in the area.

Existing Conditions

The survey noted that non-native birds, common to the lowlands of Oahu, were found at the site. The birds identified during the site visit and the number of individuals counted (on site and along the stream channel) is noted in the table below.

The black-crowned night heron is indigenous, but it was not observed on the project site. It occurred in the stream canal, about 500 feet north of the site. The lesser golden plover was observed flying over the project site toward the shoreline. Most of the zebra doves were feeding along the stream bank. The remaining birds were found in the opiuma tree (*Pithecellobium dulce*) on site.

Common Name	Scientific Name	Number of Individuals Observed
Black crowned night heron	<i>Nycticorax nycticorax</i>	1
Lesser golden plover	<i>Pluvialis dominica</i>	1
Spotted dove	<i>Streptopelia chinensis</i>	3
Zebra dove	<i>Geopelia striata</i>	14
Red vented bulbul	<i>Pnycnonotus cafer</i>	1
Common mynah	<i>Acridotheres tristis</i>	5
Japanese white eye	<i>Zosterops japonicus</i>	5
House sparrow	<i>Passer domesticus</i>	3

Project Impacts and Mitigation

Short-Term Construction Impacts

Project construction will not have adverse construction-period impacts on any native species of concern or any threatened or endangered species.

Long-Term Impacts

The operation of the proposed Handi-Van, transit center and parking facilities is not expected to adversely impact any native species of concern or any threatened or endangered species. There will be no indirect or cumulative impacts on these species.

The terrestrial habitat of the site is heavily urbanized, and is not suitable for native forest birds. There are no native trees on the site. The stream channel is regularly maintained for flood control and provides little habitat for waterbirds, although one black-crowned night heron was seen in the stream canal north of the site, and more could use the stream at night.

Impact of Alternatives to Proposed Action

Under the no-action alternative, there would be no change to existing site conditions or the biological environment. The alternative sites are also developed and urbanized, and impacts are likely to be similar to the proposed action. There are no known threatened or endangered species in the area.

3.3.3 Stream Biology

A habitat and biological assessment of lower Kalihi Stream directly adjacent to (eastern side) the project site was conducted (Kido, March 2002). The study report is included as Appendix G. The study focused on evaluating habitat condition and biological integrity of the stream using the Hawaii Stream Bioassessment Protocol (HSBP). The HSBP evaluates the “health” or “biological integrity” of the stream as well as the condition of the habitat. The objectives of the assessment were to:

- Develop a species list of fish, macroinvertebrates, and macroalgae inhabiting the stream system
- Evaluate and compare condition and species composition of the riparian area adjacent to the study stream reach
- Assess stream habitat quality in the study reach
- Evaluate the “biotic integrity” of the stream environment as compared to Hawaiian stream “reference” standards
- Evaluate the relative level of instream primary and secondary productivity.

Existing Conditions

The average width of Kalihi Stream at the project site is about 13 feet, with an average depth of about 0.4 feet. The stream at the project site is a distance of approximately 0.3 miles from Keehi Lagoon. The habitat and biological assessment concluded that this section of lower Kalihi Stream was a biologically “impaired” stream with very poor habitat quality. The study noted that the most obvious problems in the habitat were related to the near complete removal of riparian vegetation, heavy siltation of the stream bottom, large volumes of trash in and around the stream, and extreme modification of the banks and stream channel.

Despite these conditions, no less than four native fish and invertebrate species were found, including the fish `o`opu-akupa (*Eleotris sandwicensis*) and aholehole (*Kuhlia sandwicensis*), the small, dark Hawaiian prawn, `opae oeha`a (*Macrobrachium gradimanus*) and the brackish water snail, the hapawi (*Theodoxus vespertinus*). These are primarily estuarine species, and their presence is due in large part to the site’s proximity to the ocean. The stream study area was dominated by the alien poeciliid fish (Family Poeciliidae), primarily swordtails (*Xiphophorus helleri*).

Given the degraded state of the habitat, the study noted it is unlikely that any recovery of the stream-related elements of biotic integrity will occur in the foreseeable future.

Project Impact and Mitigation

The proposed project is not expected to have a direct, indirect or cumulative impact on the Kalihi Stream habitat, given the current high level of impairment of habitat and biological integrity in the area. The study noted that it is unlikely that responsible construction activities will have any appreciable impact on aquatic biota in Kalihi Stream. "Responsible" construction activities were defined as including:

- Eliminating as much as is practicable any deposition of construction materials, chemicals, or other foreign materials into the stream;
- Restriction of construction activities away from stream banks, and
- Development of long and short-term contingencies and protocols to restrict chronic non-point and point source pollutants from entering the stream.

In order to improve habitat and biotic integrity of the stream site over the long term, the study recommended that the landowner:

1. Remove organic trash and metal-based junk in and around the stream; and
2. Establish a vegetated riparian buffered strip between the industrial areas and the stream to include vegetating all stream banks which are currently exposed down to bare soil.

Construction activity will include best management practices to prevent adverse impacts to the stream. The operation of the Handi-Van facilities and transit center will not increase non-point source pollution into Kalihi Stream. The City will be responsible for long-term maintenance of the stream banks and stream bed in the project area, including removal of trash in and around the stream. The project includes revegetation of the stream banks in the project area, which may actually reduce current levels of non-point source pollution into the stream.

Impact of Alternatives to Proposed Action

None of the alternatives are expected to have an adverse impact on the biology of Kalihi Stream, including the J.C. Penney site that also borders the stream. As with the Middle Street site, there would be some potential for construction period runoff into the stream. However, if responsible construction practices were followed, adverse impact is unlikely. Unlike the proposed action, development of the J.C. Penney site would probably not include acquisition of a portion of the stream. Therefore, it is unlikely that the City would be involved in ongoing efforts to clean the stream bed and banks, and to establish a riparian buffer strip adjacent to the J.C. Penney site.

3.4 SOCIO-ECONOMIC ENVIRONMENT

3.4.1 Population and Employment

Existing Conditions

Population

The project site is on the very eastern border of Census Tract #60, which is bounded by Middle Street on the west, Kalihi Street on the east, Dillingham Boulevard to the south, and North King Street to the north. According to the 1990 U.S. census, the total population of this census tract was 6,391. Of this number, 11% identified themselves as white, 17.7% Hawaiian and 72.7% Filipino, with the remainder a mix of Asian and Pacific Islander groups (Note: percentages cited represent the percentage in that census tract who categorized themselves of that race "alone or in combination with another race").

By comparison, the adjacent Census Tract #66 on the other (west) side of Middle Street, and running mauka from the ocean to the Fort Shafter area, has a very different ethnic breakdown. This census tract had a population of 1,673, which was 64.6% white, 3.2% Hawaiian, 4.0% Filipino.

Employment

The adjacent Kalihi-Palama Bus Facility, operated by Oahu Transit Services, Inc., is a major employment center in the area. The bus facility includes an administration building and maintenance shops that currently support approximately 1,628 employees. These include approximately 915 bus drivers, 333 maintenance personnel, 150 support (administrative) staff and 230 paratransit (Handi-Van) drivers. The existing facility is the origin and termination point for six major routes, with approximately 506 bus departures daily. The administration building includes TheBus and Handi-Van dispatch centers. The OTS employees will either relocate to the new Middle Street Transit Center, or continue to work out of the Kalihi-Palama Bus Facility's existing transit center building, which will be converted to a bus maintenance facility. (Personal communication with Roger Morton, Senior Vice President and Director of Operations, Oahu Transit Services, Inc.).

There are approximately 14 businesses on the project site, all tenants of Yee Hop Realty. The tenant businesses include Sunburst Design, Shelton Contracting, Inc., Andy's Cycles, Akamai Glass, Gemini Signs, J.C. & Co. Welding, A-1 Painting, Pineridge Farms, B& K Upholstery, Toledo Scale, Brandon's Aloha Country Store, K. Yamada, Martin Trucking, and Trucks, Cars and Equipment.

Project Impact and Mitigation

Short-Term Construction Impacts

The project will displace existing Yee Hop Realty, Ltd. lessees on the project site. It is estimated that about 14 small businesses within the project site employ a total of between 50 to 75 persons. The affected businesses will be disrupted during their relocation. The existing cold storage warehouse is not part of the property to be acquired by the City, and therefore Yee Hop Realty, Ltd. /Commercial Enterprises operations will not be displaced.

Because the project involves federal funds, displaced tenants would be subject to the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. State law on relocation is provided in Hawaii Revised Statutes (HRS) Chapter 111, Assistance to Displaced Persons. The City will acquire the property from Yee Hop Realty, Ltd. through "friendly condemnation." Impacted owners and tenants may be eligible for reimbursement of moving expenses, payment for direct loss of tangible personal property, expenses in finding a replacement site, reestablishment expenses, or under certain circumstances, a fixed payment.

Affected businesses will be given ample notification, and will be encouraged to plan moves in advance so that relocation occurs with minimal delays and inconvenience. It is believed that several of the businesses identified above have already relocated or are planning to relocate in the near future.

Depending on the timetable for demolition and construction, the tenants may enter into short-term rental agreements with the City. It is unknown what the long-term impacts to the impacted businesses will be, and whether existing employees will be retained after the businesses relocate.

Although they will not be relocated, there will be construction-period impacts to Yee Hop Realty, Ltd. /Commercial Enterprises and the adjacent Kalihi-Palama Bus Facility. The most obvious impacts will be construction-related noise and dust. The contractor will coordinate with these businesses regarding the demolition schedule and other construction activities, to minimize disruption to their ongoing operations.

Roadway access to the cold storage warehouse will be maintained throughout the construction period, although there could be some disruption to normal truck operations. Upon completion of Phase 1, the existing access road will be closed and the City will give Yee Hop Realty, Ltd. an easement for access to their site via and only through the project's Middle Street driveway.

Construction Period Employment

Project construction will create short-term, construction related employment over the three-phase development period.

Long-Term Employment

The project is not expected to have a substantial impact on employment, as there will be no change in operations or the number of transit employees. Administrative and maintenance employees at the adjacent Kalihi-Palama Transit Center will relocate to the new facility. No increase in the number of bus or Handi-Van drivers or maintenance personnel is planned.

If the area of the site fronting Middle Street is developed, it could accommodate up to 16,000 square feet of commercial, retail or community support uses. The number of permanent jobs created would depend on what uses were developed.

The project could have indirect and cumulative impacts on employment in the project vicinity. Development of a major transit center could lead to redevelopment of surrounding properties and increased commercial and retail development. This could displace some existing businesses and employees. However, in the long term, redevelopment would probably have a positive impact on employment in the area.

Future Development and Land Use

In the long-term, construction of a new transit center may have an indirect, and cumulative impact on development and the socio-economic environment of the surrounding area. The presence of a major transit center and park-and-ride facility would bring more daily commuters to the area, possibly leading to pressure for additional commercial and retail development in the vicinity. There could be a demand for public services adjacent to the transit center, including child care, or satellite city hall. However, no future development is proposed, and most of the surrounding area is currently zoned for industrial use. It is anticipated that for the foreseeable future after the project, the area would continue in industrial use. A potential positive impact is that change in land use and redevelopment could increase adjacent property values. A potential negative impact is that over the long term, existing industrial businesses could be displaced.

Impact of Alternatives to Proposed Action

Displacement of Existing Businesses

The no action alternative will not impact existing businesses on the site. All other alternatives will result in displacement of existing uses. The use of the J.C. Penney and Kalihi Shopping Center sites would displace private retail businesses which will need to be relocated. Fair market compensation would be required to the property owners, and moving expenses for tenants would be involved. Use of the Shafter Flats site may not directly displace existing Army functions, but some existing Army functions may be seen as incompatible with a transit center, and for security reasons, be relocated to other federal property.

Employment

The no action alternative would not have an impact on short or long-term employment. The alternative sites would have construction period and long-term employment impacts similar to the proposed action. In the long term, land use and development around any of the alternative sites would likely change, due to the presence of a major transit center. As the character of the area changes, there would also be indirect impacts on employment.

3.4.2 Archaeological, Historic, and Cultural Resources

Existing Conditions

An archaeological assessment (literature review and field check) was conducted for the project area (Cultural Surveys Hawaii, January 2002), and is included as Appendix H. The purpose of the archaeological assessment was to evaluate the potential for historic sites on the parcel, provide mitigation recommendations and to serve as a background study in support of any future archeological inventory survey.

The review of historic documentation indicates that the immediate vicinity was the locus of traditional Hawaiian irrigated ponded-field systems, fishponds, salt works, and habitations. However, the study notes it was probably too low-lying, swampy and prone to flood to have had intensive traditional Hawaiian or early historic occupation. Cultural Surveys Hawaii was unable to document any habitations or constructions within the project area *per se* prior to the site's use for meat operations and slaughterhouse in the late 1870's.

The adjacent parcel, where the Kalihi-Palama Bus Facility is sited, has been extensively studied. Three sets of historic human remains were discovered on this site (SIHP Site #50-80-14-4525). The indicated graveyard, however, was found to lie in a small discrete area about 50 m (175 ft) northeast of the present project area. There is no indication of other burials or other significant cultural deposits outside of the tightly defined area where the remains were found.

In summary, the Cultural Surveys Hawaii assessment found no specific historical concerns related to the project area.

Chapter 6E-8 Historic Preservation Review/Section 106 National Historic Preservation Act Consultation

The project site was the subject of a State Historic Preservation Division (SHPD) Chapter 6E-8 Historic Preservation Review in March 2001, as part of the proposed revision to the Primary Urban Center Development Plan Public Facilities Map (see Appendix I). In a March 12, 2001 letter to the City Department of Planning and Permitting, SHPD stated:

"...although surface historic sites are not likely to be found on the parcel, we believe that subsurface historic sites may still exist. We would require that an archaeological

inventory survey with subsurface testing be conducted for areas proposed for below grade improvements at the project site. If historic sites are found, and these sites prove to be significant, then a mitigation plan would need to be developed and implemented. If no historic sites are found, then, after submission of an acceptable report on the inventory survey, the historic review process will end."

Project Impact and Mitigation

Further subsurface work is required prior to development of the site, and will be conducted in conjunction with demolition, after the City completes its purchase of the site and relocation of existing tenants. Subsurface testing prior to that time would be disruptive to tenants, causing economic hardship.

In a January 18, 2002 letter to SHPD, Cultural Surveys Hawaii forwarded a draft archaeological assessment, and requested guidance regarding an appropriate scope of work for subsequent subsurface testing. Cultural Surveys Hawaii recommended against investment in a thorough subsurface spatial coverage. Rather, they recommended that subsurface testing focus primarily on assessing the prospect for the recovery of samples yielding data for paleo-environmental studies. The letter noted that the recovery of samples for pollen analysis datable to the time span of c. A.D. 500 and 800 would be of interest, as it would address questions regarding the timing and nature of environmental transformations likely associated with Polynesian colonization. The letter suggested the prior location of Wailuku Fishpond in the south central portion of the project area as a good area to search for such a datable pollen record.

In a March 20, 2002 reply, the SHPD agreed with Cultural Surveys Hawaii's recommendation for subsurface testing within a limited portion of the proposed project area. Specifically, it concurred with the recommendation that limited subsurface testing focus on the recovery of paleoenvironmental samples associated with the formation and/or construction of Wailuku Pond, known to be present from historic records. This fishpond was believed to have been entirely within the project area, and probably had been filled in by 1901 (Cultural Surveys Hawaii, 2002).

Subsurface archaeological surveys will be conducted once the City has successfully completed purchase of the property and moves toward construction. If significant historic sites are shown to be present in the project area and if the project will have an "adverse effect" on them, mitigation actions will be developed and implemented prior to construction. The SHPD will continue to be consulted regarding the survey findings and recommendations.

Cultural Impacts

Act 50 requires that a proposed action's impact(s) on the cultural practices of a community be disclosed in the environmental review process. A cultural impact assessment was conducted for the project (Cultural Surveys Hawaii, July 2002) and is also included in Appendix H.

The purpose of the study was to consider the effects of the proposed development may have on native Hawaiian culture and their rights to practice traditional customs. Hawaiian organizations, agencies and community members were contacted to identify knowledgeable individuals with cultural expertise and/or knowledge of the study area. An attempt was made to contact eighteen people who may have information regarding traditional cultural practices for the project area or vicinity. The focus of the consultation was the Nahinu *Ohana* which has historic ties to the land from at least the early to mid-1800s. The study notes that none of the informants alive today can recall what the study parcel was like prior to the slaughterhouse that began operations circa 1884, and was owned by the Hawaii Meat Company. The project area has been devoted to light industrial purposes for well over a century.

The cultural impact study noted that some concerns were expressed by the Nahinu *ohana* (family), who felt there may be more burials in the project area, based on the burials found in the adjacent parcel to the northeast and based on the fact that there is documentation of other persons living on the land. Cultural Surveys Hawaii notes that although the physiogeography of the area is not conducive to being a burial ground, there is still a remote possibility that burials will be inadvertently discovered. If this is the case, the Nahinu *Ohana* has requested that they be contacted.

The other concern expressed was fishing. Interviewees noted that over the last several decades, fishing and swimming in Kalihi Stream and Keehi Lagoon has declined as the result of increased pollution. Although non-point source pollution has numerous sources within the watershed and is not a direct result of activity at the project site, best management practices will be utilized during construction to control runoff into the stream during construction. As discussed in Section 3.2.7, Hydrology, there will be no adverse long-term impacts to the stream from storm runoff or bus wash water.

Impact of Alternatives to Proposed Action

The no action alternative would have no impact on historic resources. No subsurface testing on the site would occur. The impact of development at the alternative sites is unknown, and archaeological assessments and possibly subsurface surveys would be required, in consultation with the SHPD. Cultural impact assessments of these other sites would need to be completed. Other design alternatives, including development of a conventional parking structure at the Middle Street site, would have an impact similar to the proposed action.

3.4.3 Visual Resources

Existing Conditions

The Middle Street site is in an industrial area of Honolulu and has no valuable scenic resources. Surrounding buildings are low rise, concrete, industrial facilities and view planes in the area are dominated by the presence of the H-1 Freeway viaduct.

As with many older, light industrial areas, the existing uses on site are visually unattractive. Structures including trailers and old warehouses are sited haphazardly and the premises are poorly maintained. There is little landscaping or vegetation on the site. Large areas are used as open storage for old machinery, rusting drums, pallets, and construction materials.

Project Impact and Mitigation

Short-Term Construction Impacts

The demolition of the existing facilities will alter the visual appearance of the site. During the construction period, the presence of construction machinery and vehicles will also alter the existing visual environment.

Long-Term Impacts

The construction of a transit center, multi-story parking garage and Handi-Van maintenance facilities will change the physical appearance of the site. Although the site will retain a somewhat industrial ambiance, the appearance of the site will improve after the development of new permanent buildings, and removal of the old, rusting equipment and construction materials currently being stored. Landscaping along the stream and at the project entrances will further improve the appearance of the site. The proposed parking structure will not obstruct important view planes or impact valuable scenic resources. Overall, the project will have a positive visual impact on the area.

In the long-term, construction of a new transit center could have a cumulative impact by encouraging redevelopment of the surrounding area, possibly changing the area from a light industrial to a commercial and retail district. This change in land use and development would alter the visual appearance of the surrounding area.

Impact of Alternatives to Proposed Action

None of the alternatives would have an impact on important, identified scenic resources. The no action alternative would retain existing low-rise warehouse structures and open storage areas, maintaining the current unsightly and unkempt condition. Development at the alternative sites would have a visual impact similar to the proposed action. All are located in urbanized areas, with existing views dominated by the H-1 Freeway and major roadways. Although development of a transit center would change the appearance of the sites, it would not impact important or valuable scenic resources.

The design alternative (conventional parking structure) may have a slightly greater visual impact than the proposed alternative, as a conventional parking structure would be more massive (larger footprint, higher building height) than an automated structure.

All the development alternatives could have indirect and cumulative impacts similar to the proposed action, if the presence of a transit center stimulates redevelopment in the vicinity and new commercial and retail growth.

3.5 UTILITIES AND INFRASTRUCTURE

3.5.1 Potable Water

Existing Conditions

The Board of Water Supply owns and maintains the water system, which services the proposed project site. Presently, the facilities are serviced by the Board of Water Supply's 180 ft. (pressure zone) system and water from the 1.0 million gallon Aliamanu Reservoir. The Aliamanu 180 Reservoir receives water from the Kalihi Station and Kalihi Shaft.

The Board of Water Supply's maps indicate a 42-inch waterline and parallel 6-inch waterline along Kamehameha Highway. A 24-inch waterline also runs along Middle Street and ties into the 42-inch line at the Kamehameha Highway/ Middle Street intersection.

According to the Board of Water Supply, three different meters currently service the property, serving the three major parcels that comprise the site (TMK 1-2-18: 01, 03 and 09). A number of fire hydrants are located within the property, as well as along Middle Street.

Project Impacts and Mitigation

Short-Term Construction Impacts

There will be no adverse impacts to utility systems or adjacent land uses during the construction period. Potable water service will continue to be provided to the existing cold storage warehouse and Kalihi-Palama Bus Facility.

Long-Term Impacts

An infrastructure assessment for the project was conducted (Mitsunaga & Associates, 2002) and is included as Appendix J. The project will not have adverse impacts on the potable water system. The 180 ft. service zone which services the property, is capable of providing a static pressure head of approximately 70 pounds per square inch (psi), which should provide adequate potable service to the site.

The flow requirements for the proposed Middle Street Transit Center are estimated below:

Average Day Demand:	41,400 gallons per day (gpd) (28.8 gallons per minute (gpm))
Maximum Day Demand:	62,100 gpd (43.1 gpm)
Peak Hour Demand:	124,200 gpd (86.3 gpm)
Fire Flow Requirement:	4,000 gpm (3 hour duration)

In a letter dated June 20, 2002 (see Chapter 7), the Board of Water Supply indicated that the existing water system is presently adequate to accommodate the proposed transit center. The availability of water will be confirmed when the building permit is submitted for BWS review and approval. When water is made available, the applicant will be required to pay BWS Water System Facilities charge for resource development, transmission and daily storage.

The water system will be designed in conformance with the Board of Water Supply standards. New waterlines and laterals will be provided to service the proposed Transit Center. The new water system will also include a fire protection system capable of providing adequate fire flow and pressure to new hydrants at various locations within the project site.

In the long term, there could be indirect and cumulative impact on water demand, resulting from redevelopment or new development in the vicinity of the transit center.

Impact of Alternatives to Proposed Action

A no action alternative would not impact the existing water system. Development at any of the alternative sites would have impacts similar to the proposed action. Development of a conventional parking structure would have water demands similar to the automated parking facility.

3.5.2 Electrical

Existing Conditions

The area adjacent to the project site and near the intersection of Middle Street and Kamehameha Highway is a major utility corridor for the Hawaiian Electric Company, Inc. (HECo). The area contains HECo 138 kV overhead lines, 46 kV overhead and underground lines, 11.5 kV overhead and underground lines, and overhead secondary lines. The overhead lines and associated poles are located along the project's property line along Middle Street and Kamehameha Highway. Customers within the project site now receive electrical service from the 11.5 kV circuit in the area.

The HECo 138 kV overhead transmission line crosses Middle Street from the north, runs down the project side of Middle Street to Kamehameha Highway, turns left toward downtown, then runs south along the project side of Kamehameha Highway. The 138 kV lines are located on large steel utility poles. These steel poles also support the 46 kV and portions of the 11.5 kV overhead circuits in the area.

One HECo 46 kV circuit crosses Middle Street underground from the north near the intersection with the road directly across the project's proposed entry/exit. The 46 kV circuit then rises up to the pole line that shares the same steel poles that support the 138 kV line. A second 46 kV underground circuit also passes through the intersection of Middle Street and Kamehameha Highway. However, this line appears to run toward and connects to the overhead section at Nimitz Highway.

The HECO 11.5 kV circuit is located on wood poles for most of its length down Middle Street. This pole line is located along the project's property line at Middle Street. The 11.5 kV lines then switch to the large steel poles that support the 138 kV and 46 kV lines. All three circuits continue down Middle Street, turn left and then run along the project's property line along Kamehameha Highway as described above. An underground connection to the 11.5 kV circuit also crosses Middle Street near the intersection at the military road.

Existing industrial and commercial facilities on the project site are served from the 11.5 kV circuit. Pole mounted transformers are utilized to provide the necessary secondary service.

Project Impacts and Mitigation

Short-Term Construction Impacts

There will be no impact to the electrical system or adjacent land uses during the construction period. Electrical service will continue to be provided to the existing cold storage warehouse and Kalihi-Palama Bus Facility.

Long-Term Impacts

The project will not have adverse impacts on the electrical system. The project's electrical demand can be accommodated by existing circuits in the area. In the long term, the project could result in indirect and cumulative impact on electrical demand, if properties around the transit center are redeveloped.

On and off-site improvements will be made to provide adequate electrical service to the project, and are described below.

On-Site

The existing overhead lines, wood poles and pole mounted transformers serving the existing industrial and commercial facilities on the project site will be removed. Electrical service to the proposed transit center will most likely be provided by the 11.5 kV feeder tapped from the 11.5 kV circuit along Middle Street. The 11.5 kV feeder will be run to a pad mounted transformer that will serve the transit center facilities. A second pad mounted transformer will be provided for the possible commercial/transit center expansion area fronting Middle Street. Because use of this area is still uncertain, separate transformers and electrical service will allow greater flexibility in developing the site. All secondary electrical lines on site will be underground.

The underground feeders serving the adjacent Kalihi-Palama Bus Facility's Unit Repair Shop and the cold storage building may need to be rerouted. HECO may need to obtain an easement from the City (i.e., the new landowner) for the relocated utility lines.

Off-Site

Many, if not all of the existing wood poles along the Middle Street side of the site, along with 46 kV, 11.5 kV and secondary lines, will be modified, relocated and/or removed. The existing 46 kV riser pole and associated section of underground 46 kV lines may need to be relocated to accommodate the new signalized intersection at Middle Street. Portions of the 138 kV, 46 kV and 11.5 kV overhead lines and associated steel poles along Middle Street may have to be relocated to accommodate the new transit center.

The overhead lines along the Kamehameha Highway side of the project site are located on the taller steel poles. Therefore, the impact of the project on these existing lines and poles should be minimal. The only pole that may be affected is the one closest to the proposed signalized intersection at Kamehameha Highway.

In a letter dated June 12, 2002, HECO noted that it will take approximately four months to relocate any of the wood poles, and from nine to twelve months to relocate any of the steel poles. The City, as developer, will be responsible for utility relocation costs, including temporary relocation work to facilitate construction of the facility.

The street lighting system will be modified to accommodate the new intersections at Middle Street and Kamehameha Highway. Street lights may need to be added and/or relocated to suit the project roadways. Underground sections of the existing street lighting circuits may have to be relocated to suit the project roadways and site work. The new and relocated street lights will match the existing and all street lighting circuits will be underground.

Additional HECO transformers may be needed to support the new and existing traffic signalization, and street lighting systems.

Impact of Alternatives to Proposed Action

The no action alternative would have no impact on the existing electrical system. Development at any of the alternative sites would have impacts similar to the proposed action. On and off-site improvements would be required at the alternative sites. Development of a conventional parking structure would have electrical impacts similar to the proposed action.

3.5.3 Telephone System

Existing Conditions

Verizon Hawaii provides telephone service for customers in the project area. Verizon Hawaii's telephone distribution in the area is mixture of overhead and underground lines. Underground telephone lines run down Middle Street along the project boundary, and continue underground along Kamehameha Highway.

Existing users at the project site are served from the overhead section of Verizon Hawaii's distribution system. These overhead lines share joint use utility poles with HECO. The Kalihi-Palama Bus Facility's Unit Repair Shop and the existing cold storage building are served by Verizon Hawaii using a combination of overhead and underground lines to the two facilities.

Project Impacts and Mitigation

Short-Term Construction Impacts

There will be no adverse impacts to the telephone system or adjacent land uses during the construction period. Telephone service will continue to be provided to the existing cold storage warehouse and Kalihi-Palama Bus Facility.

On-Site

Verizon Hawaii can support the proposed transit center and potential future commercial development at the project site. Telephone service will probably be obtained from the Verizon distribution system located along Middle Street, with underground lines to the project site.

The existing overhead telephone lines serving the existing industrial and commercial facilities on the project site will be removed. The telephone service to the adjacent Kalihi-Palama Bus Facility's Unit Repair Shop will probably remain with minimum modification. The telephone service to the existing cold storage building will need to be relocated following the same easement as for the electrical lines.

Off-Site

The Verizon Hawaii distribution system along Middle Street will be modified. Verizon Hawaii's overhead lines are located on poles that will be relocated or removed as part of the project. All new overhead telephone lines shall be coordinated with the project and HECO. Interference with the existing underground lines along Middle Street may only involve a few telephone risers. Verizon Hawaii's main underground telephone distribution system does not appear to be located within or near the project property.

Verizon Hawaii does not appear to have any overhead lines along the Kamehameha Highway side of the project site. Therefore, very little if any relocation work is anticipated in this area.

Impact of Alternatives to Proposed Action

The no action alternative would have no impact on the existing telephone system. Development at any of the alternative sites would have impacts similar to the proposed action, involving relocation of poles and lines. The alternative for development of a conventional parking structure would have impacts similar to the proposed action.

3.5.4 CATV System

Existing Conditions

Oceanic Cable provides cable television (CATV) service to customers in the project area. Oceanic Cable's distribution system probably follows Verizon Hawaii's telephone distribution system, except there are fewer CATV service connections.

Project Impacts and Mitigation

Short-Term Construction Impacts

There will be no adverse impacts to the CATV system or adjacent land uses during the construction period.

Long-Term Impacts

Oceanic Cable's CATV distribution system along Middle Street will need to be modified in a manner similar to Verizon Hawaii's telephone system. Very limited work involving the CATV system is anticipated.

Oceanic Cable can support the CATV and/or Roadrunner Internet connection service for the proposed transit center and potential commercial development from CATV facilities along Middle Street. Cable service will be run underground to the project site. The transit center and potential commercial developments will subscribe to CATV and/or Internet service as needed.

Impact of Alternatives to Proposed Action

The no action alternative would have no impact on the existing CATV. Development at any of the alternative sites would have impacts similar to the proposed action. Development of a conventional parking structure would have impacts similar to the proposed action.

3.5.5 Wastewater System

Existing Conditions

Wastewater generated by the existing facilities on site is directed to the City and County sewer system via a wastewater pump station located at the southern portion of the property. An 8-inch sewer force main is directed to the south across Kalihi Stream, and ties into the City and County system at a sewer manhole along the 24-inch Kalihi Sewer Extension Relief. According to the Department of Planning and Permitting, connection to the City's system was made in 1999. Prior to the connection, the property utilized cesspool systems. The design average flow for the existing site is estimated to be 20,700 gallons per day (gpd).

There is an existing wastewater pump station located at the southern portion of the property. This pump station is privately owned and maintained by Yee Hop Realty, Ltd.

A 10 ft. wide sewer easement in favor of the Federal Government bisects the property from north to south, and is located adjacent to the 15 ft. wide drainage easement. The easement is for a sewer force main that directs wastewater effluent from Fort Shafter to the Sand Island Wastewater Treatment Plant. The force main has been inactive (off-line) for the past three years due to maintenance issues, and is expected to be back on line at the end of 2002.

Project Impacts and Mitigation

Short-Term Construction Impacts

There will be no adverse impacts to the wastewater system or adjacent land uses during the construction period. Wastewater service will continue to be provided to the existing cold storage warehouse and Kalihi-Palama Bus Facility. The federal government's sewer easement that bisects the project site will be protected and maintained during the construction phases of the project.

Long-Term Impacts

The project sewer system will be designed in conformance with City and County of Honolulu standards and will conform to applicable provisions of the State Department of Health Administrative Rules, Chapter 11-62, "Wastewater Systems." All on-site wastewater facilities, including the existing privately-owned pump station, will be owned and maintained by the City and County of Honolulu. If the pump station is upgraded or reconstructed, the design will be in conformance with the City's design standards.

New sewer lines and laterals will be installed to service the proposed facilities and tie into the existing City and County wastewater system. Connection to the City's system can be made by utilizing the existing 8-inch force main or connecting to the system at the 27-inch sewer line along Kamehameha Highway. During the design development phase of the project, a Sewer Connection Application for the proposed project will be submitted to the Department of Planning and Permitting for connection to the City and County wastewater system. At that time, sewer capacity reservation will be confirmed, and the project may be liable for payment of a Wastewater System Facility Charge. No offsite improvements are anticipated.

In the past, the area was serviced by cesspools which occasionally experienced overflows. Any remaining cesspools on the site will be removed and backfilled with approved material. The removal, disposal and clean up will be in conformance with the City and county of Honolulu requirements and the State Department of Health regulations.

The project will not adversely impact the federal government's sewer easement through the site. The federal government is currently soliciting bids for the privatization of their utility systems,

including the sewer system. If privatization of the system does occur, the existing sewer easement will be protected and access for maintenance will continue to be provided.

In the long term, the project could have indirect and cumulative impacts on wastewater demand, if surrounding properties are redeveloped or developed.

Impact of Alternatives to Proposed Action

The no action alternative would have no impact on the existing wastewater system. Development at any of the alternative sites would have impacts similar to the proposed action. Development of a conventional parking structure would have impacts similar to the proposed action.

3.5.6 Solid Waste

Existing Conditions

Solid waste collection for existing businesses on the site is provided by private contractor. Most of the commercial trash is disposed of at the H-POWER waste-to-energy plant at Campbell Industrial Park. Non-combustible construction and demolition debris and industrial wastes are generally hauled to the Waimanalo Gulch landfill on the leeward side of Oahu. The landfill is nearing capacity.

The City's Keehi Transfer Station is located across Middle Street from the proposed project, adjacent to the Shafter Flats area. The access road to the transfer station is located directly across the proposed Middle Street entry/exit. Refuse is trucked to this transfer station, compacted, then transported via closed top trailer to the H-POWER plant. The City has plans to relocate its Honolulu Collection Yard from Kakaako to an adjacent area under the viaduct.

Project Impacts and Mitigation

Short-Term Construction Impacts

During the construction period, the project will generate construction debris and may contribute the waste stream at the Waimanalo Gulch landfill. All solid waste generated during construction will be directed to a DOH-permitted solid waste disposal or recycling facility. Materials identified as hazardous will be handled and disposed of in compliance with federal and State regulations.

In the long term, the proposed transit center will generate solid waste. Although it will be a city facility, refuse collection will probably be conducted by private hauling contractor, with disposal at the H-POWER plant. This is similar to the current waste collection and disposal procedure for the site.

There is also a potential for project-related bus and vehicle traffic on Middle Street to impact Keehi Transfer Station truck traffic. During certain times of the day, there is a heavy volume of refuse collection trucks and transfer vehicles utilizing the transfer station. If the Honolulu Collection Yard is relocated to the area, refuse truck traffic will increase. The signalization of the Middle Street access and other intersection improvements will mitigate potential conflicts with refuse trucks.

Indirectly and cumulatively, the project could impact solid waste generation, if surrounding properties are redeveloped or more intensively developed over time.

Impact of Alternatives to Proposed Action

The no action alternative would not alter current conditions. Development at the Kalihi Shopping Center or J.C. Penney sites would have similar construction period and operational period impacts on solid waste generation. However, with either of these two sites, there would be no potential impact on the City's Keehi Transfer Station. The Shafter Flats alternative could impact the Keehi Transfer Station operation, which is adjacent to and utilizes a small portion of Shafter Flats. The nature of the impact and mitigation would depend on how much and what areas of Shafter Flats is used.

3.6 TRAFFIC

Vehicular access to the proposed transit center will be through a driveway to Middle Street and a driveway to Kamehameha Highway. The Middle Street driveway will be located opposite an existing access road to a City and County refuse transfer station. New traffic signals will be provided at both the Middle Street and Kamehameha Highway access driveways.

A traffic assessment report for the project was completed (Julian Ng, 2002) and is included as Appendix K.

3.6.1 Existing Conditions

Regional Access

The site is easily accessible from the H-1 Freeway east and westbound via a Middle Street off ramp. Access to the H-1 Freeway westbound (airport viaduct) is from Kamehameha Highway, just *makai* of the project site. An on ramp to the Moanalua Freeway (Hwy 78) westbound is available from North King Street near Fort Shafter, just *mauka* of the project site. Freeway access heading east (toward Diamond Head) is obtained by heading east on North King Street for a mile and then using the Kalihi Street on ramp, near Farrington High School.

Site Access

There are currently several access driveways onto the property from Middle Street, which are used to access the various tenant businesses. At the *makai* end close to Kamehameha Highway, there is a driveway to access the used car lot (Trucks, Cars and Equipment) and other tenants such as Brandon's Aloha Country Market and Toledo Scale. Just west (*makai*) of the former Slaughterhouse Road, there is a driveway to access the businesses in Buildings A and B (Sunburst Design, Shelton, Andy's Cycle, Gemini Signs, etc.). The former Slaughterhouse Road is a partially paved driveway that provides the main access to Building C, a new cold storage warehouse utilized by Commercial Enterprises, Inc. This access road is approximately 15 feet wide and can accommodate large container vans.

Existing Traffic Conditions

Kamehameha Highway is a State highway that begins east of the intersection with Middle Street, as a continuation of Dillingham Boulevard, a major radial arterial feeding traffic in and out of downtown Honolulu. Kamehameha Highway to the west is a six-lane arterial street located under the viaduct supporting the H-1 Freeway. Ramps connect Kamehameha Highway from the east with both the H-1 Freeway and the roadway under the viaduct to the west. Fronting the project site, Kamehameha Highway has five westbound lanes; two lanes cross the intersection to the H-1 Freeway on-ramp (westbound), two lanes continue westbound on Kamehameha Highway, and one lane is a right-turn only lane to Middle Street.

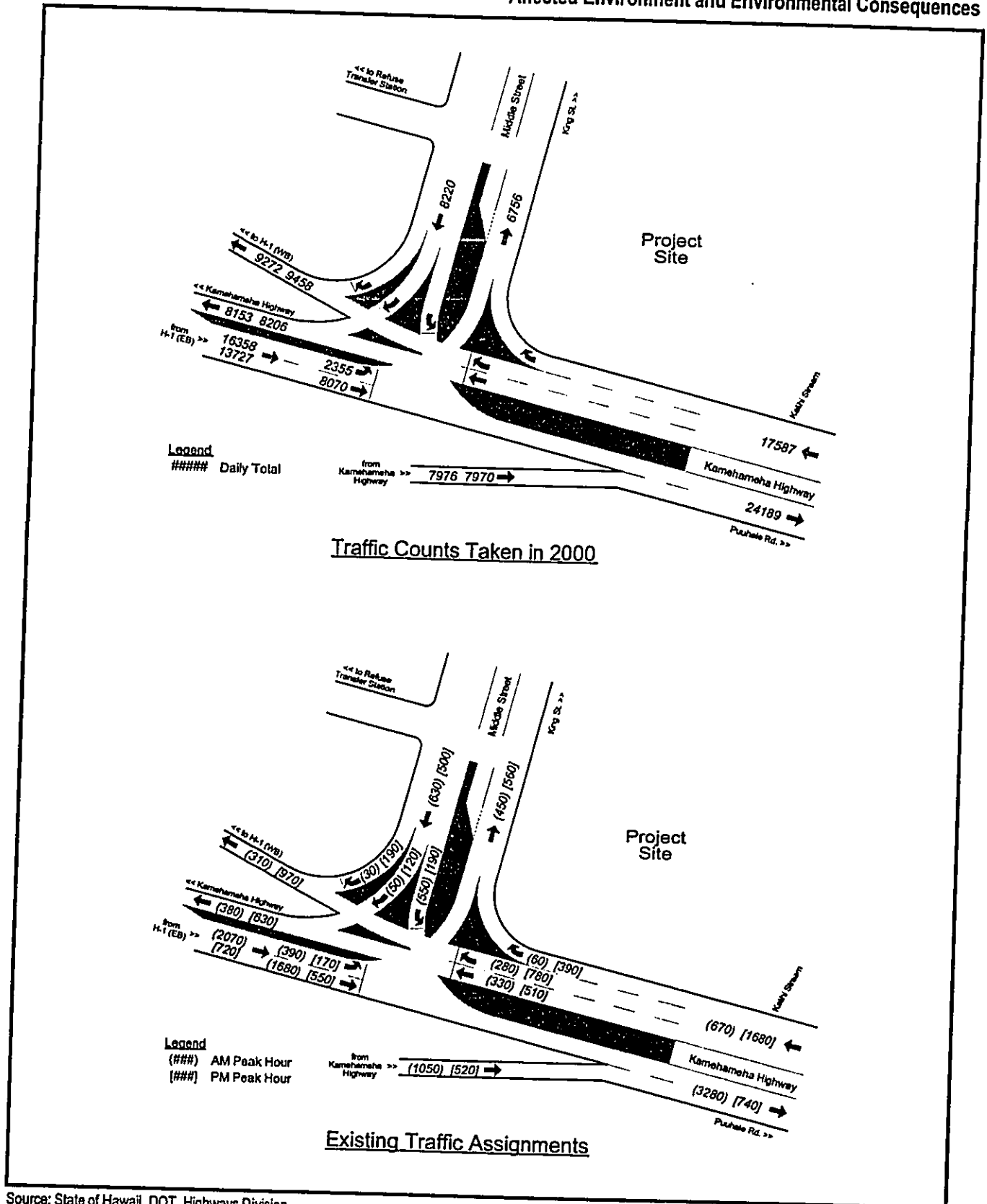
Middle Street is a four-lane collector street linking the major radial arterial roadways that enter central Honolulu from the west (*ewa*) side. Fronting the project site, Middle Street has two lanes of traffic in either direction plus a center lane for turns.

Traffic counts were taken by the State of Hawaii Department of Transportation (Highways Division) in February and October, 2000 at several locations near the project site. The daily totals from these counts are shown in Figure 11.

The traffic count data included counts recorded in 15-minute increments. The peak volumes occur at various times during the morning peak period and during the afternoon peak period. The highest volume at the intersection of Kamehameha Highway and Middle Street occurred between 7:30 AM and 8:30 AM and between 4:15 PM and 5:15 PM.

Table 3-4 summarizes the existing traffic conditions and levels of service for the Kamehameha Highway and Middle Street intersection. The analysis was based on the procedure described in the *Highway Capacity Manual*⁵, which defines six levels of service (LOS). These Levels of Service (LOS) are defined using the letters A through F, and LOS D or better is acceptable for urban conditions.

⁵ Transportation Research Board, National Research Council, *Highway Capacity Manual*, Washington, D.C., 2000



Source: State of Hawaii, DOT, Highways Division
November 2002

Figure 11
Existing Traffic

LOS	General Description	Average Delay at Unsignalized Intersection	Average Delay at Signalized Intersection
A	Little or no delay	≤ 10 seconds	≤ 10 seconds
B	Short traffic delays	> 10 and ≤ 15 seconds	> 10 and ≤ 20 seconds
C	Average traffic delays	> 15 and ≤ 25 seconds	> 20 and ≤ 35 seconds
D	Long traffic delays	> 25 and ≤ 35 seconds	> 35 and ≤ 55 seconds
E	Very long traffic delays	> 35 and ≤ 50 seconds	> 55 and ≤ 80 seconds
F	Very long traffic delays	> 50 seconds	> 80 seconds

Table 3-4: Existing Traffic Conditions—Kamehameha Highway and Middle Street

	AM Peak Hour			PM Peak Hour		
	V/C	ADPV	LOS	V/C	ADPV	LOS
Overall signalized intersection	0.78	28.9	C	0.50	23.5	C
Makai-bound approach	0.61	38.5	D	0.54	39.9	D
Kokohead-bound approach	0.85	24.9	C	0.27	16.0	B
Ewa-bound approach	0.45	32.2	C	0.59	21.9	C

V/C = volume/capacity ratio ADPV = average delay per vehicle (seconds/vehicle) LOS = level of service

Source: Julian Ng, Inc. August 2002

3.6.2 Project Impacts and Mitigation

The Traffic Assessment Report (Julian Ng, 2002) notes that the project's greatest impact would occur during morning and afternoon commuter peak hours, when traffic in and out of the site will coincide with peak conditions on nearby roadways. The report evaluates the peak hour conditions at the existing signalized intersection of Kamehameha Highway and Middle Street, and at the two proposed site access driveways. The discussion in this section summarizes future conditions without and with the project.

Short-Term Construction Impacts

There will be some construction-period traffic impacts, primarily during Phase 1, when the project infrastructure and entrances are being completed. During subsequent construction phases, traffic impacts will be minor and associated with construction equipment entering and leaving the site. The construction period impacts will be mitigated by moving construction equipment on and off site during off-peak hours and utilizing standard traffic control measures.

Future Conditions Without Project

Even without the project, future traffic in the vicinity is expected to increase. An existing access road to the Keehi (solid waste) Transfer Station is located directly across Middle Street from the project site. The City and County of Honolulu Department of Environmental Services plans to relocate the Honolulu Collection Yard to an area accessed by this roadway, increasing the traffic

in and out of the access road. The estimates of future (year 2025) traffic without the project are shown in Figure 12. In addition to the traffic generated by the relocated Honolulu Collection Yard, increases in population and economic activity were also accounted for by adding 30 percent to other traffic movements.

Intersection conditions for future peak hours (without the project) are summarized in Tables 3-5 and 3-6 below.

**Table 3-5: Future Conditions (Year 2025) Without Project
Kamehameha Highway and Middle Street**

	AM Peak Hour			PM Peak Hour		
	V/C	ADPV	LOS	V/C	ADPV	LOS
Overall signalized intersection	0.99	49.2	D	0.65	26.2	C
Makai-bound approach	0.93	73.3	E	0.69	43.0	D
Kokohead-bound approach	1.00	44.2	D	0.34	16.7	B
Ewa-bound approach	0.55	42.0	D	0.77	25.3	C

V/C = volume/capacity ratio ADPV = average delay per vehicle (seconds/vehicle) LOS = level of service

Source: Julian Ng, August 2002

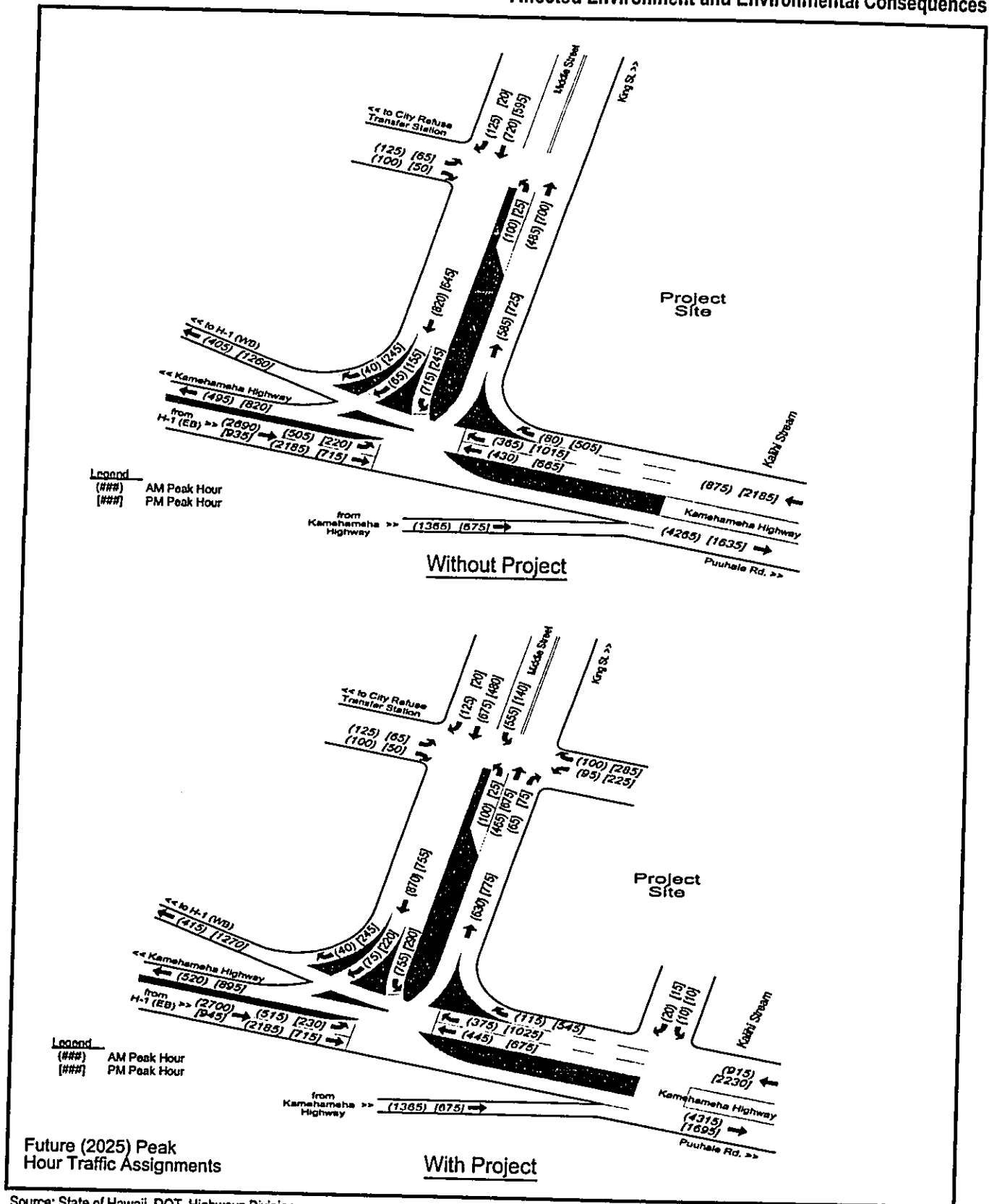
**Table 3-6: Future Conditions (Year 2025) Without Project
Middle Street and Keehi Access Road**

	AM Peak Hour			PM Peak Hour		
	V/C	ADPV	LOS	V/C	ADPV	LOS
East-bound approach	1.48	>200	F	0.51	33.8	D
North-bound left turn	0.33	20.8	C	0.06	13.1	B

V/C = volume/capacity ratio ADPV = average delay per vehicle (seconds/vehicle) LOS = level of service

Source: Julian Ng, August 2002

Traffic demand during the morning peak hour at the unsignalized intersection of Middle Street and the access road to the Keehi Transfer Station will require improvements, such as traffic signals.



Source: State of Hawaii, DOT, Highways Division

November 2002

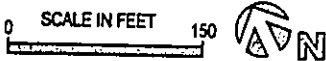


Figure 12
Future Traffic

Proposed Project

At full build-out, the Middle Street Transit Center will be a major transfer points between bus routes. The numbers of bus trips in and out of the center during future peak hours were provided by the City and County of Honolulu, and are shown in Table 3-7.

Table 3-7: Bus Assignments

	AM Peak Hour		PM Peak Hour	
	Entering	Exiting	Entering	Exiting
Middle Street <i>mauka</i>	13	19	19	13
North King Street (<i>mauka-Kokohead</i>)	45	36	36	45
Moanalua (<i>mauka-ewa</i>)	31	9	22	22
H-1 Freeway (west)	8	8	8	8
Kamehameha Highway west	--	13	--	9
Kamehameha Highway east	9	11	11	9

Buses will enter the site from Middle Street through a driveway located opposite the existing access road to the Keehi Transfer Station. This will be the only driveway onto Middle Street; all other existing driveways will be eliminated. Buses that will travel in the *mauka* direction from the site will leave the site using this driveway. Buses leaving the site destined for Kamehameha Highway or westbound H-1 will leave the site using a driveway to Kamehameha Highway. Both driveways will be signalized.

A major portion of the park-and-ride parking is intended for transit users who access the transit system by driving to the center and parking their cars. Approximately 700 spaces will be available for park-and-ride use, with the remainder used by employees (Kalihi-Palama Bus Facility, bus and Handi-Van operators). All automobile traffic will enter and leave the site through the Middle Street driveway. Two lanes will be provided for exiting traffic so that right turns can proceed when northbound traffic on Middle Street is stopped.

The anticipated project-related traffic was applied to the future conditions without the project. The analysis indicated that at the intersection of Kamehameha Highway and Middle Street, delays will increase with the higher volumes of traffic. During the AM peak hour, the intersection would be at capacity. Average delay for all vehicles using the intersection would fall in the LOS D range. The intersection would remain under capacity in the PM peak hour, with LOS D or better conditions on all approaches. Table 3-8 below shows future conditions at the Kamehameha Highway and Middle Street intersection, with the project. Figure 12 also illustrates the future peak hour traffic assignments with the project.

Table 3-8: Future Conditions (Year 2025) with Project—Kamehameha Highway and Middle Street

	AM Peak Hour			PM Peak Hour		
	V/C	ADPV	LOS	V/C	ADPV	LOS
Overall signalized intersection	1.00	50.9	D	0.65	26.8	C
Makai-bound approach	0.98	82.1	F	0.69	43.8	D
Kokohead-bound approach	1.00	44.3	D	0.36	17.1	B
Ewa-bound approach	0.57	40.8	D	0.78	25.2	C

V/C = volume/capacity ratio ADPV = average delay per vehicle (seconds/vehicle) LOS = level of service

Source: Julian Ng, August 2002

Other Short-Term Impacts

As described in Chapter 2, the Handi-Van maintenance and storage facilities will be completed during Phase 1 of the project, prior to completion of the bus transit center (Phase 2). The Handi-Van facilities will be located near the Middle Street driveway, and will not require improvements along the Kamehameha Highway frontage. The Handi-Van facility will include parking for up to 120 vehicles, but is not expected to have an adverse traffic impact. The peak volumes for Handi-Van traffic would be in the range of about 80 vehicles per hour in each direction at the beginning and end of the day. However, the peak volumes for Handi-Vans would occur an hour earlier than the AM peak hour and an hour later than the PM peak hour. In summary, the traffic generated by the Handi-Van facility alone (i.e., during Phase 1 of project) and its peak occurrence (during times when there is less other traffic) would not justify a traffic signal or additional lanes at the Middle Street driveway.

Future Commercial/Retail Area

Future commercial or retail use at the site would have a minimal impact on traffic. Any future commercial, retail or community support at the site would be transit-related, and designed to support transit users. No stand-alone, regional commercial or retail use is proposed. In a review of the site location in relation to the surrounding community, no nearby generators (residences or businesses) could be identified that could provide vehicular trips to the site. That is, users of the commercial/retail area would primarily be transit users who are already at the transit center.

Conclusions

The proposed project will have a slight impact on future conditions at the existing signalized intersection of Kamehameha Highway and Middle Street.

The signal at Kamehameha Highway would stop traffic to allow buses from the site to safely enter the highway. The traffic assessment report concluded that overall, this new signal on Kamehameha Highway would have little effect on traffic conditions. However, whether or not the State DOT will allow this access driveway remains an unresolved issue.

The project's Middle Street driveway will be located directly across the access road to the existing City refuse transfer station. There will be a need for a traffic signal at this area even without the transit center project, due to the relocation of the Honolulu Collection Yard. With the construction of a new traffic signal, conditions during the AM peak hour will improve. In order to improve conditions to an acceptable level of service, two turning lanes (*makai*-bound left turns) into the transit center are needed. If only one *makai*-bound turning lane were provided, the intersection would operate at capacity during the AM peak hour.

Recommendations

The Traffic Assessment Report included the following recommendations for the full development of the site, which will be included in the project:

1. A second left turn should be provided for the turn from *makai*-bound Middle Street into the transit center.
2. The operation of the two new signals proposed at the transit center's main entry from Middle Street and the bus exit to Kamehameha Highway should be coordinated with the operation of the existing signal at the intersection of Kamehameha Highway and Middle Street.

In a November 6, 2002 letter (see Chapter 7), the State DOT requested that the traffic assessment report be revised to provide additional analysis and address other areas of concern. A revised traffic assessment will be completed, providing the required information, before DOT permits are requested.

3.7 PUBLIC SERVICES AND FACILITIES

3.7.1 Police

Existing Conditions

The project area is patrolled and serviced by officers in Police District 5, which lies between the Nuuanu Ridgeline and Red Hill. District 5 is headquartered at 1865 Kamehameha IV Road in Kalihi.

Project Impacts and Mitigation

Short-Term Construction Impacts

There will be no impact on public services or facilities during the construction period.

Long-Term Impacts

The project will not increase the need for police services or have an adverse impact on existing services. In February 2001, the Police Department sent a memo to the City Department of

Planning and Permitting in response to the proposed revision for the Primary Urban Center (PUC) Public Facilities Map for the proposed Middle Street Transit Center. At that time, the Police Department noted that the project will have a positive impact on the services of the Honolulu Police Department in several areas.

The memo noted that relocating the Handi-Vans from their Kalihi Shopping Center location to the proposed site should have a positive impact on police services. Traffic congestion and potential motor vehicle collisions on King Street may be reduced, as well as motor vehicle "break ins." The actual development on the Middle Street site was anticipated to "eliminate the present stripping and "dumping site" for stolen vehicles and hopefully result in reducing the number of auto thefts in the area."

However, the police department also identified a potential negative impact on police services. The February 2001 memo noted that "...undesirable people using the facilities at the proposed transportation center may become an issue and may have a negative impact on police services." The Police Department recommended that principles of crime prevention through environmental design be considered in designing the proposed facility to minimize calls for police service.

Design of the proposed transit facility will incorporate principles of crime prevention through environmental design, including appropriate lighting and landscaping. The automated parking structure will provide greater safety than a conventional, multi-story parking structure, as users drop their cars off at a single level, and do not enter the parking area itself. Once parked in the structure, vehicles will be inaccessible to potential criminals. The transit center will have 24-hour security personnel to deter undesirable activities and ensure user safety. The adjacent Handi-Van parking and maintenance area will be secured.

Impact of Alternatives to Proposed Action

Development at any of the alternative sites would have impacts similar to the proposed action. However, development of a conventional parking structure could have a greater impact on the need for police services than the proposed action. Overall, transit center users would be more vulnerable to car thefts, break-ins, and personal assault when using a conventional parking garage, as compared to an automated structure. In an automated structure, vehicles are "parked" and retrieved utilizing a robotic technology, and individuals do not enter the actual parking area of the structure. Use of a conventional parking structure may attract more of the "undesirable" elements referred to in the Police Department's February 2001 correspondence noted above.

3.7.2 Fire and Emergency Medical Services

Existing Conditions

Fire stations nearest the project site are the Waiakamilo Station #31 located on Nimitz Highway at Waiakamilo Road; Kalihi Station #6 Kalihi on North King Street; Kalihi Uka Station #32 on Kamehameha IV Road; and Moanalua Station #30.

Project Impacts and Mitigation

Short-Term Construction Impacts

There will be no short-term construction period impacts to fire and emergency medical services.

Long-Term Impacts

The proposed transit center and Handi-Van facilities will not substantially impact the demand for fire and emergency medical services. Fire service will need to be provided for the proposed facilities, but the uses will not require greater service than the existing light industrial uses on the site. In fact, the proposed facilities may be less of a fire hazard than the existing uses which include old wooden structures, as well as combustible and hazardous materials stored on site.

The project will include a private water system where all appurtenances, hydrant spacing and fire flow requirements meet Board of Water Supply standards. A fire access road will be provided within 150 feet of the first floor of the most remote structure. Construction plans will be submitted to the Honolulu Fire Department and Department of Planning and Permitting for review and approval.

The project will have a positive indirect and cumulative impact on fire and emergency medical services. Over time, the construction of a transit and park-and-ride center will reduce vehicular traffic and congestion in the vicinity, improving emergency response times especially during peak hours.

If the City's Bus Rapid Transit (BRT) system is implemented in the future, emergency response times would improve further. This is because emergency vehicles would be able to use the BRT's dedicated transit priority lanes to bypass roadway congestion when enroute to an emergency.

Impact of Alternatives to Proposed Action

The alternative sites and alternative design would have impacts similar to the proposed action.

3.7.3 Parks

Existing Conditions

Public parks within a one mile radius of the project site include Kuhio Park on Linapuni Street, Kamehameha Field, Kalihi Valley Field on Kamehameha IV Road, Kalakaua Park adjacent to Kalakaua Intermediate School, and Keehi Lagoon Beach Park. Moanalua Gardens is a large park owned by the Samuel M. Damon Estate, and is the site of the annual Prince Lot Hula Festival. Moanalua Gardens is located directly west of the project site off the Moanalua Freeway.

Fort Shafter Golf Course, owned by the federal government, is located at Fort Shafter west of the project site.

Project Impacts and Mitigation

Short-Term Construction Impacts

There will be no short-term construction impacts on park or other recreational facilities.

Long-Term Impacts

The project will not directly or indirectly impact any park resources. The project will not have indirect or cumulative impacts on park resources in the area.

Chapter 4 includes a discussion of the project's compliance with Section 4(f) of the Department of Transportation Act, which prohibits the use of federal funds for projects that have significant adverse impacts on publicly owned park, recreation area, wildlife or waterfowl refuge or land with national, state or local historic significance.

Impact of Alternatives to Proposed Action

None of the alternative sites would have an impact on parks resources. The alternative design to utilize a conventional parking structure would not have an impact on park resources.

3.7.4 Schools

Existing Conditions

There are a number of public schools within a one mile radius of the project site, including Linapuni Elementary School, Kaewai Elementary, Kapalama Elementary, Kalihi Kai Elementary, Dole Intermediate, Kalakaua Intermediate, and Farrington High School. Shafter Elementary School, located on Fort Shafter, is located just west of the project area. Private Damien High School is located just over a mile east of the project area.

Project Impacts and Mitigation

Short-Term Construction Impacts

There will be no construction period impact on schools.

Long-Term Impacts

The project will not have a direct impact on area schools. It is unlikely that elementary school students in the area would utilize the transit center in commuting to and from school, but

enhanced transit service in the area could benefit Kalakaua Intermediate and Farrington High School students. The project will not have an indirect or cumulative impact on public or schools.

Impact of Alternatives to Proposed Action

None of the project alternatives would have an impact on school facilities in the area.

4 CONSISTENCY WITH EXISTING PLANS, POLICIES AND CONTROLS

4.1 FEDERAL

4.1.1 Section 4(f) Department of Transportation Act

Section 4(f) of the Department of Transportation Act, 49 U.S.C. §303 states that it is national policy to preserve public parks, recreation areas, wildlife and waterfowl refuges and historic sites. It prohibits the use of federal funds for projects that have significant adverse impacts on the above resources unless there is no prudent and feasible alternative and the project includes all possible planning to minimize harm resulting from the use of such lands.

There are no public parks, recreation areas, wildlife and waterfowl refuges or historic sites in the project area, and the project will not adversely impact any of these resources. None of the project alternatives would impact these resources.

4.1.2 Executive Order 12898 Environmental Justice

Executive Order 12898, Environmental Justice, requires projects utilizing federal funds to identify and address potential for disproportionately high and adverse human health or environmental effects on minority and low-income populations. Because the proposed project involves federal funding, compliance with E.O. 12898 is required.

The proposed project is located in an industrial area, but there are residential neighborhoods in Kalihi and Kalihi Kai within a half mile of the site. Many of the residents are minority and low-income. According to the 1990 census, the Kalihi-Palama area⁶ had a 91 percent minority population, with a median household income of \$25,647. Sixteen percent of families were below the federal poverty rate, and 71 percent of households were renters. (*Neighborhood Profiles*, City and County of Honolulu Planning Department (now Department of Planning and Permitting), and Parsons Brinckerhoff, Inc).

Extensive public outreach was conducted for the Middle Street Transit Center project, as well as other related transportation projects affecting the area. Outreach for this project included early consultation letters sent to government agencies and community organizations (see Chapter 7) and presentations at Neighborhood Board meetings. Public hearings were also held as part of the City's 2001 amendments to the Development Plan Public Facilities Map. It was during this process that the site's designation was changed to "Transit Station (TS), Site Determined Within Six Years." Minority and low income populations were also given opportunity to participate in the City's Trans 2K workshops, which addressed transportation planning for Oahu.

⁶ Data from 1990 U.S. Census, and included Census Tracts 53 (part), 54, 55, 56 57, 58, 59, 60, 61, 62.01 (part) and 62.02. Census tracts had a total 1990 population of 40,144 persons.

The project will not have a disproportionate adverse environmental impact on low income or minority populations. There will not be disproportionate health risks such as traffic safety, air quality, noise or release of hazardous materials. The proposed site is adjacent to an existing bus maintenance facility, the site is zoned industrial, and no residences are immediately adjacent to the site (the nearest residences are several hundred yards to the east). Most proposed commuter (park-and-ride) traffic will be approaching the transit center from the west (i.e., from the H-1 Freeway off ramp), and will not directly impact the residential areas which are located to the east of the project area.

There may be temporary negative impacts to the minority and low-income populations nearest to the project area, including construction period noise, dust and traffic congestion. These impacts are not expected to be severe, given the distance of the nearest residential areas. Whenever possible, measures to avoid, minimize, or mitigate these short-term impacts will be implemented.

Overall, the project will have a positive impact on the surrounding low income and minority community. Minority and low income areas traditionally have relatively high rates of transit usage, and the proximity of a major transit center would enhance public transportation service to these populations.

In conclusion, the proposed project will be located at and near some minority and low-income populations. However, in general, these populations would benefit from improved transit service without experiencing disproportionate health or environmental impacts.

4.1.3 Executive Order 11988 Floodplain Management

E.O. 11988 of May 24, 1977 provides floodplain management direction to federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. It requires actions to be taken to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains. Each agency is required to evaluate the potential effects of any actions it may take in a floodplain, to ensure that its planning and budget requests reflect consideration of flood hazards and floodplain management, and to prescribe procedures to implement policies and requirements of this Executive Order.

The Middle Street project site is within a 100-year floodplain, and is designated as Flood Zone AO, areas with flood depths of 1 to 3 feet. In accordance with EO 11988, alternatives must be considered to avoid adverse effects and incompatible development in the floodplain. If the only practicable alternative involves siting in a floodplain, the action shall be modified to minimize potential harm to or within the flood plain. The project structures will be sited away from Kalihi Stream, and landscaped areas along the stream could be bermed to provide additional floodway protection to the site. Finished floor elevations will be higher than expected flood elevations.

Several alternative sites were considered and are evaluated in this environmental assessment. None of the alternatives were found to adequately meet the project's objectives, and the Middle Street site is the only practicable alternative. The ground floor of the Handi-Van maintenance facilities and the transit center building will be constructed above the base flood elevation. The remainder of the site will be used for open vehicle parking and maintenance. In the case of severe flooding, the parking lot could serve as a flood retention area. The project will not cause potential harm to the natural and beneficial values served by the flood plain, nor have adverse impacts on human safety, health and welfare.

4.2 STATE OF HAWAII

4.2.1 Hawaii State Plan

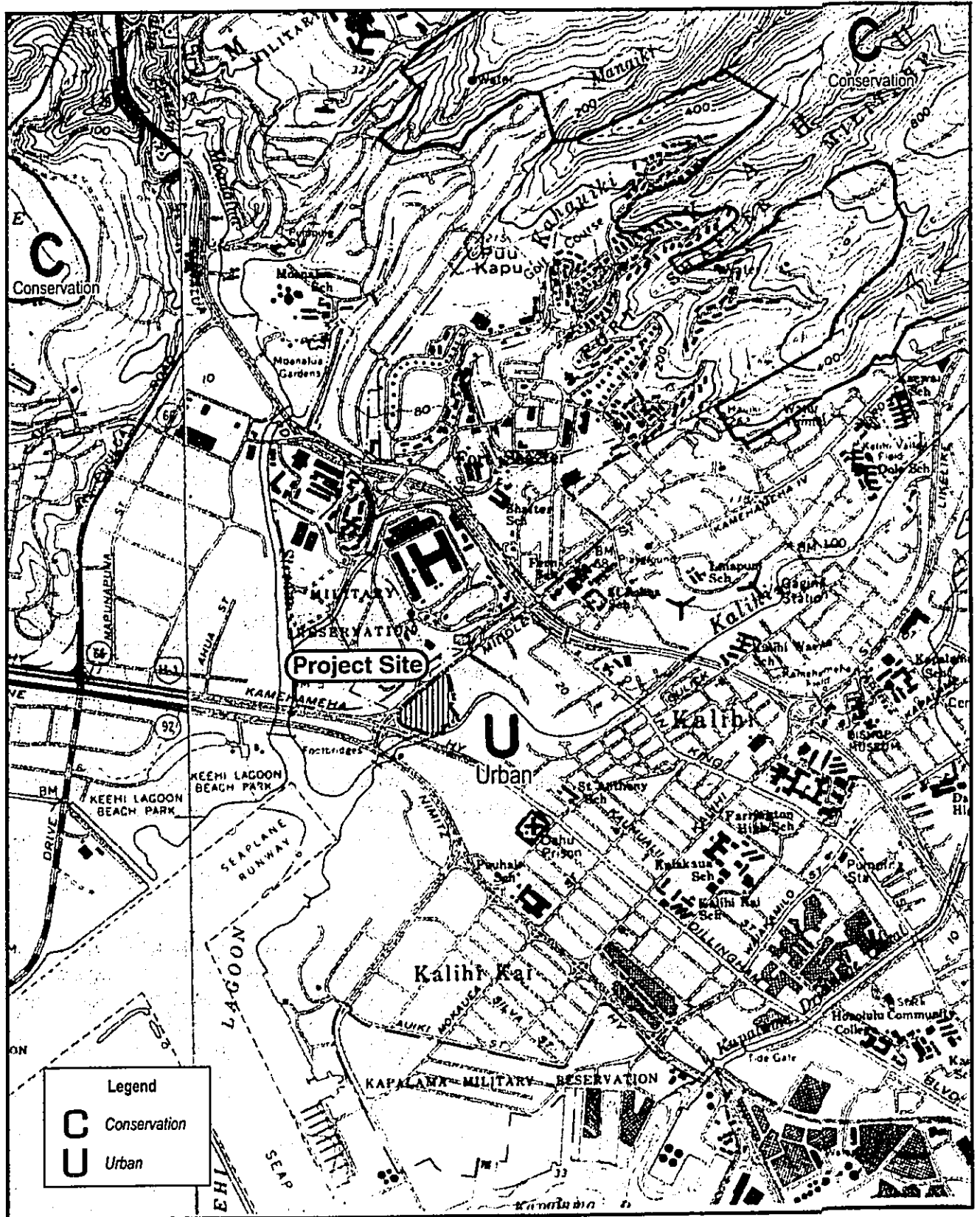
The 1996 Hawaii State Plan (Chapter 226, HRS) is the umbrella document in the statewide planning system. It serves as a written guide for the future long-range development of the state by describing a *desired future* for the residents of Hawaii and providing a set of goals, objectives, and policies that are intended to shape the general direction of public and private development.

State plan objectives for transportation facility systems are: 1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe and convenient movement of people and goods; and 2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State. (HRS §226-17). The State Plan's identified transportation policies support these objectives.

The proposed Middle Street Transit Center will be an integral part of the proposed Bus Rapid Transit system for Oahu, in direct support of the State Plan objectives and policies for transportation.

4.2.2 State Land Use Classification

The State Land Use Commission, pursuant to Chapter 205 and 205A, HRS and Chapter 15-15, Hawaii Administrative Rules, is empowered to classify all lands in the State into one of four land use districts: urban, rural, agricultural and conservation. The Middle Street Transit Center site is located within the "Urban" district, as shown in Figure 13. The City and County of Honolulu regulate activities or uses within the Urban district.



Source: State Land Use Commission

November 2002

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Figure 13
State Land Use

4.3 CITY & COUNTY OF HONOLULU

4.3.1 County General Plan

General Plan Objectives and Policies

The project is in conformance with the following policies and guidelines of the City and County of Honolulu's *1992 General Plan Objectives and Policies*.

Chapter I. Population

Objective C: "To establish a pattern of population distribution that will allow the people of Oahu to live and work in harmony."

Policy 1: "Facilitate the full development of the primary urban center."

Chapter V. Transportation and Utilities.

Objective A: "To create a transportation system which will enable people and goods to move safely, efficiently, and at a reasonable cost; serve all people, including the poor, the elderly, and the physically handicapped; and offer a variety of attractive and convenient modes of travel."

Policy 7: "Promote the use of public transportation as a means of moving people quickly and efficiently, of conserving energy, and of guiding urban development."

Policy 8: "Make available transportation services to people with limited mobility: the young, the elderly, the handicapped, and the poor."

Policy 9: "Promote programs to reduce dependence on the use of automobiles."

Policy 10: "Discourage the inefficient use of the private automobile, especially in congested corridors during peak hours."

Objective D: "To maintain transportation and utility systems which will help Oahu continue to be a desirable place to live and visit."

Policy 2: "Use the transportation and utility systems as a means of guiding growth and the pattern of land use on Oahu."

Chapter VII. Physical Development and Urban Design

Objective A: “To coordinate changes in the physical environment of Oahu to ensure that all new developments are timely, well-designed, and appropriate of the areas in which they will be located.”

Policy 1: “Plan for the construction of new public facilities and utilities in the various parts of the Island according to the following order of priority: first, in the primary urban center; second, in the secondary urban center at Kapolei; and third, in the urban-fringe and rural areas.”

Objective B: “To develop Honolulu (Waialae-Kahala to Halawa), Aiea, and Pearl City as the Island’s primary urban center.”

Policy 1: “Stimulate development in the primary urban center by means of the City and County’s capital-improvement program and State and Federal grant and loan programs.”

4.3.2 Primary Urban Center (PUC) Development Plan (DP)

Development Plan Objectives and Policies

The project is in conformance with the following policies and guidelines of the Development Plan Special Provisions for the Primary Urban Center (PUC):

Article 1. Development Plan Special Provisions for the Primary Urban Center (PUC). Part I- Urban Design Principles and Controls for the PUC.

Section 24-2.2 (b)(10): Principles and Controls for Special Area

Kalihi-Palama: “Growth in this area shall emphasize maintaining the existing mixed-use character of the district,...and industrial uses in the ewa areas...” General limits for this area shall be as follows: 60 foot height limit in industrial areas not designated for mixed use.

Section 25.3.3: Development priorities.

“...In addition, public plans and programs shall support the following projects in the Primary Urban Center in the priority shown: (f) Rapid transit system and stations: including infrastructure improvements along the transit line to support expanded activities at and around transit stations.”

Development Plan Land Use Map Designation

As shown in Figure 14, the current Primary Urban Center Development Plan land use map designation is "Industrial". The proposed transit center is consistent with this designation.

Development Plan Public Facilities Map Amendment

Prior to 2001, there was no designation for the site on the Primary Urban Center Development Plan public facilities map (Figure 15). In July 2001, the City Council approved an amendment to the PUC DP Public Facilities Map, adding a "transit center" (TS) symbol at the proposed Middle Street Site. In 2001, the City proposed to amend the PUC Development Plan Public Facilities Map (DPPFM), specifically by adding a publicly funded transit station symbol, site determined, within six years, for the proposed "Middle Street Transportation Center and TheHandi-Van Facility" project.

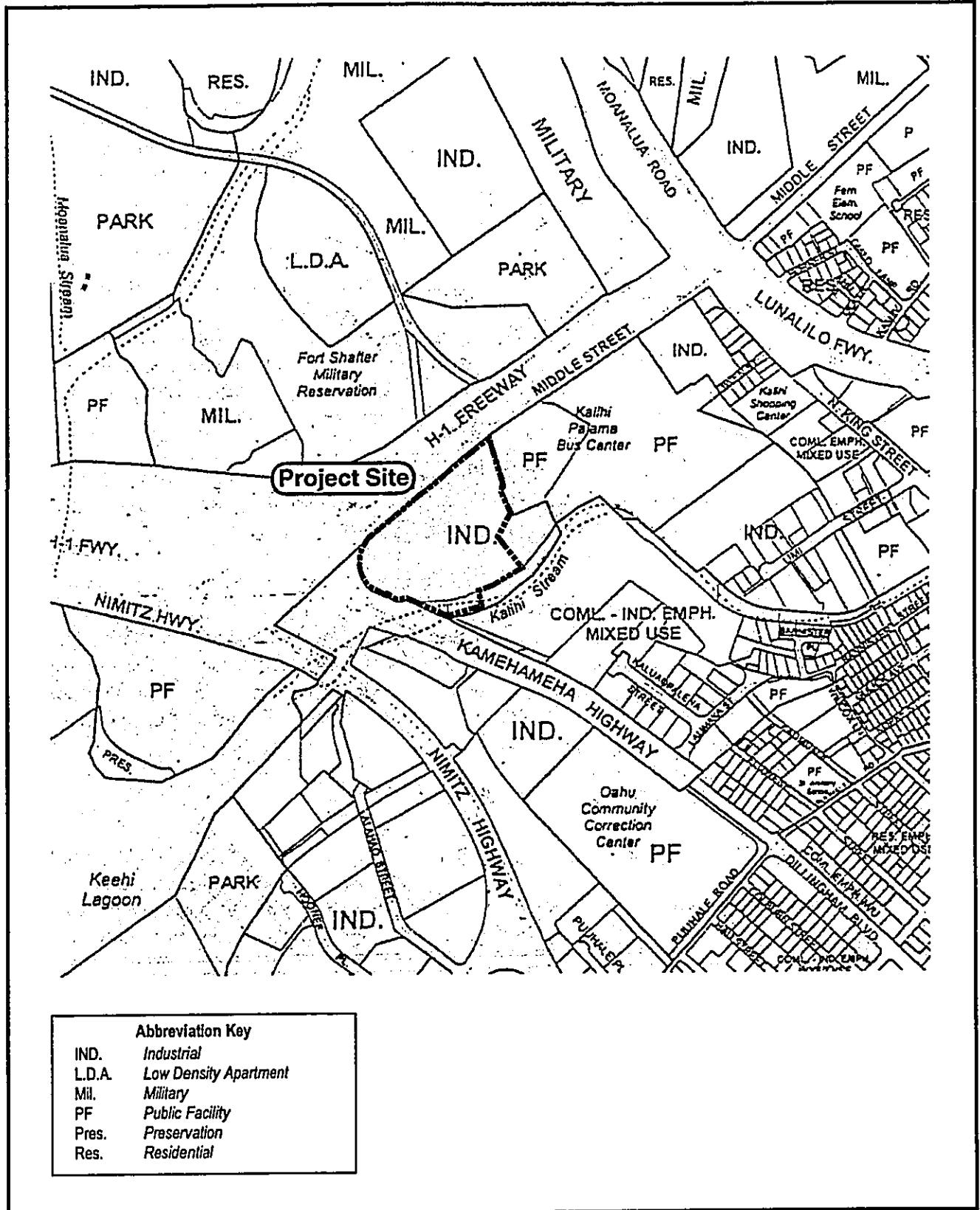
On June 12, 2001, the City Department of Planning and Permitting processed the amendment. Ordinance 01-34, Bill 28 (2001), CD1 was approved by the City Council on June 20, 2001 and approved by the mayor on July 2, 2001.

The proposed project is consistent with the TS designation on the DPPFM, and is largely consistent with the project concept reviewed by the City Council in 2001. Since that time, there have been slight modifications to the concept plan. Specifically, the 2001 concept identified a number of potential commercial and community support uses on the site, such as child care center, convenience store, etc. The current plan is less specific, identifying the reserved area fronting Middle Street only as "potential commercial and/or transit expansion" space.

Revised Primary Urban Center Development Plan

The City Department of Planning and Permitting is currently revising the PUC Development Plan. The revised PUC DP is currently in final public review stages, and is expected to be considered for approval in early 2003. The Middle Street area, including the project site, is proposed for continued industrial use, and the proposed project is consistent with the revised PUC DP.

When the revised PUC DP is adopted, the revised Public Infrastructure Map (PIM) for the PUC will identify the "Middle Street Transportation and TheHandi-Van Facility" as a future PIM project.

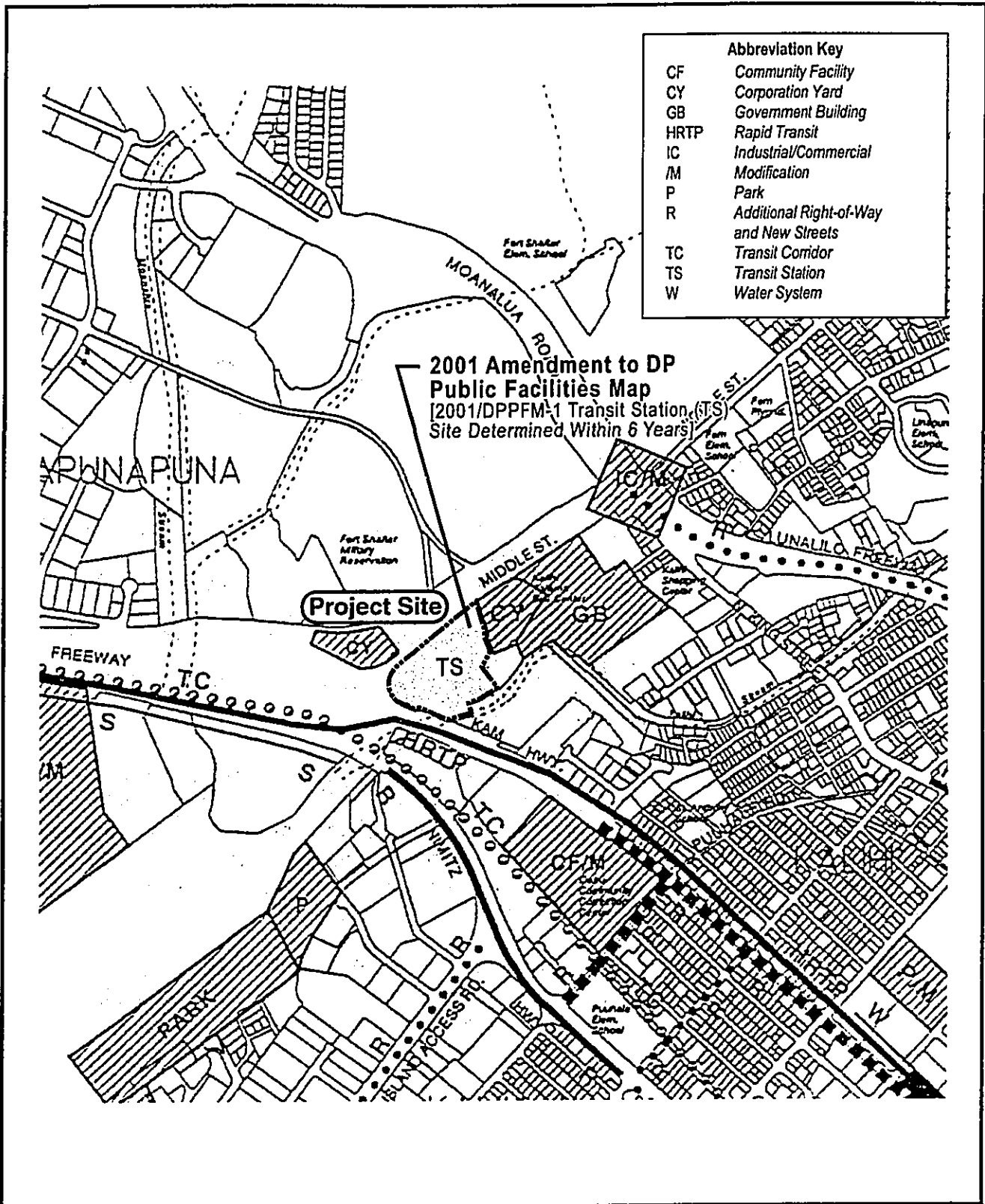


Source: City and County of Honolulu, Department of Planning and Permitting

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Figure 14
DP Land Use Map



Source: City and County of Honolulu, Department of Planning and Permitting

November 2002
NOT TO SCALE



Figure 15
DP Public Facilities Map

4.3.3 County Zoning (Land Use Ordinance No. 99-12, May 1999)

As shown in Figure 16, the project site is Zoned I-2, intensive industrial district, with a 60-foot height limit. The full range of industrial uses and industrial centers are allowed within the I-2 district. These areas generally located away from residential communities that could be adversely impacted by the industrial uses. The proposed transit center would be an appropriate use within the I-2 industrial district.

Submerged lands (i.e., within the Kalihi Stream bed) that are being acquired as part of the project are zoned IMX-1, Industrial Mixed use. The purpose of this zoning district is to allow mixing of some industrial uses with other uses. This district is intended to promote and maintain a viable mix of light industrial and commercial uses. The submerged lands will not be developed.

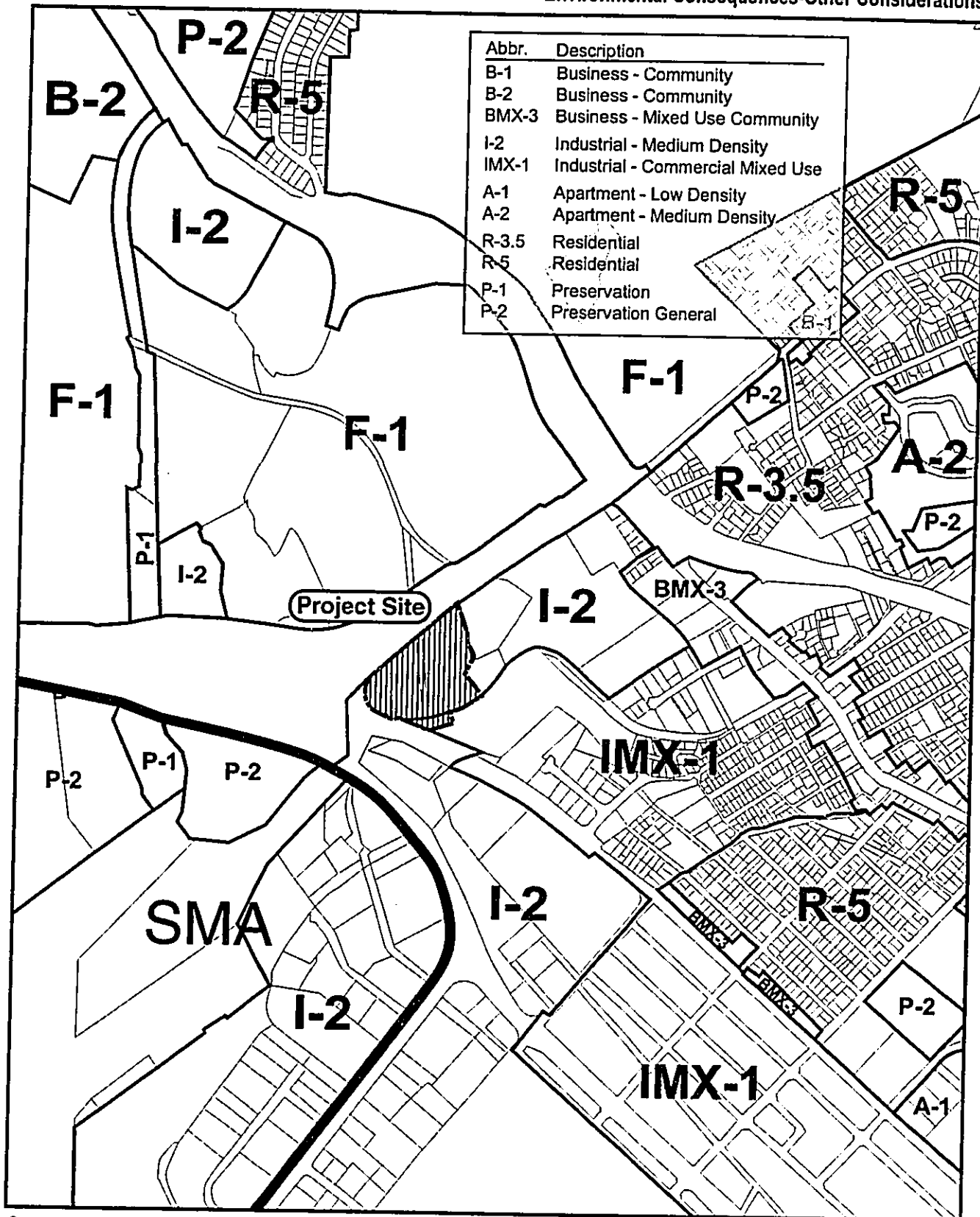
4.3.4 Special Management Area

Coastal Zone Management objectives and policies (Section 205A-2, HRS) and the Special Management Area (SMA) guidelines (Section 25-3.2 ROH) have been developed to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawaii. The project site is outside the County's SMA area and will not have a direct or indirect impact on the coastal zone (Figure 16). None of the alternatives considered will impact the coastal zone.

4.3.5 Honolulu Bicycle Master Plan

The Honolulu Bicycle Master Plan (Department of Transportation Services, April 1999) sets forth the City's goals, objectives and strategies to make Honolulu a bicycle-friendly city and a world-class bicycling destination. There is currently an existing off-road bike path along the *ewa* side of Middle Street, between North King Street and Nimitz Highway. The Bicycle Master Plan identifies several regional bike corridors and recommended projects. One of its future priority 2 projects is a 0.5 mile bike lane on Middle Street

The proposed project is compatible with the existing bicycle path, as future bus or Handi-Van turning movements into and out of the Middle Street driveway will not conflict with bicyclists on the off-road bike path. The presence of a transit center along an existing bike path also provides an option for intermodal travel, i.e., for bus passengers to commute to and from the bus station via bicycle.



Source: City and County of Honolulu, Department of Planning and Permitting

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Figure 16

Zoning / SMA

4.4 ENVIRONMENTAL CONSEQUENCES—OTHER CONSIDERATIONS

4.4.1 Unavoidable Adverse Effects

All potential environmental impacts discussed in Chapter 3 could either be avoided or mitigated to an extent that they would not be significant.

4.4.2 Energy Requirements and Conservation Potential of Various Alternatives and Mitigation Measures

Energy consumption will be required in the short-term for demolition of existing structures and construction of the proposed transit center facilities and infrastructure improvements. Upon full build-out, the proposed project may slightly increase utility requirements compared to the current land uses. However, in the long-term, the presence of a new transit center and park-and-ride facilities will support the City's long-term strategy to improve Oahu's transit system. As an integral component of both the hub-and-spoke bus system and a potential future BRT system, the project will contribute to an overall strategy to conserve transportation-related energy and fuel consumption on Oahu. Cumulatively, transit is more energy efficient than use of private automobiles. If the BRT is implemented, it will use electrically propelled vehicles.

In the short-term, the no action alternative requires the least energy expenditure. However, the absence of a new transit center and park-and-ride facility at Middle Street may seriously jeopardize the success of the City's transit strategy. In the long term, this will result in increased traffic congestion for Oahu commuters, and higher vehicle-related energy expenditures. Cumulatively, there will be more traffic congestion in town, which translates to higher energy consumption.

The other alternatives considered would have similar short-term, construction period energy requirements as the proposed action. However, the alternative sites and designs are not as operationally efficient as the proposed action, and would result in higher long-term operational costs, including greater energy requirements.

4.4.3 Relationship of Short-Term uses and Long-Term Productivity

In the short-term, the project will have temporary construction-related impacts on traffic, noise and air quality. It will displace existing businesses on the site and require a commitment of construction and development funds. However, the long-term project benefits far outweigh the short-term tradeoffs. The transit center and park-and-ride facility are critical components in the City's proposed bus hub and spoke network, and its overall strategy to reduce traffic congestion on Oahu. If a BRT system is implemented in the future, the transit center will be the primary transfer point between the BRT regional line from west Oahu, and the in-town routes.

The consolidation of Handi-Van parking and maintenance facilities will increase operational efficiency for the Handi-Van program, compared to its current unconsolidated operations. The project will improve the physical appearance of the site.

Overall, the project will contribute to the long-term productivity and efficiency of the City's transit services and transportation network. It will be an integral part of the City's strategy to reduce roadway congestion, utilize public resources more efficiently and improve the quality of life for Oahu residents. In the long term, secondary and cumulative benefits may include stimulation of the local economy and revitalization of the surrounding area.

4.4.4 Irretrievable and Irreversible Resource Commitments

Resources that are committed irreversibly or irretrievably are those that cannot be recovered if the project is implemented. The proposed project will involve two types of resources: 1) general industrial resources including capital, labor, fuels and construction equipment; and 2) project-specific resources such as natural resources and land at the affected site. General industrial resources will be spent during project construction and operation. However, the expenditure is expected to be offset by the anticipated fuel and energy savings by the transit system improvements. The development of the site will preclude its availability for other potential uses. However, the site is in an industrial area, is zoned for industrial use and is designated for a transit center on City development plans.

5 DETERMINATION, FINDINGS AND REASONS SUPPORTING THE ANTICIPATED DETERMINATION

5.1 ANTICIPATED DETERMINATION

Based on the information and analysis in this Environmental Assessment, the proposed project is not expected to result in a significant impact on the environment. The City and County of Honolulu Department of Transportation Services intends to issue a Finding of No Significant Impact (FONSI), pursuant to requirements of the State of Hawaii HRS Chapter 343, and recommends that an Environmental Impact Statement (EIS) not be required.

5.2 HAWAII REVISED STATUTES CHAPTER 343 SIGNIFICANCE CRITERIA

In determining whether an action may have significant impact on the environment, the applicant or agency must consider all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects, and its short and long-term effects. The State of Hawaii Department of Health Rules Section 11-200-12 (Hawaii Administrative Rules, revised 1996) establish 13 "Significance Criteria" to be used as a basis for identifying whether significant environmental impact will occur.

An agency will determine an action may have a significant impact on the environment if it meets any of the following criteria:

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resources;

The project site is already developed and has been used for commercial and light industrial uses for most of the 20th century. An archaeological assessment has been completed, and limited subsurface testing will be conducted prior to construction. If significant historic sites are found in the project area and if the project will have an "adverse effect" on them, mitigation actions will be developed and implemented prior to construction.

Act 50-Cultural Practices Assessment Project Report for the Primary Corridor Transportation Project (PB Consult Inc., May 2002) identified cultural practices and resources in the urban corridor that includes the project site. Cultural resources in the vicinity included ethnic food stores, food factories, and churches. None of these cultural resources will be lost or destroyed by the project. The project site has no other natural or scenic resources that will be impacted.

2. Curtails the range of beneficial uses of the environment;

The proposed project does not curtail the range of beneficial uses of the environment. The site and its surroundings are already urbanized and developed, are zoned for industrial use, and are not suitable for other non-industrial uses.

3. Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders;

The proposed project is consistent with the environmental policies established in Chapter 344, HRS and the National Environmental Policy Act. As an integral component of the City's long-term transportation strategy, the project is consistent with the Chapter 344 policy of *"Establishing communities which provide a sense of identity, wise use of land, efficient transportation...in harmony with the natural environment..."* [§344-3 (2)(C)]. It is also consistent with the guidelines on Transportation, which *"Encourage transportation systems in harmony with the lifestyle of the people and environment"* and the guideline to *"Encourage public and private vehicles and transportation systems to conserve energy, reduce pollution emission, including noise, and provide safe and convenient accommodations for their users."* [§344-4(6)].

The project is consistent with Executive Order 12898, Environmental Justice, as there will be no disproportionate adverse effect on minority and low income communities. There will be more bus and private vehicle traffic in the immediate vicinity, but this should not have a negative impact on surrounding residential areas, because most commuter vehicles will be approaching from the freeway offramp to the west. The nearest residential neighborhoods are located east of the transit center, and commuters and buses will not be passing directly through these areas. Overall, improved transit and Handi-Van facilities will enhance transit services to low income and minority communities, which traditionally have a high rate of transit use.

4. Substantially affects the economic or social welfare of the community or state;

The proposed project will displace existing businesses on the project site and will result in disruption to those businesses. The project will have short-term adverse air and noise impacts to surrounding businesses, specifically Commercial Enterprises cold storage warehouse and the adjacent Kalihi-Palama Bus Facility.

However, the project will have a long-term positive impact on the economic and social welfare of the community by providing facilities needed to support the existing Handi-Van program, a reconfigured (hub-and-spoke) bus system, and a future BRT system. The park-and-ride garage and transit center will support the City's transportation strategy, to reduce roadway traffic congestion on Oahu. When a BRT is implemented, the transit center will be a major link between the Regional and In-Town BRT components. This will have a substantial positive effect on the economic and social welfare of the community.

Development of a transit center at Middle Street may have indirect and cumulative impacts on the land use and growth patterns in the surrounding area. It is possible that the project will encourage redevelopment of the area, and may increase pressure for more commercial or retail development in the surrounding area. While redevelopment would generally have a positive economic and social impact, there is a possibility that it could displace some existing

light industrial businesses. However, no further development is planned at present, and the project is consistent with official City plans and policies for the area. The surrounding area is zoned for industrial use, and the project site is identified specifically for future transit use in the Primary Urban Center Development Plan. Future redevelopment, if any, is not likely to result in a population increase in the area, as the area is fully developed and designated for industrial use. Overall, these effects are not expected to be substantial.

5. Substantially affects public health;

The project's impact on public health will be positive. The proposed BRT system will further reduce current and projected vehicular traffic and its resulting impacts on air quality, noise and congestion. The temporary construction-period impacts to air quality and noise are insignificant when weighed against its overall, long-term positive impacts. Areas of contamination on site will be remediated as appropriate, in consultation with the State of Hawaii Department of Health.

6. Involves secondary impacts such as population changes or effects on public facilities;

The Middle Street Transit Center in itself will not generate population changes or affect public facilities. However, there may be secondary and cumulative impacts on land use and public facilities in the vicinity. A regional transit center and park-and-ride facility will be a magnet that will likely draw people to the area. As a result, the project may indirectly encourage redevelopment of the surrounding area, including development of additional commercial and retail uses. While these secondary impacts are likely to be positive, it could also displace existing businesses and reduce the amount of land available for light industrial use.

7. Involves a substantial degradation of environmental quality;

Construction period impacts will be temporary and short-term, and will not degrade environmental quality. The project is proposed for a developed site that has been used for commercial and light industrial uses for most of the 20th century. Areas with existing contamination will be remediated as needed. Cultural resources that could be impacted will be identified by a subsurface survey prior to construction, and appropriate mitigation measures developed. There are no resources of biological significance on site. Potential construction period runoff into Kalihi Stream will be mitigated through the use of best management practices.

8. Is individually limited but cumulatively has considerable effect up on the environment or involves a commitment for larger actions;

The proposed action is intended to support the City's bus hub and spoke network which is currently being implemented, as well as the existing Handi-Van program. Although the facility would also support a BRT system, the project is needed whether or not the BRT is implemented. The Middle Street Transit Center will not require a commitment for larger

action. The factors influencing if and when a BRT system is funded and implemented are independent of this project. The project is consistent with the City's Primary Urban Center Development Plan Public Facilities Map.

9. Substantially affects a rare, threatened or endangered species, or its habitat;

No rare, threatened or endangered species or its habitat will be impacted by the project. There are no significant biological resources in the project vicinity.

10. Detrimentially affects air or water quality or ambient noise levels;

The project will result in short-term construction period increases in fugitive dust and noise. Once it is completed and operational, the proposed transit center may have a slight increase in traffic-related noise in the immediate area, due to the increase in vehicular and bus traffic. The noise will not impact residential areas. In the long term, the project will have a positive impact on air quality resulting from a more efficient bus network, Handi-Van operations and possibly, a BRT system.

11. Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;

The project site is in an area that is vulnerable to 100-year floods. However, the facility design will mitigate the risk by designing structures so that finished floor elevations are higher than expected flood levels. The project also includes revegetating the stream banks which will mitigate against on site flooding and erosion.

The downstream area at the Kamehameha Highway bridge has a history of flooding due to build up of debris and sediment from up stream. As a future owner of the stream adjacent to the project site, the City will maintain the stream banks and bed on its property.

The project will not impact other environmentally sensitive areas or coastal waters.

12. Substantially affects scenic vistas and viewplanes identified in county or state plans or studies; or

The project will not impact scenic vistas or viewplanes identified in county or state plans or studies. The proposed parking structure will alter the current low-scale development on the site, and will be visible from surrounding roadways and the H-1 Freeway.

13. Requires substantial energy consumption.

The project will not require substantial energy consumption. Energy resources will be consumed during project construction and operation. However, the proposed transit center and Handi-Van facilities will have an overall positive effect on energy conservation, by

supporting more efficient transit operations. Automated parking is expected to be more energy efficient than a conventional parking structure, where commuters may experience lengthy queuing and circling times searching for a parking space. The proposed transit center would also be able to support the BRT system, if implemented. In the long term, the transit center will be an important component in the City's proposed transit strategy to provide energy efficient alternatives to private automobiles.

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Personal communication with Joe Uno, J. Uno & Associates, July 12, 2002

Personal communication with Steve Takashima, State Department of Transportation, Airports, Planning Branch, October 22, 2002

7 PERSONS AND AGENCIES INVOLVED IN THE PREPARATION OF THE ENVIRONMENTAL ASSESSMENT

7.1 LIST OF PREPARERS

This Environmental Assessment (EA) was prepared for the City and County of Honolulu Department of Transportation Services (DTS) and U. S. Department of Transportation, Federal Transit Administration by Kimura International, Inc. The following individuals were involved in the preparation of the EA.

Name	Contribution/Specialization
Kimura International, Inc.	
Glenn T. Kimura	Overall Project Manager
Leslie Kurisaki	Environmental Assessment, primary author
Brant Tanaka	Phase II Environmental Site Assessment, project manager
Bryce Hataoka	Phase II Environmental Site Assessment, primary author
Subconsultants	
Mike Kido	Stream Biology
Winona Char, Char & Associates	Botanical Resources
Tim J. Ohashi	Wildlife Biology
David Shideler, Cultural Surveys Hawaii	Archaeology, Cultural Resources, Cultural Impact Assessment
Julian Ng, Julian Ng, Inc.	Traffic Engineering
Jim Morrow, J.W. Morrow & Associates	Air Quality
Jeanette Hesedahl, D.L. Adams & Associates	Acoustic Analysis
Chad McDonald, Mitsunaga & Associates	Civil Engineering, infrastructure analysis

7.2 INDIVIDUALS AND AGENCIES CONSULTED DURING PREPARATION OF THE ENVIRONMENTAL ASSESSMENT

7.2.1 Early Consultation for Draft Environmental Assessment

The following agencies and organizations were contacted during the early consultation for the Draft Environmental Assessment. Comments received are included at the end of this chapter.

Federal

U.S. Army Engineer Division
U.S. Federal Highway Administration
U.S. Environmental Protection Agency
U.S. Fish & Wildlife Service

State

Department of Accounting and General Services
Department of Business, Economic Development & Tourism, Office of Planning
Department of Hawaiian Home Lands
Department of Land and Natural Resources

- Land Division
- State Historic Preservation Division

Department of Health

- Environmental Management Division
- Office of Environmental Quality Control

Department of Human Services
Department of Transportation

- Highways Division
- Airports Division

Office of Hawaiian Affairs
University of Hawaii

- Associate Vice President for Administration

Oahu Metropolitan Planning Organization (OMPO)

City and County of Honolulu

Board of Water Supply
Department of Design and Construction
Fire Department
Department of Planning & Permitting
Department of Parks and Recreation
Police Department
Department of Environmental Services

Department of Facility Maintenance

Community and Other Organizations

Hawaiian Electric Company

Verizon Hawaii

Kalihi-Palama Neighborhood Board #15

Aliamanu/Salt Lake/Foster Village Neighborhood Board #18

Kalihi-Palama Community Council

Kalihi-Palama Vision Team

Outdoor Circle

Hawaii's Thousand Friends

Hawaii Building & Const. Trade Council

Native Hawaiian Advisory Council

Elected Officials

Rep. Ben Cabreros, 30th District

Rep. Felipe P. Abinsay, 29th District

Rep. Dennis Arakaki, 28th District

Sen. Suzanne Chun Oakland, 14th Senatorial District

Sen. Rod Tam, 13th Senatorial District

Councilmember Jon Yoshimura, Dist. 6

Councilmember Romy Cachola, Dist. 7

7.2.2 Review of Draft EA

The Draft EA was filed with OEQC and its notice of availability published in the September 23, 2002 edition of The Environmental Notice. The Draft EA was sent to the agencies and organizations listed below, as well as to the Kalihi-Palama Public Library. The 30-day review period ended on October 23, 2002. A total of 19 comment letters were received. The agencies that responded are noted with an asterisk (*). These letters and DTS response letters are included at the end of this chapter.

Federal

- *U.S. Army Engineer Division
- U.S. Federal Highway Administration
- U.S. Environmental Protection Agency
- U.S. Fish & Wildlife Service

State

- Department of Business, Economic Development & Tourism, Office of Planning
- Department of Business, Economic Development & Tourism, Coastal Zone Management
- Department of Hawaiian Home Lands
- *Department of Land and Natural Resources (5 copies)
- *Department of Land and Natural Resources, State Historic Preservation Division
- *Department of Health (3 copies)
- *Department of Human Services
- Department of Transportation, Highways Division
- *Office of Environmental Quality Control
- *Office of Hawaiian Affairs
- *University of Hawaii, Associate Vice President for Administration
- Oahu Metropolitan Planning Organization (OMPO)

City and County of Honolulu

- *Board of Water Supply
- *Department of Design and Construction
- *Fire Department
- *Department of Planning & Permitting (5 copies)
- *Department of Parks and Recreation
- *Police Department
- *Department of Environmental Services
- Department of Facility Maintenance
- Department of Budget and Fiscal Services

Community and Other Organizations

*Hawaiian Electric Company
Verizon Hawaii
Kalihi-Palama Neighborhood Board #15
Kalihi-Palama Community Council
Kalihi-Palama Vision Team
Hawaii's Thousand Friends
Native Hawaiian Advisory Council

Elected Officials

Rep. Ben Cabreros, 30th District
Rep. Felipe P. Abinsay, 29th District
Rep. Dennis Arakaki, 28th District
Sen. Suzanne Chun Oakland, 14th Senatorial District
Sen. Rod Tam, 13th Senatorial District
Councilmember Jon Yoshimura, Dist. 6
*Councilmember Romy Cachola, Dist. 7

Comments Received During Early Consultation

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BENJAMIN J. CANTILANO
COMPTROLLER

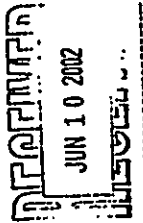


STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 178, HONOLULU, HAWAII 96818

GLENN M. OKIMOTO
COMPTROLLER
MARTY ALICE PAULS
DEPUTY COMPTROLLER

LETTER NO. PWD02 P319

JUN - 7 2002



Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Middle Street Transit Center Environmental Assessment; Early Consultation
TMK: (1) 1-2-018:01, 02, 03, 09, 10
Honolulu, Hawaii

Thank you for the opportunity to comment on the subject project's environmental issues prior to the Environmental Assessment (EISP/EA). The project does not directly impact any of the Department of Accounting and General Services' projects or existing facilities. Therefore, we have no comments to offer.

If there are any questions regarding the above, please have your staff call Mr. Bruce Bennett of the Planning Branch at 586-0491.

Very truly yours,

Mary Alice Pauls
GLENN M. OKIMOTO
State Comptroller

cc: Ms. Genevieve Salmonson, OEQC

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

630 SOUTH KING STREET, 3RD FLOOR - HONOLULU, HAWAII 96813
TELEPHONE (808) 522-4219 • FAX: (808) 522-4730 • INTERNET: www.ci.honolulu.hi.us



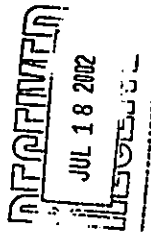
July 16, 2002

JEREMY HARRIS
SAVON

CHERYL D. SOON
DIRECTOR

GEORGE WEDMANN
MIRIAMOTO
DEPUTY DIRECTOR

TPD02-00315



Mr. Glenn M. Okimoto
State Comptroller
Department of Accounting and General Services
State of Hawaii
P. O. Box 118
Honolulu, Hawaii 96810

Dear Mr. Okimoto:

Subject: Middle Street Transit Center Draft Environmental Assessment
Early Consultation

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We have received a copy of your letter to Kimura International dated June 7, 2002, and acknowledge that the project does not directly impact any of DAGS' projects or facilities, and that your department has no comments at this time.

We look forward to your review of the DEA. If you have questions or other comments, please contact Mr. Toru Hamayasu at 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

cc: Kimura International, Inc.

BERNARD J. CANTANO
GOVERNOR
STATE OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

June 5, 2002

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Middle Street Transit Center Environmental Assessment
Early Consultation

Thank you for the opportunity to review the subject application.
The Department of Hawaiian Home Lands has no comment to offer.

If you have any questions, please call our Planning Office at
586-3836.

Aloha,

Raynard C. Soon
Raynard C. Soon, Chairman
Hawaiian Home Commission

RECEIVED
JUN 06 2002
HONOLULU

RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOME COMMISSION
P.O. BOX 1879
HONOLULU, HAWAII 96805

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 2ND FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 521-5219 • FAX: (808) 527-4730 • INTERFAX: (808) 527-4730



July 16, 2002

JEREMY HARRIS
SALESMAN

CHERYL D. SOON
DIRECTOR
GEORGE W. KIMURA
DEPUTY DIRECTOR

TPD02-00318

RECEIVED
JUL 18 2002
HONOLULU

Mr. Raynard C. Soon, Chairman
Hawaiian Home Commission
Department of Hawaiian Home Lands
State of Hawaii
P. O. Box 1879
Honolulu, Hawaii 96805

Dear Mr. Soon:

Subject: Middle Street Transit Center Draft Environmental Assessment
Early Consultation

Thank you for your early consultation comments prior to completion of the Middle Street Transit
Center Draft Environmental Assessment (DEA).

We have received a copy of your letter to Kimura International dated June 5, 2002, and
acknowledge that your department has no comments at this time.

We look forward to your review of the DEA. If you have questions or other comments, please
contact Mr. Toru Hamayasu at 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

✓ cc: Kimura International, Inc.

JUN 17 2002
 DEPARTMENT OF LAND AND NATURAL RESOURCES



STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 LAND DIVISION
 P.O. BOX 621
 HONOLULU, HAWAII 96809

AQUATIC RESOURCES
 BOATING AND OCEAN RECREATION
 FORESTRY AND WILDLIFE
 HISTORIC PRESERVATION
 LAND DIVISION
 STATE PARKS
 WATER RESOURCE MANAGEMENT

LD-NAV
 L-3260/3378/3358/3394/3263

Kimura International
 Glenn T. Kimura, President
 1600 Kapiolani Blvd, Suite 1610
 Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Pre-Consultation for Draft Environmental Assessment Covering the Proposed City and County of Honolulu Department of Transportation Services' Middle Street Transit Center Project - TMK: 17 1-2-18: 01-03, 09 and 10

Thank you for the opportunity to review and comment on the subject matter. A copy of your letter dated May 31, 2002 with attachments covering the proposed project was distributed to the following Department of Land and Natural Resources' Divisions for their review and comment:

- Division of Aquatic Resources
- Division of Forestry & Wildlife
- Division of State Parks
- Division of Boating and Ocean Recreation
- Historic Preservation Division
- Commission on Water Resource Management
- Land Division Engineering Branch
- Land Division Planning and Technical Services
- Oahu District Land Office

The Department of Land and Natural Resources has no comment to offer on the subject matter based on the attached responses. Should additional comments be received, they will be forwarded to your office at that time.

Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 587-0438.

Very truly yours,

Nicholas A. Vaccaro
 NICHOLAS A. VACCARO
 Administrator

C: Oahu District Land Office

- ADMINISTRATOR
- ASST ADMIN
- BYER
- PLANER
- EXT MGT BR
- CLERK
- JURMIST
- INTER BR
- COMMISSIONER
- COMMENTS & REC
- DEPT MGMT
- FILE
- FOLLOW UP
- INFO
- PLANNING
- RECORDS
- TRAINING
- SEE ME
- FAVORED OFF TO



STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 LAND DIVISION
 P.O. BOX 621
 HONOLULU, HAWAII 96809

June 4, 2002

C&C&HDTSMIDDLETRN.CHT
 Suspense Date: 6/11/02

LD-NAV
 L-3263

MEMORANDUM:

TO: XXX Division of Aquatic Resources
 XXX Division of Forestry & Wildlife
 XXX Division of State Parks
 XXX Division of Boating and Ocean Recreation
 XXX Historic Preservation Division
 XXX Commission on Water Resource Management
 Land Division Branches of:
 XXX Planning and Technical Services
 XXX Engineering Branch
 XXX Oahu District Land Office

FROM: Dierdre S. Mamiya, Administrator
 Land Division

SUBJECT: Pre-Consultation for Department of Transportation Services Draft Environmental Assessment covering the Middle Street Transit Center - TMK: 17 1-2-18: 01-03, 09 and 10

Please review the attached letter covering the subject matter and submit your written comment and recommendation (if any) on Division letterhead signed and dated on or before the suspense date. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

() Comments attached.

Signed: *Dierdre S. Mamiya*
 Date: 6/11/02



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

LAND DIVISION
P.O. BOX 871
HONOLULU, HAWAII 96809

June 4, 2002

LD-NAV
L-3263

C&C/HD/TS/MIDDLE/ETRN.CMT
Suspense Date: 6/11/02

MEMORANDUM:

- TO: XXX Division of Aquatic Resources
 XXX Division of Forestry & Wildlife
 XXX Division of State Parks
 XXX Division of Boating and Ocean Recreation
 XXX Historic Preservation Division
 XXX Commission on Water Resource Management
 Land Division Branches of:
 XXX Planning and Technical Services
 XXX Engineering Branch
 XXX Oahu District Land Office

FROM: *S. Mamiya*
Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Consultation for Department of Transportation Services
 Draft Environmental Assessment covering the Middle Street
 Transit Center - TMK: 1st/ 1-2-18: 01-03, 09 and 10

Please review the attached letter covering the subject matter and submit your written comment and recommendation (if any) on Division letterhead signed and dated on or before the suspense date. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

We have no comments.

Comments attached.

Signed: *Nick Vaccaro*

Date: 6/5/02

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION AND
CONSERVATION
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

STATE OF HAWAII RESOURCES	Division Director	<input type="checkbox"/>
Chief Deputy	<input type="checkbox"/>	
Deputy Director	<input type="checkbox"/>	
Assistant Director	<input type="checkbox"/>	
Administrative Services	<input type="checkbox"/>	
Finance	<input type="checkbox"/>	
Legal	<input type="checkbox"/>	
Planning and Technical Services	<input type="checkbox"/>	
Engineering Branch	<input type="checkbox"/>	
Oahu District Land Office	<input type="checkbox"/>	
Other	<input type="checkbox"/>	



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

LAND DIVISION
P.O. BOX 871
HONOLULU, HAWAII 96809

June 4, 2002

C&C/HD/TS/MIDDLE/ETRN.CMT
Suspense Date: 6/11/02

MEMORANDUM:

- TO: XXX Division of Aquatic Resources
 XXX Division of Forestry & Wildlife
 XXX Division of State Parks
 XXX Division of Boating and Ocean Recreation
 XXX Historic Preservation Division
 XXX Commission on Water Resource Management
 Land Division Branches of:
 XXX Planning and Technical Services
 XXX Engineering Branch
 XXX Oahu District Land Office

FROM: *S. Mamiya*
Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Consultation for Department of Transportation Services
 Draft Environmental Assessment covering the Middle Street
 Transit Center - TMK: 1st/ 1-2-18: 01-03, 09 and 10

Please review the attached letter covering the subject matter and submit your written comment and recommendation (if any) on Division letterhead signed and dated on or before the suspense date. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

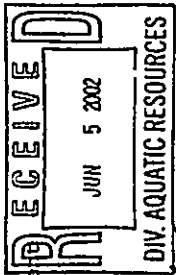
If this office does not receive your comments by the suspense date, we will assume there are no comments.

We have no comments.

Comments attached.

Signed: *S. Mamiya*

Date: 6/6/02



RECEIVED
TRANSPORTATION



2002 JUN -7 A DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE OF HAWAII
LAND DIVISION
P.O. BOX 511
HONOLULU, HAWAII 96809

June 4, 2002

LD-NAV
L-3263

C&CoHDTSMIDDLETRN.CMT
Suspense Date: 6/11/02

MEMORANDUM:

TO: XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Division of State Parks
XXX Division of Boating and Ocean Recreation
XXX Historic Preservation Division
XXX Commission on Water Resource Management
Land Division Branches of:
XXX Planning and Technical Services
XXX Engineering Branch
✓ XXX Oahu District-Land Office

FROM: Dierdra S. Mamiya, Administrator *Mamiya*
Land Division

SUBJECT: Pre-Consultation for Department of Transportation Services
Draft Environmental Assessment covering the Middle Street
Transit Center - TMK: 1" 1-2-18: 01-03, 09 and 10

Please review the attached letter covering the subject matter
and submit your written comment and recommendation (if any) on
Division letterhead signed and dated on or before the suspense
date. Should you need more time to review the subject matter,
please contact Nick Vaccaro at ext.: 7-0438.

If this office does not receive your comments by the suspense
date, we will assume there are no comments.

(V) We have no comments.

() Comments attached.

Signed: *DM*

Date: 6/5/02

by



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 511
HONOLULU, HAWAII 96809

July 10, 2002

LD-NAV
C&CoHDTSMIDDLETRN.RCM2
L-3599/3203/3495

Kimura International
Glenn T. Kimura, President
1800 Kapiolani Blvd, Suite 1810
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Pre-Consultation for Draft Environmental Assessment Covering the Proposed
City and County of Honolulu Department of Transportation Services' Middle Street
Transit Center Project - TMK: 1" 1-2-18: 01-03, 09 and 10

This is a follow-up to our letter (Ref: C&CoHDTSMIDDLETRN.RCM) to you dated June
14, 2002, pertaining to the subject matter.

Attached herewith is a copy of the Commission on Water Resource Management and
Land Division Engineering Branch comments.

The Department of Land and Natural Resources has no other comment to offer at this
time.

Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the
Land Division Support Services Branch at 587-0438.

Very truly yours,

Dierdra S. Mamiya

DIERDRE S. MAMIYA
Administrator

C: Oahu District Land Office

AQUATIC RESOURCES
CONSTRUCTION AND
RECONSTRUCTION
CONSERVATION
COMMERCE
CONSERVATION
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

RECEIVED
JUL 12 2002

STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 COMMISSION ON WATER RESOURCE MANAGEMENT
 1505 KALANIANA'OLANI BLVD., SUITE 200
 HONOLULU, HAWAII 96813
 TEL: 808-586-2500
 FAX: 808-586-2501
 WWW.DLN.RIS.HAWAII.GOV



RECEIVED
 LAND DIVISION
 JUNE 19 1992
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TO: Dierdre Mamiya, Administrator
 Land Division

FROM: Linnel T. Nishiohka, Deputy Director
 Commission on Water Resource Management (CWRM)

SUBJECT: Pre-Consultation for Department of Transportation Services Draft Environmental Assessment-Hiddle Street Transit Center, Honolulu, Hawaii

FILE NO.: LD-NAV L-3283

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas, which are important for the maintenance of streams and the replenishment of aquifers.

- We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.
- We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- We are concerned about the potential for ground or surface water degradation/contamination and recommend that approval for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
- A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.
- The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.
- Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approval for this project be conditioned upon a review by the corresponding county's Building Department and the developer's acceptance of any resulting requirements related to erosion control.
- If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).
- If the proposed project alters the bed and banks of stream channels, the project may require a stream channel alteration permit.
- OTHER:

If there are any questions, please contact David Higa at 587-0249.

DEPARTMENT OF LAND AND NATURAL RESOURCES
 Land Division
 Engineering Branch

COMMENTS

Please note that the proposed three (3) Transit Centers in Waianae, Wahiawa and Mililani are located in Zone D. These are areas where flood hazards are undetermined.

However, if future studies determine that the project sites are within the flood zone, the project must comply with rules and regulations of the National Flood Insurance Program (NFIP) and all applicable County Flood Ordinances. If there are questions regarding the NFIP, please contact the State Coordinator, Mr. Sterling Yung, of the Department of Land and Natural Resources at 587-0248.

In addition, the City and County of Honolulu, Department of Transportation Services is responsible to obtain the necessary water allocation credits from the Board of Water Supply for the State property in Wahiawa.

Signed: Andrew M. Monden
 ANDREW M. MONDEN, CHIEF ENGINEER

Date: 6/12/02

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

410 SOUTH KING STREET, 2ND FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 531-3111 • FAX: (808) 523-4720 • INTERNET: www.cc.honolulu.gov



JEREMY HARRIS
Director

CHERYL D. SOON
DIRECTOR
GEORGE T. LEON, M.L.N.D.
SOUTH BRANCH
TPD02-003108

July 16, 2002

Ms. Dierdre S. Mamiya, Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Ms. Mamiya:

Subject: Middle Street Transit Center Draft Environmental Assessment
Early Consultation

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We received a copy of your letter to Kimura International dated June 14, 2002, which related that the Department of Land and Natural Resources had no comments at that time.

Subsequent to this letter, Kimura International received a follow-up letter dated July 10, 2002, which provided a copy of comments from the Commission on Water Resource Management and the Land Division - Engineering Branch. We have been informed that the Land Division - Engineering Branch comments were attached in error and therefore, these comments will be disregarded.

We acknowledge that if the project proposes the alteration of the bed and banks of stream channels, a stream channel alteration permit may be required.

We look forward to your review of the DEA. If you have questions or other comments, please contact Mr. Toru Hamayasu at 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

✓cc: Kimura International, Inc.

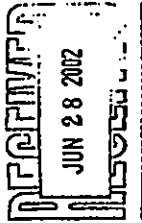


STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES
1600 KAPI'OLANI BLVD., SUITE 1610
HONOLULU, HAWAII 96814

WYAMING J. CATTING
GOVERNOR OF HAWAII



June 25, 2002

Mr. Glenn T. Kimura
Kimura International
1600 Kapi'olani Blvd., Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

SUBJECT: Chapter 6E-8 Historic Preservation Review - Early Consultation for
Environmental Assessment for the Proposed Middle Street
Transportation Center
Kalihii Kai, Kona, O'ahu
TMK: 1-2-018:001-003, 009 & 10

LOG NO: 30127 ✓
DOC NO: 0206EJZ4

Thank you for the opportunity to provide comment during the Pre-EA phase for the Proposed Middle Street Transportation Center. We commented to the Department of Planning and Permitting on a 'Revision to the Primary Urban Center Development Plan Public Facilities Map for the Proposed Middle Street Transportation Center and the Handi-Van Facility' in March 2001 (SHPD Log 271070) and also on an Archaeological Assessment prepared for this project in March of 2002 (SHPD Log 29431). We have attached copies of our previous comments which are summarized below.


Our previous comments stated that the historic record suggests that the areas around Pearl Harbor and Kalihi would have been attractive for settlement in prehistory and recommended that an archaeological inventory survey be conducted of the subject parcels. The archaeological assessment also suggested that soil deposits associated with historic sites (Waikulu Pond) are likely to be present and we agreed that archaeological inventory survey with subsurface testing be conducted within a portion of the proposed project area.

We look forward to reviewing for acceptance the archaeological inventory survey report for this project. If significant historic sites are shown to be present in the project area, and the proposed undertaking will have an "adverse effect" upon them, then mitigation actions may also need to be developed and implemented prior to any construction.

Mr. Glenn T. Kimura
Page Two

Should you have any questions, please feel free to call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027.

Aloha,



Don Hibbard, Administrator
State Historic Preservation Division

Eujik

Attachments: SHPD Log 271070; SHPD Log 29431

c: Nick Vaccaro, Land Division (LD-NAV L-3263)



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Luhuliuhui Building, Room 258
801 Kalia Boulevard
Kapolei, Hawaii 96707

AGRICULTURE
AND SOIL REFORMATION
COMMISSION
MANAGEMENT
CONSERVATION AND RESOURCES
DEVELOPMENT
CONSERVATION
CIVIL AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

HELENE S. MURRAY, MAJOR, COLLECTOR
OFFICE
JANET E. ZIMMEL
DANIEL BERNICKA

March 12, 2001

Randall K. Fujiki, Director
Department of Planning and Permitting
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

LOG NO: 27107 ✓
DOC NO: 0103E105

SUBJECT: Chapter 6E-8 Historic Preservation Review - Proposed Revision to the
Primary Urban Center Development Plan Public Facilities Map for the
Proposed Middle Street Transportation Center and the Handi-Van
Facility in Kalihi Kai, 2001 DPPFM-1
Kalihi Kai, Kona, O'ahu
IMK: L2-018:001-003, 009 & 10

Thank you for the opportunity to comment on the proposed revision to the Primary Urban Center Development Plan Public Facilities Map for the Proposed Middle Street Transportation Center and Handi-Van facility. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the project areas.

The proposed revision will add a Transit Center symbol within six years to the PUC/DPPFM. The symbol is required prior to approval of land acquisition funds for major public facilities such as the proposed transportation center. A review of our records shows that there are no known historic sites at this location however, no archaeological survey has been conducted for this parcel. An historic site (Site 50-80-14-4525), consisting of human burials was found during archaeological survey with subsurface testing conducted at the adjacent Kalihi Palama Bus Center parcel. The historic record suggests that the areas around Pearl Harbor and Kalihi would have been attractive for settlement in prehistory, offering easy access to a wide variety of rich environments including wet land taro cultivation and extensive protected fishing and shell fishing grounds. A Land Commission Award was awarded for a portion of this parcel as well as several claims along Kalihi stream in this vicinity. Because historic period changes included filling of fishponds and other low-lying areas it is possible that the remains of these agricultural plots still exist today. Consequently, although surface historic sites are not likely to be found on this parcel, we believe that subsurface

MAR 13 2001


Randall K. Fujiki, Director
Page Two

historic sites may still exist. We would require that an archaeological inventory survey with subsurface testing be conducted for areas proposed for below-grade improvements at the project site. If historic sites are found, and these sites prove to be significant, then a mitigation plan would need to be developed and implemented. If no historic sites are found, then, after submission of an acceptable report on the inventory survey, the historic review process will end.

Therefore, the SHPD has no objection to adding the Transit Center symbol to the PUC/DPPFM. We recommend, however, that if the symbol is added at the indicated site, a condition be attached that requires that an archaeological inventory survey be conducted prior to construction of the Transit Center in order to determine the projects effect on historic sites that may be found on the parcel.

Should you have any questions, please feel free to call Sara Collins at 692-8026 or Elaine Jourdan at 692-8027.

Aloha,



Don Hibbard, Administrator
State Historic Preservation Division

El:jk

ROYAL L. CLAYTON
GOVERNOR OF HAWAII



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
1600 KAPOLIANI BLVD., SUITE 1610
HONOLULU, HAWAII 96814

March 20, 2002

Mr. David Studdler, O'ahu Office Manager
Cultural Surveys Hawaii, Inc.
733 N. Kalia Avenue
Kaliua, Hawaii 96734

Dear Mr. Studdler:

SUBJECT: Chapter 6E-8 Historic Preservation Comment on an Archaeological Assessment Prepared for the Proposed Middle Street Transit Center Public Facility ~ Kalihi, Kona, O'ahu
TRNK: (11)1-2-018:001-003 & 008-010

LOG NO: 29431 ✓
DOC NO: 02035C20

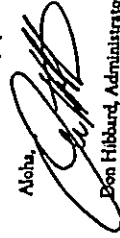
Thank you for the opportunity to comment on an archaeological assessment prepared for the construction of the proposed Middle Street Transit Center Public Facility (Hammett & Studdler, 2002 *Archaeological Assessment of the Proposed Middle Street Transit Center Kalihi Aliupua'a, Kona District, O'ahu* [TRMK: 1-2-18: 1, 2, 3, 8, 9 & 10]). We received the subject document on January 29, 2002.

Your archaeological assessment indicates that soil deposits associated with historic sites (Waikulu Pond) are likely to be present. We agree with your proposed scope of work for the requested archaeological inventory survey (see Hibbard to Fujiki, dated March 12, 2001, LOG NO: 27107).

You have provided sufficient historical and archaeological background information to recommend subsurface testing within a limited portion of the proposed project area. Specifically, you have recommended that limited subsurface testing occur, and that it focus on the recovery of paleoenvironmental samples associated with the formation and/or construction of Waikulu Pond, known to be present from historical records.

We shall expect to receive a report of findings from the inventory survey. If significant historic sites are shown to be present in the project area, and the proposed undertaking will have an "adverse effect" upon them, then mitigation actions may also need to be developed and implemented prior to any construction. Should you have any questions, please feel free to contact Sara Collins at 692-8026.

Aloha,



Don Hibbard, Administrator
State Historic Preservation Division

SC:jk

Mr. Glenn T. Kimura, President, Kimura International, 1600 Kapoliani Blvd, Suite 1610,
Honolulu, HI 96814

ROBERT B. COLLAGHAN, CHAIRPERSON
COMMISSION ON LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCES MANAGEMENT
1001 KALANIANA'OLANI BLVD., SUITE 1610
HONOLULU, HAWAII 96813

AQUATIC RESOURCES
LAND AND OCEAN REGULATION
CONSERVATION AND NATURAL RESOURCES
MANAGEMENT
CONSERVATION AND RESOURCES
DEPARTMENT
CONSERVATION
AGENCY AND POLICY
HISTORIC PRESERVATION
STATE PARKS

MAR 28 2002

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

840 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-5519 • FAX: (808) 523-1720 • INTERNET: www.ci.honolulu.hi.us



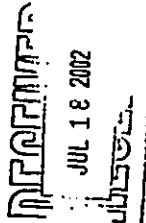
JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE YELDER MUKAMOTO
SENIOR DIRECTOR

TFD02-00325

July 16, 2002



Mr. Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
Kakaehewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Hibbard:

Subject: Middle Street Transit Center Draft Environmental Assessment
Early Consultation

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We have received a copy of your letter to Kimura International dated June 25, 2002, as well as your previous correspondence on this matter with Mr. David Shiedler of Cultural Surveys Hawaii (letter dated March 20, 2002).

A subsurface archeological inventory survey within a limited portion of the project area will be conducted after the City successfully negotiates purchase of the Middle Street property. As you have suggested in previous correspondence, the testing will focus on the recovery of paleoenvironmental samples associated with the formation and/or construction of Wailuku Pond. Your office will be forwarded the report of findings from the inventory survey. If significant historic sites are shown to be present in the project area and the proposed undertaking will have an "adverse effect" upon them, mitigation actions will be developed and implemented in consultation with your office.

We look forward to your review of the DEA. If you have questions or other comments, please contact Mr. Toru Hamayata at 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

cc: Kimura International, Inc.



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

June 17, 2002

Mr. Glenn T. Kimura, President
Kimura International
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Pro-Environmental Assessment (PEA) Consultation
Middle Street Transit Center, Oahu, Hawaii
Tax Map Key: 1-2-18: 01-03, 09, 10.

Thank you for the opportunity to review and comment on the subject proposal. The PEA was routed to the various branches of the Environmental Health Administration. We have the following comments.

Clean Water Branch (CWB)

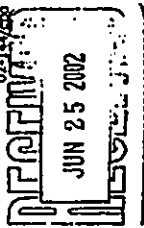
1. If the Army Corps of Engineers determines that a Federal permit is required for the subject project, then a Section 401 Water Quality Certification would be required from our office.
2. If the construction project involves any of the following discharges into State waters, a National Pollutant Discharge Elimination System (NPDES) permit coverage is required for each type of discharge:
 - a. Storm water runoff associated with construction activities, including clearing, grading, and excavation that result in the disturbance of equal to or greater than five acres of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale (*Note: After March 10, 2003, an NPDES permit will be required for discharges of storm water associated with construction activities, including clearing, grading, and excavation that result in the disturbance of one acre or more*);

SCOTT W. CANTIANO
GOVERNOR

BRUCE E. ANDERSON, P.L.D., M.P.H.
DIRECTOR OF HEALTH

IN REPLY, PLEASE REFER TO
FILE

02-144/000



Mr. Glenn T. Kimura, President
June 17, 2002
Page 2

- b. Hydrotreating water, and
- c. Construction dewatering effluent.
- 3. If wastewater discharges, including storm water associated with industrial activity, to State waters results from the operation of the facility after construction, a NPDES permit coverage would be required.

Notice of Intent (NOI) for NPDES general permit coverages should be submitted at least 30 days before the discharge is to occur. NPDES individual permit applications should be submitted 180 days before the discharge is to occur. NOI forms and individual permit applications can be picked up at our office or downloaded from our website at <http://www.state.hi.us/doh/eh/cwh/foi/foiindex.html>.

If you have any questions, please contact Kris Poentis of the Clean Water Branch at (808) 586-4309.

Clean Air Branch

Control of Fugitive Dust

There is a significant potential for fugitive dust emissions during the removal, transport, and installation activities for this project. The project site will be at times within close proximity to neighboring business establishments and major thoroughfares. Implementation of adequate dust control measures during all phases of development and construction activities is warranted.

Construction activities must comply with provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, Fugitive Dust.

The contractor should provide adequate measures to control dust from the road areas and during the various phases of construction. These measures include, but are not limited to:

- a. Planning the different phases of construction, focusing on minimizing the amount of dust generating materials and activities, centralizing on-site vehicular traffic routes, and locating potentially dusty equipment in areas of the least impact;
- b. Providing an adequate water source at the site prior to start up of construction activities;
- c. Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;
- d. Controlling of dust from shoulders and access roads;
- e. Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities, and

Mr. Glenn T. Kimura, President
June 17, 2002
Page 3

- f. Controlling of dust from debris being hauled away from project site.

If you have any questions, please contact the Clean Air Branch at (808) 586-4200.

Noise, Radiation and Indoor Air Quality (NRIAQ) Branch

All project activities shall comply with the Administrative Rules of the Department of Health, Chapter 11-46, on "Community Noise Control".

If you have any questions, please contact the NRIAQ at (808) 586-4701.

Sincerely,



GARY GILL
Deputy Director
Environmental Health Administration

c: CWB
CAB
NRIAQ

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

430 SOUTH KING STREET, 3RD FLOOR - HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-8319 • FAX: (808) 523-4126 • INTERNET: www.cc.hawaii.gov



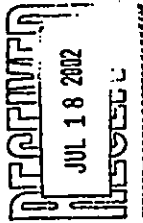
JEREMY HARRIS
WATER

CHERYL D. SOON
DIRECTOR
GEORGE WEDER, MAUNALOA
SEVENTH DISTRICT

TPD02-00310

July 16, 2002

Mr. Gary Gill, Deputy Director
Environmental Health Administration
State Department of Health
P. O. Box 3378
Honolulu, Hawaii 96801



Dear Mr. Gill:

Subject: Middle Street Transit Center Draft Environmental Assessment
Early Consultation

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA). We have received a copy of your letter to Kimura International dated June 17, 2002, and have the following response:

Clean Water Branch

Thank you for the information on Section 401 Water Quality Certification and NPDES permits. This information will be included in the DEA.

Clean Air Branch

Adequate dust control measure will be used during all phases of development and construction to control fugitive dust. Measures will include, but not be limited to, those identified in your letter. Your comments will be included in the DEA.

Noise, Radiation and Indoor Air Quality Branch

The project will comply with DOH Administrative Rules on Community Noise Control.

We look forward to your review of the Draft EA. If you have questions or other comments, please contact Mr. Tou Hamayasu at 527-6978.

Sincerely,

Cheryl D. Soon
CHERYL D. SOON
Director

✓ cc: Kimura International, Inc.

BOB HAMMILL, CATVIANO
GOVERNOR



STATE OF HAWAII
OFFICE OF ENVIRONMENT QUALITY CONTROL

28 SOUTH KING STREET
SUITE 1202
HONOLULU, HAWAII 96813
TELEPHONE: (808) 586-1100
FACSIMILE: (808) 586-1106

June 10, 2002

Mr. Glenn T. Kimura
Kimura International
1600 Kapiolani Blvd., Suite 1610
Honolulu, HI 96814

Subject: Pre-consultation for Middle Street Transit Center

Dear Mr. Kimura:

We have reviewed the information provided for Middle Street Transit Center. We have the following suggestions:

1. Address the traffic impacts of the area.
2. Address the cumulative impacts this project will have on the existing Kalihii-Palama bus facility as well as the planned relocation of the Department of Environmental Services of their refuse department to Keehi Transfer.
3. Mitigation measures to be taken to assure prevention of runoff into Kalihii Stream.
4. Consult with neighboring businesses and area residents.

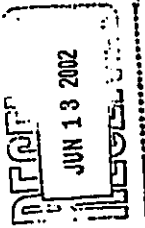
We have no other comments to offer at this time, but will reserve further comments when the documents are submitted.

Should you have any questions, please feel free to call our office at 586-4185.

Sincerely,

Genevieve Salmonson
Genevieve Salmonson
Director

GENEVIEVE SALMONSON
DIRECTOR



DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
150 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4219 • FAX: (808) 523-4790 • INTERNET: WWW.DOT.HAWAII.HI



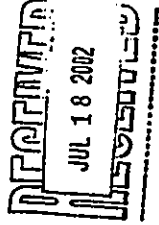
JOHN HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE 'NOLON' WILAMOTO
DEPUTY DIRECTOR

TPD02-00311

July 16, 2002



Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
State of Hawaii
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Middle Street Transit Center Draft Environmental Assessment
Early Consultation

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA). We have received a copy of your letter to Kimura International dated June 10, 2002, and have the following response to your comments:

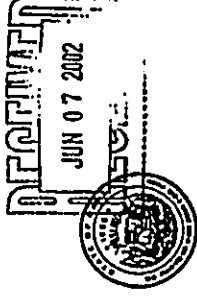
1. The Draft EA will include a traffic impact study to assess potential traffic impacts and identify appropriate mitigation measures.
2. The Draft EA will address cumulative impacts of this project on the existing Kalihii-Palana Bus facility and planned relocation of the Department of Environmental Services refuse department to Keeki Transfer.
3. The Draft EA will address water quality impacts to Kalihii Stream, including mitigation measures to prevent runoff into the stream.
4. The early consultation letter was sent to area neighborhood boards and elected officials. The Draft EA will also be sent to these area stakeholders.

We look forward to your review of the Draft EA. If you have questions or other comments, please contact Mr. Tori Hamayasu at 527-6978.

Sincerely,
Cheryl D. Soon
CHERYL D. SOON
Director

✓ cc: Kimura International, Inc.

SENAUMI J. CAITYAHO
DIRECTOR



SUSAN M. CHANDLER, M.S.W., Ph.D.
DIRECTOR

ELIZABETH KENT
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
P. O. Box 339
Honolulu, Hawaii 96809-0339

June 5, 2002

Glenn T. Kimura
Kimura International, Inc.
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

The Department of Human Services has no comments at this time on the Environmental Assessment for the proposed Middle Street Transit Center. If you have any questions, please call Susan Yamamoto at (808) 586-4888.

Sincerely,

Susan M. Chandler
Susan M. Chandler
Director

AN EQUAL OPPORTUNITY AGENCY

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 2ND FLOOR - HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4339 • FAX: (808) 523-4730 • INTERNET: www.ctd.hawaii.gov

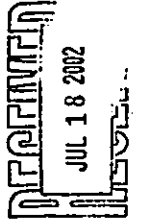


JEREMY HARRIS
MAIL ROOM

CHERYL D. SOON
DIRECTOR
GEORGE KLEINER BUILDING
PLANNING DIRECTOR

TPD02-00316

July 16, 2002



Ms. Susan M. Chandler
Director
Department of Human Services
State of Hawaii
P. O. Box 339
Honolulu, Hawaii 96809-0339

Dear Ms. Chandler:

Subject: Middle Street Transit Center Draft Environmental Assessment
Early Consultation

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We have received a copy of your letter to Kimura International dated June 5, 2002, and acknowledge that your department has no comments at this time.

We look forward to your review of the DEA. If you have questions or other comments, please contact Mr. Toru Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

cc: Kimura International, Inc.

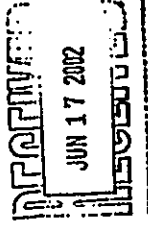
BENJAMIN J. CAVETANO
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
889 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

JUN 14 2002

REPLY REFER TO:
HWY-PS
2.6882



Mr. Glenn T. Kimura
President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Glenn
Dear Mr. Kimura:

Subject: Middle Street Transit Center Environmental Assessment (EA)

Thank you for consulting us. We are particularly concerned with traffic impacts, which may result from the proposed development of (1) signalized intersections on Kamahameha Highway and Middle Street and (2) an automated 1,000-vehicle park-and-ride facility. We request that the Draft EA include a Traffic Analysis Report (TIAR) to determine appropriate measures to mitigate traffic impacts. Since the City proposal for Bus Rapid Transit includes a new freeway off-ramp to allow unrestricted vehicular access to the Middle Street Transit Center, we also request that the Middle Street Transit Center TIAR determine necessary measures to prevent traffic from queuing on the proposed ramp.

If you have any questions, please contact Ronald Tszuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

BRIAN K. MINAAI
Director of Transportation

c: FHWA

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
 850 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
 TELEPHONE: (808) 523-4333 • FAX: (808) 523-4730 • INTERNET: WWW.CC.HONOLULU.HI



JEREMY HARRIS
 Mayor

CHERYL D. SOON
 DIRECTOR
 GEORGE "REDF" WYLLIOTO
 DEPUTY DIRECTOR
 TPD002-00309

RECEIVED
 JUN 18 2002

Mr. Brian Minaai, Director
 Department of Transportation
 State of Hawaii
 869 Punchbowl Street
 Honolulu, Hawaii 96813-5097

July 16, 2002

Dear Mr. Minaai:

Subject: Middle Street Transit Center Draft Environmental Assessment
Early Consultation

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We have received a copy of your letter to Kimura International dated June 10, 2002, and acknowledge your concerns about traffic impacts which may result from 1) signalized intersections on Kamehameha Highway and Middle Street, and 2) an automated 1,000 vehicle park-and-ride facility. We have the following response to your comments:

1. The DEA will include a Traffic Impact Analysis Report (TIAR) to assess potential traffic impact and to identify appropriate mitigation measures.
2. The City proposal for Bus Rapid Transit no longer includes a new freeway off-ramp providing direct vehicular access to the Middle Street Transit Center. Vehicular and bus access to the transit center is now proposed to be directly from Middle Street and Kamehameha Highway.

We look forward to your review of the DEA. If you have questions or other comments, please contact Mr. Toru Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
 Director

✓ cc: Kimura International, Inc.

PHONE (808) 541-1000



STATE OF HAWAII
 OFFICE OF HAWAIIAN AFFAIRS
 711 KAPOLANA BOULEVARD, SUITE 600
 HONOLULU, HAWAII 96813

RECEIVED
 JUN 18 2002

FAX (808) 541-1003

June 5, 2002

Mr. Glenn T. Kimura, President
 Kimura International
 1600 Kapiolani Blvd., Suite 1610
 Honolulu, HI 96814

Dear Mr. Kimura:

Subject: Draft Environmental Assessment for Proposed Middle Street Transit Center, Oahu

This is in response to your letter to conduct early consultation with the Office of Hawaiian Affairs relating to the above-referenced project of the City and County of Honolulu.

As part of HRS 343 compliance, OHA reminds the City that it must complete a cultural impact statement so that information may be gathered about cultural practices and cultural features that may be affected by actions subject to Chapter 343. OHA recommends that the City seek as broad a consultation as possible with knowledgeable Native Hawaiian organizations and individuals to complete the required cultural impact assessment.

This consultation should include the incorporation of the contacts listed below to assist in (as applicable) the identification of cultural and historic resources, cultural practices and significance, evaluating cultural places implicated by this project, assessing adverse effects to them, and developing appropriate mitigation and alternatives (where necessary):

- Local Hawaiian civic clubs
- Local chapters of the royal societies
- Oahu Island Burial Council
- Individuals familiar with cultural practices of the areas affected by your undertaking

Thank you for the opportunity to comment and provide concerns in this phase of the proposed project. We look forward to reviewing your Draft EA when available. If you have any questions, please contact Wayne Kawamura, Policy Analyst at 594-1945, or email him at: waynek@oha.org.

Sincerely,



Jelina Keala
Acting Director, Hawaiian Rights Division

cc: BOT
ADM

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

150 SOUTH KING STREET, 2ND FLOOR, HONOLULU, HAWAII 96813
TELEPHONE (808) 521-4128 • FAX (808) 521-4120 • INTERNET: www.cc.honolulu.hi.us



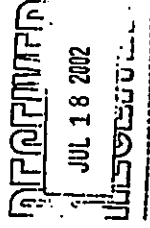
AGENT/MAILER
SOON

CHERYL D. SOON
DIRECTOR

GEORGE W. LEON
SCOUTS HONOLULU

TPD02-00321

July 16, 2002



Ms. Jelina Keala
Acting Director, Hawaiian Rights Division
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Ms. Keala:


Subject: Middle Street Transit Center Draft Environmental Assessment
Early Consultation

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We have received a copy of your letter to Kimura International dated June 5, 2002 and acknowledge your comment that the project must include a cultural impact statement including information about cultural practices and cultural features that may be impacted. A cultural impact statement is currently being prepared, and will include consultation with local Hawaiian civic clubs, local chapters of royal societies, the Oahu Island Burial Council, and other individuals familiar with cultural practices in the project area. A copy of the report will be included in the DEA.

We look forward to your review of the DEA. If you have questions or other comments, please contact Mr. Toru Hamayasu at 527-6978.

Sincerely,


CHERYL D. SOON
Director

✓ cc: Kimura International, Inc.



RECEIVED
JUN 07 2002
RECEIVED

UNIVERSITY OF HAWAII AT MANOA

OFFICE OF THE CHANCELLOR

June 5, 2002

Mr. Glenn T. Kimura
President
Kimura International, Inc.
1600 Kapiolani Blvd. Suite 1610
Honolulu, HI 96814

Dear Mr. Kimura,

Thank you for the early consultation opportunity. The University has no comments at this time and looks forward to reviewing the draft EA.

Your inclusion of the University in the process is appreciated.

Aloha,

Glenn T. Kimura
Allan Ah San
Associate Vice President for Administration

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

130 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-5123 • FAX: (808) 523-4730 • INTERNET: WWW.CC.HONOLULU.HI



July 16, 2002

JEREMY HARRIS
DIRECTOR

CHERYL D. SOON
DIRECTOR

GEORGE "MOMO" HIRAMOTO
SENIOR DIRECTOR

TPD02-00317

RECEIVED
JUL 18 2002
RECEIVED

Mr. Allan Ah San
Associate Vice President for Administration
Office of the Chancellor
University of Hawaii at Manoa
2444 Dole Street
Bachman Hall
Honolulu, Hawaii 96822

Dear Mr. Ah San:

Subject: Middle Street Transit Center Draft Environmental Assessment
Early Consultation

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We have received a copy of your letter to Kimura International dated June 5, 2002, and acknowledge that the University has no comments at this time.

We look forward to your review of the DEA. If you have questions or other comments, please contact Mr. Toru Hamayasu at 527-6978.

Sincerely,
Cheryl D. Soon

CHERYL D. SOON
Director

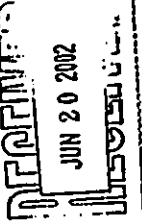
cc: Kimura International, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



June 20, 2002



Mr. Glenn T. Kimura, President
Kimura International
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Your Letter of May 31, 2002 on the Middle Street Transit
Center Environmental Assessment Early Consultation

Thank you for the opportunity to comment on the proposed Middle Street Transit Center.

The existing water system is presently adequate to accommodate the proposed transit center.

The availability of water will be confirmed when the building permit is submitted for our review and approval. When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

The proposed project is subject to Board of Water Supply Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the Building Permits.

If you have any questions, please contact Joseph Kaakua at 527-6123.

Very truly yours,

for CLIFFORD S. JAMILE
Manager and Chief Engineer

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
430 SOUTH KING STREET, 3RD FLOOR - HONOLULU, HAWAII 96813
TELEPHONE: (808) 532-9339 - FAX: (808) 532-4730 - INTERNET: www.cc.honolulu.hi

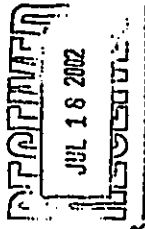


July 16, 2002

CHERYL D. SOON
DIRECTOR

CHERYL D. SOON
DIRECTOR

TPD02-00320



MEMORANDUM

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: MIDDLE STREET TRANSIT CENTER DRAFT ENVIRONMENTAL
ASSESSMENT EARLY CONSULTATION

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We have received a copy of your letter to Kimura International dated June 20, 2002 and acknowledge your comment that the existing water system is adequate to accommodate the proposed transit center. Kimura International has forwarded a copy of your letter to the project engineers, so that they are aware of your comments regarding the Water System Facilities Charge and Cross-Connection Control and Backflow Prevention requirements.

We look forward to your review of the DEA. If you have questions or other comments, please contact Mr. Toru Hamayasu at 527-6978.

CHERYL D. SOON

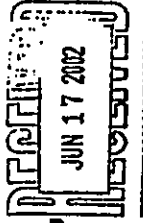
✓cc: Kimura International, Inc.

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

610 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 923-4114 • FAX: (808) 927-4743 • INTERNET: WWW.HONOLULU.HI.GOV



JEREMY HARRIS
MAYOR



MANUELLE E. FURUKI, MA
DIRECTOR
LAND USE & ZONING
DEPARTMENT

2002/ELOG-1576 (RS)

June 14, 2002

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Early Consultation Request for the Draft Environmental
Assessment Report for the Middle Street Transit Center
TMK: 1-2-018: 001, 002, 009, & 010

This is in response to your request dated May 31, 2002, for comments for the draft
Environmental Assessment Report, which you will be preparing for the Department of
Transportation Services.

We offer the following comments for your review and consideration for the Draft EA
report:

1. A glossary listing the abbreviations/acronyms and the definitions/items/entities represented would be helpful.
2. In the "Consistency with the City and County of Honolulu existing policies" section, there should be a discussion of how the proposed transit center will be consistent with the provisions of the existing Development Plan (DP) and the proposed revised Primary Urban Center DP.
3. Project Background: To confirm staff discussion with Ms. Kurisaki on June 12th, DPP processed an amendment to a portion of the PUC Development Plan Public Facilities Map (DPPFM) to add a "Transit Center" symbol, publicly funded, site determined, within six years for the proposed "Middle Street Transportation Center and TheHandi-Van Facility." Ordinance 01-34, Bill 28 (2001), CD1 was approved by Council on June 20, 2001 and approved by Mayor Harris on July 2, 2001.

Mr. Glenn T. Kimura, President
Kimura International, Inc.
June 14, 2002
Page 2

For your information, three Kalihī Stream properties (TMK: 1-2-017: 003, 004 and 005) were added to the five parcels (TMK: 1-2-018: 001, 002, 003, 009 and 010) in the original amendment proposal.

Copies of the following documents are included for your information and understanding of the project background:

- Ordinance 01-34, Bill 28 (2001), CD1.
 - Planning Commission March 21, 2001 "Findings of Fact".
 - DPP February 8, 2001 Recommendation to the Planning Commission and comment letters received.
 - DPP April 3, 2001 letter to City Council transmitting the comment letters, which were received after our February 8th report to the Planning Commission.
 - DPP May 10, 2001 letter to Council transmitting the amended Ordinance map expanding the original project site to eight parcels by adding the three Kalihī Stream parcels.
4. A discussion of the changes between the current plans and the concept presented earlier to the City Council and the Community would be helpful.
 5. In the "Potential Impacts" chapter, there should be a discussion of the history of the flooding of the Kalihī Stream, impacts on the adjacent properties, and how future flooding impacts will be mitigated.
 6. A discussion should be included on the automated parking technology and its operation during peak commuter hours.

We will reserve further comments for later after we review the completed DEA report.

Kimura Int'l

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

450 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 525-5151 • FAX: (808) 525-4750 • INTERNET: www.do-ts.hawaii.gov

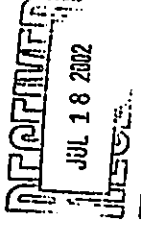


JEFFREY HARRIS
DIRECTOR

CHERYL D. SOON
DIRECTOR
GEORGE W. NEWMAN
SENIOR DIRECTOR

TPD002-00322

July 16, 2002



MEMORANDUM

TO: RANDALL K. FUJIKI, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: MIDDLE STREET TRANSIT CENTER DRAFT ENVIRONMENTAL
ASSESSMENT, EARLY CONSULTATION

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We have received a copy of your letter to Kimura International dated June 14, 2002 and have the following response to your comments:

1. A glossary listing the abbreviations/acronyms will be included in the Draft EA.
2. The "Consistency with the City and County of Honolulu existing policies" section will include a discussion of how the proposed transit center will be consistent with the provisions of the existing Development Plan (DP) and the proposed revised Primary Urban Center DP.
3. Thank you for providing the enclosed documents and for providing Ms. Leslie Kurisaki of Kimura International with project background information. The information received will be very helpful.
4. The Draft EA will discuss changes between the current plans and the earlier concept presented to the City Council during the DP update.
5. The Draft EA will discuss the flooding history of the Kaihi Stream and impacts on adjacent properties, and how future flooding impacts will be mitigated.

Mr. Glenn T. Kimura, President
Kimura International, Inc.
June 14, 2002
Page 3

Please call Ray Sakai of my Policy Planning Branch staff at 523-4047 if you have any questions.

Sincerely yours,

RANDALL K. FUJIKI, AIA
Director of Planning and Permitting

RKF:js

Attachments

cc: Ms. Leslie Kurisaki, Kimura International
Cheryl D. Soon, Director, Department of Transportation Services

E:\planning\dir\functions\ea-eis\0002\middlestreet\ea.doc

Randall K. Fujiki
Page 2
July 16, 2002

- 6. The Draft EA will include a brief discussion on the automated parking technology and its operation during peak commuter hours. However, because the automated parking vendor has not yet been selected, the description of the technology will be general.

We look forward to your review of the Draft EA. If you have questions or other comments, please contact Toru Hamayasu at Local 6978.

Cheryl D. Soon

CHERYL D. SOON

cc: Kimura International, Inc.

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
 1000 ULUKOHA STREET, SUITE 309 - KAPOLEI, HAWAII 96707
 TELEPHONE: (808) 972-5381 • FAX: (808) 972-5121 • INTERNET: WWW.CC.HONOLULU.HI.US



RECEIVED
 JUN 20 2002
 HONOLULU

WILLIAM D. BALFOUR, JR.
 DIRECTOR
 EDWARD T. KALAPAY, D.D.
 DEPUTY DIRECTOR

June 17, 2002

Mr. Glenn T. Kimura, President
 Kimura International, Inc.
 1600 Kapiolani Blvd., Suite 1610
 Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Middle Street Transit Center Environmental Assessment
 Early Consultation

Thank you for the opportunity to participate in the Early Consultation relating to the Middle Street Transit Center Environmental Assessment.

The Department of Parks and Recreation has no comments at this time.

Should you have any questions, please contact Mr. John Reid, Planner, at 692-5454.

Sincerely,

 b7 WILLIAM D. BALFOUR, JR.
 Director

WDB:mk

cc: Mr. Don Griffin, Department of Design and Construction

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
580 SOUTH KING STREET, 2ND FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 933-4339 • FAX: (808) 933-4120 • INTERNET: www.honolulu.gov

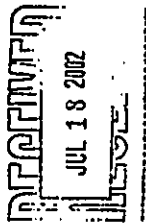


JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR
GEORGE WESLEY MURPHY
PLANNING DIRECTOR

TPD02-00319

July 16, 2002



MEMORANDUM

TO: WILLIAM D. BALFOUR, JR., DIRECTOR
DEPARTMENT OF PARKS AND RECREATION

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: MIDDLE STREET TRANSIT CENTER DRAFT ENVIRONMENTAL
ASSESSMENT, EARLY CONSULTATION

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We have received a copy of your letter to Kimura International dated June 17, 2002, and acknowledge that your department has no comments at this time.

We look forward to your review of the DEA. If you have questions or comments, please contact Toru Hamayasu at Local 6978.

Cheryl D. Soon
CHERYL D. SOON

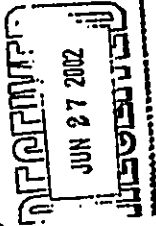
cc: Kimura International, Inc.

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
2375 KOWALIA STREET, SUITE 4411
HONOLULU, HAWAII 96819-1189



JEREMY HARRIS
MAYOR

ATTILIO E. LEONARDI
FIRE CHIEF
JOHN CLARE
DEPUTY FIRE CHIEF



June 18, 2002

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Middle Street Transit Center Environmental Assessment Early Consultation
We received your letter dated May 31, 2002, regarding the above-mentioned subject.
The Honolulu Fire Department (HFD) requests that the following be complied with:

1. Provide a private water system where all appurtenances, hydrant spacing, and fire flow requirements meet Board of Water Supply standards.
2. Provide a fire department access road within 150 feet of the first floor of the most remote structure. Such access shall have a minimum vertical clearance of 13 feet 6 inches, be constructed of an all-weather driving surface complying with Department of Transportation Services (DTS) standards, capable of supporting the minimum 60,000-pound weight of our fire apparatus, and with a gradient not to exceed 20%. The unobstructed width of the fire apparatus access road shall meet the requirements of the appropriate county jurisdiction. All dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround having a radius complying with DTS standards.
3. Submit construction plans to the HFD and the Department of Planning and Permitting.

Mr. Glenn T. Kimura, President
Page 2
June 18, 2002

Should you have any questions, please call Battalion Chief Kenneth Silva of our Fire Prevention Bureau at 831-7778.

Sincerely,

ATTILIO K. LEONARDI
Fire Chief

AKL/KB:jo

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
640 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 521-3122 • FAX: (808) 521-4710 • INTERNET: www.cohawaii.gov



JEREMY HARRIS
MAIL ROOM

CHERYL D. SOON
DIRECTOR

LEGISLATIVE SERVICES DIVISION
DEPUTY DIRECTOR

TPD02-00322

July 16, 2002

RECEIVED
JUL 18 2002
HONOLULU

MEMORANDUM

TO: ATTILIO K. LEONARDI, FIRE CHIEF
FIRE DEPARTMENT

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: MIDDLE STREET TRANSIT CENTER DRAFT ENVIRONMENTAL ASSESSMENT, EARLY CONSULTATION

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We have received your letter to Kimura International dated June 18, 2002 and will comply with the conditions listed, including:

1. Provision of a private water system where all appurtenances, hydrant spacing, and fire flow requirements meet Board of Water Supply standards.
2. Provision of a fire department access road within 150 feet of the first floor of the most remote structure, which meets County requirements.
3. Submission of construction plans to the HFD and the Department of Planning and Permitting.

We look forward to your review of the DEA. If you have questions or other comments, please call Toru Hamayasu at Local 6978.

CHERYL D. SOON

✓ cc: Kimura International, Inc.

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
 501 SOUTH BELETANIA STREET
 HONOLULU, HAWAII 96813 - AREA CODE (808) 928-3111
<http://www.hawaii.dpdp.org>
www.cc.honolulu.hi.us

JEREMY HARRIS
 MAYOR



LEE D. DONOHUE
 CHIEF
 ROBERT AU
 SLEN KAJIYAMA
 DEPUTY CHIEFS

OUR REFERENCE CS-XP

June 7, 2002

Mr. Glenn T. Kimura, President
 Kimura International, Inc.
 1600 Kapiolani Boulevard, Suite 1610
 Honolulu, Hawaii 96814

Dear Mr. Kimura:

Thank you for the opportunity to review and comment on the Early Consultation for the Middle Street Transit Center Environmental Assessment.

This area is patrolled and serviced by officers in District 5 which lies between the Nuuanu Ridgeline and Red Hill. District 5 is headquartered at 1865 Kamehameha IV Road in Kalihi.

If there are any questions, please call Ms. Carol Soderlani of the Support Services Bureau at 529-3638.

Sincerely,

LEE D. DONOHUE
 Chief of Police

By *a. a. p. Godsey*
 KARL GODSEY
 Assistant Chief of Police
 Support Services Bureau

Striking and Printing with Aloha

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
 630 SOUTH KING STREET, 3RD FLOOR - HONOLULU, HAWAII 96813
 TELEPHONE (808) 523-4212 • FAX (808) 523-4730 - INTERNET www.cc.honolulu.hi.us

JEREMY HARRIS
 MAYOR



CHERYL D. SOON
 DIRECTOR
 GEORGE YEMURA
 DEPUTY DIRECTOR

July 16, 2002

TPD02-00314

RECEIVED
 JUL 18 2002
 HONOLULU

MEMORANDUM

TO: LEE DONOHUE, CHIEF
 HONOLULU POLICE DEPARTMENT

ATTN: KARL GODSEY, ASSISTANT CHIEF OF POLICE
 SUPPORT SERVICES BUREAU

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: MIDDLE STREET TRANSIT CENTER DRAFT ENVIRONMENTAL
 ASSESSMENT, EARLY CONSULTATION

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We have received a copy of your letter to Kimura International dated June 7, 2002. The information you provided about police service in the area will be included in the DEA.

We look forward to your review of the DEA. If you have questions or other comments, please contact Toru Hamsayasu at Local 6978.

Cheryl D. Soon
 CHERYL D. SOON

cc: Kimura International, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
 150 SOUTH KING STREET, 3RD FLOOR, HONOLULU, HAWAII 96813
 TELEPHONE: (808) 521-2311 FAX: (808) 521-4130 INTERNET: www.cc.honolulu.gov



CHERYL D. SOON
 DIRECTOR
 GEORGE W. PETERSON
 SAFETY DIRECTOR

TPD02-00313

JUL 18 2002

July 16, 2002

MEMORANDUM

TO: TIMOTHY E. STEINBERGER, P.E., DIRECTOR
 DEPARTMENT OF ENVIRONMENTAL SERVICES

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: MIDDLE STREET TRANSIT CENTER DRAFT ENVIRONMENTAL ASSESSMENT, EARLY CONSULTATION

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We have received a copy of your letter to Kimura International dated June 10, 2002 and acknowledge your comment that the project may have impacts on your solid waste operations in the vicinity. Specifically, the Middle Street entrance to the transit center will be directly across the access road to the Keeshi Transfer Station which will also be the site of your relocated Honolulu Collection Yard. Kimura International has forwarded your letter to the project civil and traffic engineers. The Middle Street improvements will consider the expected traffic from refuse collection trucks and transfer vehicles.

We look forward to your review of the DEA. If you have questions or other comments, please contact Toru Hamayasu at Local 6978.

Cheryl D. Soon
 CHERYL D. SOON

cc: Kimura International, Inc.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
 1001 ULUKOUA STREET, SUITE 500, HONOLULU, HI 96817
 (808) 521-3131 FAX: (808) 521-4133



TIMOTHY E. STEINBERGER, P.E.
 Director
 FRANK J. DORIS, P.E.
 Deputy Director

PRO 02-29

June 10, 2002

via fax: 941-8992

Mr. Glenn T. Kimura, President
 Kimura International
 1600 Kapiolani Blvd., Suite 1610
 Honolulu, HI 96814

Dear Mr. Kimura:

SUBJECT: Middle St. Transit Center,
 Environmental Assessment, Early Consultation

We have reviewed your May 31, 2002, early consultation letter on the subject project. The proposed Middle St. Transit Center, as shown in the preliminary site plan, may have impacts on our solid waste operations in the vicinity. It appears that the Middle St. entrance to the Transit Center will be directly across the access road to the Keeshi Transfer Station, which will also be the site of our relocated Honolulu Collection Yard. The plan indicates the intersection will be signalized, which is a good idea because at certain times of the day there is a heavy volume of refuse collection trucks and transfer vehicles turning in and out onto Middle St. The Middle St. improvements for the Transit Center need to anticipate the expected traffic from refuse collection trucks and transfer vehicles.

Should you have any questions, please call Jack Pobok, Program Coordinator, at 692-5727.

Sincerely,

Timothy E. Steinberger
 TIMOTHY E. STEINBERGER, P.E.
 Director



Verizon Hawaii Inc.
P.O. Box 2200
Honolulu, HI 96841

RECEIVED
JUN 13 2002
HONOLULU

June 11, 2002

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Middle Street Transit Center Environmental Assessment
Early Consultation

Thank you for the opportunity to review and comment on your preparation of the draft Environmental Assessment (EA) for the proposed Middle Street Transit Center project.

At this time, Verizon Hawaii has no comments regarding this project. However, please be aware that Verizon Hawaii will require further review during the design stages of the project to determine if there will be any impact to our existing facilities in the project area, if any, and for service requirements to the proposed facilities.

If you have any questions or require assistance in the future on this project, please call me at 546-3541.

Sincerely,

Kevin Ayano
CAF Planner - Network Engineering and Planning
Verizon Hawaii

KA

cc: Warren Hanuki, Verizon Hawaii
Dan Masuomi, Verizon Hawaii
Kenwynn Goo, Verizon Hawaii

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
150 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE (808) 537-5219 • FAX (808) 532-4730 • INTERNET www22.honolulu.gov



July 16, 2002

JEFFREY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "NEO" MAMALOTO
DEPUTY DIRECTOR

TPD02-00312

RECEIVED
JUL 19 2002
HONOLULU

Mr. Kevin Ayano
CAF Planner—Network Engineering and Planning
Verizon Hawaii, Inc.
P. O. Box 2200
Honolulu, Hawaii 96841

Dear Mr. Ayano:

Subject: Middle Street Transit Center Draft Environmental Assessment
Early Consultation

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We have received a copy of your letter to Kimura International dated June 11, 2002 and acknowledge that Verizon Hawaii has no comments at this time. We acknowledge that Verizon Hawaii will require further review during the project design stages.

We look forward to your review of the DEA. If you have questions or other comments, please contact Mr. Toru Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

✓ cc: Kimura International, Inc.



June 12, 2002

RECEIVED
JUN 13 2002
LEO

Scott W.H. Seal, P.E.
Manager
Environmental Department

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

Re: Middle Street Transit Center Environmental Assessment
Early Consultation

Dear Mr. Kimura,

This letter is in response to your May 31, 2002, letter soliciting preliminary comments on the Middle Street Transit Center project proposed by the City and County of Honolulu (City). We understand that our early input is sought in the course of your preparation of a Draft Environmental Assessment for this Transit Center project. Please find below our initial comments.

Hawaiian Electric Company, Inc. (HECO) has overhead steel and wood poles along the Dillingham and Middle Street boundaries of the proposed transit center facility. These steel and wood poles are located mainly in the public right-of-way with portions on private property and support high voltage power lines (138kV, 46kV and 12kV lines). The exact pole and anchor locations need to be surveyed to determine whether they will be impacted by the proposed Dillingham and Middle Street driveways for the Transit Center site. Please be advised that it will take approximately four months to relocate any of the wood poles, and from nine to twelve months to relocate any of the steel poles.

In addition, there are 46kV and 12kV underground ducts and cables in the immediate vicinity. These must be toned out and field located to determine whether the proposed driveways and street improvements impact any of these utility facilities. Please be advised that it will take approximately six to nine months to relocate any of the underground facilities.

The developer shall be responsible for any utility relocation costs including temporary relocation work to facilitate construction of the facility. HECO will need continued access for maintenance of our facilities. For each new electrical service to the Handi-Van maintenance facility, transit center building, parking structure and any future commercial



WINNER OF THE EDISON AWARD
FOR DISTINGUISHED INDUSTRY LEADERSHIP

Kimura International
June 12, 2002
Page 2

buildings, the developer shall submit a service request to HECO's Customer Installations Department.

We thank you for the opportunity to comment and appreciate your efforts to keep us apprised of this City project. As this project moves forward, please continue to keep us informed. Further along in your planning and design, we will be better able to evaluate the effects on our system facilities. I suggest your staff and consultants deal directly with Francis Hirakami (543-7536), principal engineer, to coordinate HECO's continuing input on this project.

Please address the Draft Environmental Assessment and any future related correspondence to the attention of Scott Seal, Manager, Environmental Department.

Sincerely,

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

150 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE (808) 522-5119 • FAX (808) 522-7130 • INTERNET WWW.CCHONOLULU.HI



JEFFREY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "MOTO" MITSUOTO
SPORTS DIRECTOR

TPD02-00324

July 16, 2002

Mr. Scott W. H. Seu, P.E.
Manager, Environmental Department
Hawaiian Electric Company, Inc.
P. O. Box 2750
Honolulu, Hawaii 96840-0001

JUL 18 2002

MPPT/PPF

.....

Dear Mr. Seu:

Subject: Middle Street Transit Center Draft Environmental Assessment
Early Consultation

Thank you for your early consultation comments prior to completion of the Middle Street Transit Center Draft Environmental Assessment (DEA).

We have received a copy of your letter to Kimura International dated June 12, 2002 and have the following response to your comments:

1. We acknowledge your comment that HECO has overhead steel and wood pole along the Dillingham and Middle Street boundaries of the project site. According to the project engineers, many if not all of the existing wood poles along with any 46kV, 11.5kV and secondary lines will be modified, relocated and /or removed. The existing 46 kV riser pole and associated section of underground 46kV lines may need to be relocated to accommodate the new signalized intersection at Middle Street. Portions of the 138 kV, 46kV and 11.5kV overhead lines and associated steel poles along Middle Street may have to be relocated to accommodate the new transit center.
2. The pole and anchor locations will be surveyed during project scoping of the design phase, to determine whether they will be impacted by the project.
3. The City and County of Honolulu, as the project developer, will be responsible for any utility relocation costs, including temporary relocation work.

Mr. Scott W. H. Seu
Page 2
July 16, 2002

4. For new electrical service to the Handi-Van maintenance facility, transit center building, parking structure and any future commercial buildings, the developer (i.e., City and County of Honolulu) will submit a service request to HECO's Customer Installation Department.

Kimura International has forwarded your comments to the project civil engineers, who will consult directly with Mr. Francis Hirakami, as required.

We look forward to your review of the DEA. If you have questions or other comments, please contact Mr. Toru Hamayasu at 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

✓ cc: Kimura International, Inc.

Comments on the Draft Environmental Assessment



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FORT SHAFTER, HAWAII 96858-5440

ATTENTION: Civil Works Technical Branch

October 7, 2002

Civil Works Technical Branch

Mr. Brian Suzuki
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

Dear Mr. Suzuki:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the Middle Street Transit Center, Honolulu, Oahu (TMKs 1-2-18: 01, 03, 09, 10; and, 1-2-17: 03, 04, and 05). The following comments are provided in accordance with Corps of Engineers' authorities to provide flood hazard information and to issue Department of the Army (DA) permits.

- a. The DEA indicates that the project will include clearing and landscaping of the boundary area fronting Kalihi Stream. Any activity occurring below the ordinary high water mark of the stream may require a DA permit. This determination can be provided when plans for the landscape improvements are developed. For further information regarding the permit requirements, please contact Mr. Peter Galloway of our Regulatory Branch at 438-8416 and refer to file number 200200546.
- b. The flood hazard information provided on pages 3-11 and 3-12 of the DEA is correct.

If you require additional information, please feel free to contact Ms. Jessie Dobinick of our Civil Works Technical Branch staff at (808) 438-8876.

Sincerely,

James Pennaz
James Pennaz, P.E.
Chief, Civil Works
Technical Branch

770102-4115

RECEIVED

02 OCT 7 09:56

DIRECTOR'S OFFICE
TRANSPORTATION SERVICES

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR - HONOLULU, HAWAII 96813
TELEPHONE (808) 531-4381 - FAX (808) 531-4720 - INTERNET: www.ctd.hawaii.gov



JERRY MARKS
MAYOR

CHERYL D. SOON
DIRECTOR
GEORGE TUCKER MITRANOTO
DEPUTY DIRECTOR

November 12, 2002

TPD10/02-04115R

Mr. James Pennaz, P.E., Chief
Civil Works Technical Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Building 230
Fort Shafter, Hawaii 96858-5440

Dear Mr. Pennaz:

Subject: Middle Street Transit Center Draft Environmental Assessment (DEA)

This is in response to your letter of October 7, 2002 regarding the Middle Street Transit Center DEA.

As stated in your letter, we acknowledge that any activity, including clearing and landscaping, that occurs below the ordinary high water mark of the stream may require a DA permit. Once landscaping plans are developed, we (or our contractors) will contact Mr. Peter Galloway of your Regulatory Branch to make this determination.

Thank you for your review of the DEA. If you have questions or further comments, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

Cheryl D. Soon
CHERYL D. SOON
Director

cc: Kimura International, Inc.

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSIONS
CONSERVATION AND PROTECTION
DIVISIONS
FORESTRY AND WILDLIFE
LAND DIVISION
LAND USE
WATER RESOURCE MANAGEMENT



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

LAND DIVISION
P.O. BOX 611
HONOLULU, HAWAII 96809

September 19, 2002

C:\COHDTSMIDDLETRNDEA.CMT
Suspense Date: 10/15/02

LD-NAV
L-1903

MEMORANDUM:

- TO:
- XXX Division of Aquatic Resources (CD Format)
 - XXX Division of Forestry & Wildlife (CD Format)
 - XXX Division of State Parks (CD Format)
 - Division of Boating and Ocean Recreation
 - **XXX Commission on Water Resource Management
 - Land Division Branches:
 - *XXX Planning and Technical Services
 - XXX Engineering Branch (Distributed Hard Copy)
 - **XXX Oahu District Land Office

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (DEA) Department of Transportation Services for the Middle Street Transit Center - TMK: 1-1-18: 01-03, 09 and 10

Please review the attached DEA covering the subject matter and submit your written comment and recommendation (if any) on Division letterhead signed and dated on or before the suspense date. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

**Note: One (1) copy of the document is available for your review in the Land Division Office, room 220.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

() We have no comments. Comments attached.

Signed: *Dierdre S. Mamiya*

Date:

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSIONS
CONSERVATION AND PROTECTION
DIVISIONS
FORESTRY AND WILDLIFE
LAND DIVISION
LAND USE
WATER RESOURCE MANAGEMENT



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

LAND DIVISION
P.O. BOX 611
HONOLULU, HAWAII 96809

October 17, 2002

LD-NAV
C:\COHDTSMIDDLETRNDEA.RCM
L-1903\152282\2-0206\2203263

Kimura International
Glenn T. Kimura, President
1600 Kapiolani Blvd, Suite 1810
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Draft Environmental Assessment (DEA) Covering the Proposed City and County of Honolulu Department of Transportation Services' Middle Street Transit Center Project - TMK: 1-1-18: 01-03, 09 and 10

Thank you for the opportunity to review and comment on the subject matter. A copy of the subject DEA was made available or distributed to the following Department of Land and Natural Resources' Divisions for their review and comment:

- Division of Aquatic Resources
- Division of Forestry & Wildlife
- Division of State Parks
- Commission on Water Resource Management
- Land Division Engineering Branch
- Land Division Planning and Technical Services
- Oahu District Land Office

Attached herewith is a copy of the Commission on Water Resource Management and Land Division Engineering Branch comments.

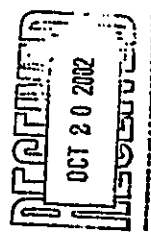
The Department of Land and Natural Resources has no other comment to offer on the subject matter based on the attached responses.

Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 597-0438.

Very truly yours,

Dierdre S. Mamiya
DIERDRE S. MAMIYA
Administrator

C: Oahu District Land Office



DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Engineering Branch

LD-NAV
L-1903

COMMENTS

Please correct the flood hazard designations on pages ES-1, Flood Insurance Rate Map and 3-11, Flooding of the Draft Environmental Assessment. The correct flood hazard designations are:

1. Zone X (Not Shaded) - This is an area determined to be outside the 500-year floodplain.
2. Zone X (Shaded) - This is an area of the 500-year flood; area of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.
3. Zone AE - This is an area where base flood elevations are determined.
4. Zone AO - This is an area with flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths are determined. For areas of alluvial fan flooding, velocities are also determined.

The proposed project must comply with rules and regulations of the National Flood Insurance Program (NFIP) and all applicable County Flood Ordinances. If there are questions regarding the NFIP, please contact the State Coordinator, Mr. Sterling Yong, of the Department of Land and Natural Resources at 587-0248.

If you have any questions, please call Mr. Eric Yuasa of the Project Planning Section at 587-0229.

Signed: *Andrew M. Monden*
ANDREW M. MONDEN, CHIEF ENGINEER

Date: 9/25/02

DIVISION OF AQUATIC RESOURCES	
POSITION	Signature/Date
DIRECTOR	
COAST GUARDS	
ADJ. DIR. ENV.	
ADJ. DIR. N.	
EST. SVCS.	
ENGLNRS.	
PLANNING	
INSPECTION	
RECORDS	
TRAINING	
OFF. OF SVCS.	
OFF. OF ADM.	



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 221
HONOLULU, HAWAII 96828

September 19, 2002

C&COHDTSMIDDLETRNDEA.CMT
Suspense Date: 10/15/02

MEMORANDUM

TO: ✓XXX Division of Aquatic Resources (CD Format)
XXX Division of Forestry & Wildlife (CD Format)
XXX Division of State Parks (CD Format)
Division of Boating and Ocean Recreation
**XXX Commission on Water Resource Management
Land Division Branches:
**XXX Planning and Technical Services
XXX Engineering Branch (Distributed Hard Copy)
**XXX Oahu District Land Office

FROM: *Bierdre S. Mamiya*, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (DEA) Department of Transportation Services for the Middle Street Transit Center - TMK: 1" / 1-2-18; 01-03, 09 and 10

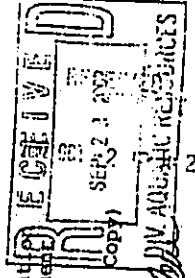
Please review the attached DEA covering the subject matter and submit your written comment and recommendation (if any) on Division letterhead signed and dated on or before the suspense date. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

**Note: One (1) copy of the document is available for your review in the Land Division Office, room 220.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(X) We have no comments.
() Comments attached.

Signed: *Eric Yuasa*
Date: 10/1/02





STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 571
HONOLULU, HAWAII 96809

September 19, 2002

LD-NAV
L-1903

MEMORANDUM:

TO: XXX Division of Aquatic Resources (CD Format)
 XXX Division of Forestry & Wildlife (CD Format)
 XXX Division of State Parks (CD Format)
 XXX Division of Boating and Ocean Recreation
 XXX Commission on Water Resource Management
 Land Division Branches:
 XXX Planning and Technical Services
 XXX Engineering Branch (Distributed Hard Copy)
 XXX Oahu District Land Office

FROM: *B. Mamiya*
Bierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (DEA) Department of Transportation Services for the Middle Street Transit Center - TMK: 1-2-18: 01-03, 09 and 10

Please review the attached DEA covering the subject matter and submit your written comment and recommendation (if any) on Division letterhead signed and dated on or before the suspense date. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

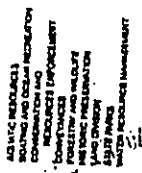
**Note: One (1) copy of the document is available for your review in the Land Division Office, room 220.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(x) We have no comments.

() Comments attached

Signed: *B. Mamiya*
State Parks Administrator
Date: 9/19/02



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 571
HONOLULU, HAWAII 96809

September 19, 2002

LD-NAV
L-1903

MEMORANDUM:

TO: XXX Division of Aquatic Resources (CD Format)
 XXX Division of Forestry & Wildlife (CD Format)
 XXX Division of State Parks (CD Format)
 XXX Division of Boating and Ocean Recreation
 XXX Commission on Water Resource Management
 Land Division Branches:
 XXX Planning and Technical Services
 XXX Engineering Branch (Distributed Hard Copy)
 XXX Oahu District Land Office

FROM: *B. Mamiya*
Bierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (DEA) Department of Transportation Services for the Middle Street Transit Center - TMK: 1-2-18: 01-03, 09 and 10

Please review the attached DEA covering the subject matter and submit your written comment and recommendation (if any) on Division letterhead signed and dated on or before the suspense date. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

**Note: One (1) copy of the document is available for your review in the Land Division Office, room 220.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(x) We have no comments.

() Comments attached

Signed: *B. Mamiya*
State Parks Administrator
Date: 9/19/02



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 571
HONOLULU, HAWAII 96809

September 19, 2002

LD-NAV
L-1903

MEMORANDUM:

TO: XXX Division of Aquatic Resources (CD Format)
 XXX Division of Forestry & Wildlife (CD Format)
 XXX Division of State Parks (CD Format)
 XXX Division of Boating and Ocean Recreation
 XXX Commission on Water Resource Management
 Land Division Branches:
 XXX Planning and Technical Services
 XXX Engineering Branch (Distributed Hard Copy)
 XXX Oahu District Land Office

FROM: *B. Mamiya*
Bierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (DEA) Department of Transportation Services for the Middle Street Transit Center - TMK: 1-2-18: 01-03, 09 and 10

Please review the attached DEA covering the subject matter and submit your written comment and recommendation (if any) on Division letterhead signed and dated on or before the suspense date. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

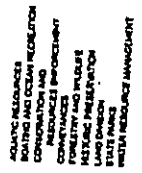
**Note: One (1) copy of the document is available for your review in the Land Division Office, room 220.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

() We have no comments.

(x) Comments attached.

Signed: _____
Date: _____



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 571
HONOLULU, HAWAII 96809

September 19, 2002

LD-NAV
L-1903

MEMORANDUM:

TO: XXX Division of Aquatic Resources (CD Format)
 XXX Division of Forestry & Wildlife (CD Format)
 XXX Division of State Parks (CD Format)
 XXX Division of Boating and Ocean Recreation
 XXX Commission on Water Resource Management
 Land Division Branches:
 XXX Planning and Technical Services
 XXX Engineering Branch (Distributed Hard Copy)
 XXX Oahu District Land Office

FROM: *B. Mamiya*
Bierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (DEA) Department of Transportation Services for the Middle Street Transit Center - TMK: 1-2-18: 01-03, 09 and 10

Please review the attached DEA covering the subject matter and submit your written comment and recommendation (if any) on Division letterhead signed and dated on or before the suspense date. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

**Note: One (1) copy of the document is available for your review in the Land Division Office, room 220.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

() We have no comments.

(x) Comments attached.

Signed: _____
Date: _____

BEAUMUN J. CAVEIANO
Deputy Director



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 21
HONOLULU, HAWAII 96821

GILBERT S. COLEMAN-DURAN
Director
SPICES ANDERSON
MORRIS CHENG
CLAUDIA CHAN
BRADLEY CHAN
HERBERT H. HANAUER, JR.
LANCE T. HANCOCK
TERRY HANSEN

September 30, 2002

TO: Dierdre Mamiya, Administrator
Land Division

FROM: Linnel T. Nishioka, Deputy Director
Commission on Water Resource Management (CWRM)

SUBJECT: DEA, Department of Transportation Services, Middle Street Transit Center, TMK:1-2-18-03-09 and 10

FILE NO.: L-1903

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas, which are important for the maintenance of streams and the replenishment of aquifers.

- We recommend coordination with the county government to incorporate the project into the county's Water Use and Development Plan.
- We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
- A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.
- The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.
- Groundwater withdrawals from this project may affect streamflows, which may require an Instream flow standard amendment.
- We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approvals for this project be conditioned upon a review by the corresponding county's Planning Department and the developer's acceptance of any resulting requirements related to erosion control.
- If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).
- If the proposed project alters the bed and banks of stream channels, the project may require a stream channel alteration permit.
- OTHER:

If there are any questions, please contact David Higa at 587-0249.



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 21
HONOLULU, HAWAII 96821

September 19, 2002

LD-NAV
L-1903

C&CoHDTSMIDDLETRNDEA.CMT
Suspense Date: 10/15/02

MEMORANDUM:

TO: XXX Division of Aquatic Resources (CD Format)
 XXX Division of Forestry & Wildlife (CD Format)
 XXX Division of State Parks (CD Format)
 Division of Boating and Ocean Recreation
 Commission on Water Resource Management
Land Division Branches:
 XXX Planning and Technical Services
 XXX Engineering Branch (Distributed Hard Copy) W
 XXX Oahu District Land Office

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (DEA) Department of Transportation Services for the Middle Street Transit Center - TMK: 1-2-18-01-03, 09 and 10

Please review the attached DEA covering the subject matter and submit your written comment and recommendation (if any) on Division letterhead signed and dated on or before the suspense date. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

**Note: One (1) copy of the document is available for your review in the Land Division Office, room 220.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

We have no comments.

Comments attached
Signed: *[Signature]*

Date: 9/23/02
Dierdre Mamiya, Administrator



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

September 19, 2002

LD-NAV
L-1903

MEMORANDUM:

From: *Tom*

- XXX Division of Aquatic Resources (CD Format)
- XXX Division of Forestry & Wildlife (CD Format)
- XXX Division of State Parks (CD Format)
- Division of Boating and Ocean Recreation
- **XXX Commission on Water Resource Management
Land Division Branches:
- **XXX Planning and Technical Services
- XXX Engineering Branch (Distributed Hard Copy)
- **XXX Oahu District Land Office

To: *Tom* *Dierdre S. Mamiya, Administrator*
Land Division

SUBJECT: Draft Environmental Assessment (DEA) Department of Transportation Services for the Middle Street Transit Center - TMK: 1-2-18: 01-03, 09 and 10

Please review the attached DEA covering the subject matter and submit your written comment and recommendation (if any) on Division letterhead signed and dated on or before the suspense date. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

**Note: One (1) copy of the document is available for your review in the Land Division Office, room 220.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

We have no comments. Comments attached.

Signed: *Tom*

Date: *9/10/02*

AGENCY REQUEST
FOR ENVIRONMENTAL REVIEW
CONSIDERATION REQUIRED
RECOMMENDATION REQUIRED
COMMENTS REQUIRED
AGENCY AND PUBLIC
REVIEW REQUIRED
P.L. 96-510
EFFECTIVE DATE: 12-18-82
WATER RESOURCE MANAGEMENT

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
1150 SOUTH KING STREET, 3RD FLOOR • HONOULULU, HAWAII 96813
TELEPHONE: (808) 525-5115 • FAX: (808) 525-4750 • INTERNET: www.cc.honolulu.hi.us



JEREMY HARRIS
MAILER

CHERYL D. SOON
DIRECTOR
GEORGE LEECH
MANAGING DIRECTOR

November 12, 2002

TPD02-00522

Ms. Dierdre S. Mamiya, Administrator
Department of Land and Natural Resources
Land Division
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Ms. Mamiya:

Subject: Middle Street Transit Center Draft Environmental Assessment (DEA)

This is in response to your letter dated October 17, 2002, regarding the Middle Street Transit Center DEA. We have the following responses to your comments:

Engineering Branch

The flood hazard designations on pages ES-1 and 3-11 will be corrected as noted.

Commission on Water Resource Management

At this time, there are no plans to alter the bed and banks of the Kalihi stream channel. However, we will revise the final EA to note that if such alternations are proposed, the project may require a stream channel alteration permit.

Thank you for your review of the Middle Street Transit Center DEA. If you have questions or other comments, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

cc: Kimura International, Inc.

EDWARD J. CANTILANO
GOVERNOR OF HAWAII



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
MANAGEMENT BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLAI, HAWAII 96707

S
SARAH L. COLLAVALLO, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCES MANAGEMENT

DEB PEE
DICK L. MELIHO
LAMEL MENEVA

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCES
CONSERVATION AND RESOURCES
ENFORCEMENT
CONSERVATION WILDLIFE
HISTORIC PRESERVATION
LAND
STATE HAWAII

September 26, 2002

Brian Suzuki
Department of Transportation Services
City and County of Honolulu
650 S. King Street, 3rd Floor
Honolulu, Hawaii 96813

LOG NO: 30850 ✓
DOC NO: 0209EJ30

Dear Mr. Suzuki:

SUBJECT: Chapter 6E-8 Historic Preservation Review - Draft Environmental Assessment
(DEA) Middle Street Transit Center
Kalihi, Kona, O'ahu
TMK: (1)1-2-017-003-005

Thank you for the opportunity to comment on the DEA for the proposed Middle Street Transit Center. We received the DEA on September 18, 2002, and provide the following comment.

The DEA correctly incorporates our earlier comments recommending that archaeological inventory survey and subsurface testing, within a limited portion of the project area, be conducted. The DEA also states that if significant historic sites are shown to be present in the project area and if the project will have an "adverse effect" on these sites, then mitigative actions will be developed and implemented prior to construction. Our complete review comments are included in Chapter 7.3 Comments and Responses Received During the Early Consultation Period.

Should you have any questions, please feel free to call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027.

Alba

Don Hibbard, Administrator
State Historic Preservation Division

E:jk

c: ✓ Leslie Kurisaki, Kimura International, Inc. 1600 Kapi'olani Boulevard, Suite 1610,
Honolulu, HI 96814

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

450 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4833 • FAX: (808) 523-4750 • INTERNET: WWW.CC.HONOLULU.HI



JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR
GEORGE "DEDE" IKUMANO
SENIOR MANAGER

November 12, 2002

TPD 10/02-04697R

Mr. Don Hibbard, Administrator
Department of Land and Natural Resources
State Historic Preservation Division
State of Hawaii
Kakuhewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Hibbard:

Subject: Middle Street Transit Center Draft Environmental Assessment (DEA)

This is in response to your letter of September 26, 2002 (LOG NO. 30850, DOC NO: 0209EJ30) regarding your review of the Middle Street Transit Center DEA. We acknowledge that the DEA correctly incorporates your early consultation comments.

Thank you for your review of the DEA. If you have questions or other comments, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

CHERYL D. SOON
Director

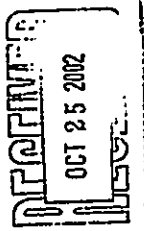
cc: Kimura International, Inc.



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

BRUCE S. ANDERSON, PH.D., M.P.H.
DIRECTOR OF HEALTH

DATE: 10/22/2002
TIME: 02:24:06pm



October 22, 2002

Mr. Glen T. Kimura, President
Kimura International Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Draft Environmental Assessment (DEA)
Middle Street Transit Center
Tax Map Key: 1-2-018:001 (por.), 003, 009, 010 and 1-2-017:003 - 005.

Thank you for the opportunity to review and comment on the subject proposal. The DEA was routed to the various branches of the Environmental Health Administration. We have the following comments:

Wastewater Branch (WWB)

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We reserve the right to review the detailed wastewater plans for conformance to applicable rules.

If you have any questions, please contact the Wastewater Branch at (808) 586-4294.

Clean Air Branch (CAB)

The proposed construction activities will occur in close proximity to existing business establishments and major thoroughfares, thereby exacerbating potential dust problems. Mitigative measures proposed in the report must be adequate for compliance with the provisions of Hawaii Administrative Rules, Section 11-60.1-33, on Fugitive Dust.

If you have any questions regarding these issues on fugitive dust, please contact the Clean Air Branch at (808) 586-4200.

Mr. Glen T. Kimura, President
October 22, 2002
Page 2

Solid and Hazardous Waste Branch (SHWB)

The Office of Solid Waste Management recommends the development of a solid waste management plan that encompasses all project phases including demolition, construction, and occupation of the buildings.

Specific examples of elements that the plan should address include:

- Recycling of green-waste during clear and grub activities;
- Recycling construction and demolition wastes, as appropriate;
- Use of locally produced compost in landscaping;
- Use of recycled content building materials; and
- The provision of recycling facilities in the design of the project.

The developer shall ensure that all solid waste generated during construction is directed to a Department of Health permitted solid waste disposal or recycling facility.

If you have any questions, please contact the Solid and Hazardous Waste Branch, Office of Solid Waste Management, at (808) 586-4226.

Noise, Radiation and Indoor Air Quality (NRIAQ) Branch

All project activities shall comply with the Administrative Rules of the Department of Health, Chapter 11-46, on "Community Noise Control."

If you have any questions, please contact the NRIAQ at (808) 586-4701.

Environmental Planning Office (EPO)

This project is located in the Kaili Stream/Keeki Lagoon watershed. Kaili Stream is currently listed under section 303(d) of the Clean Water Act as being impaired by nutrients, turbidity, and trash. Keeki Lagoon is similarly listed for nutrients, turbidity, and suspended solids. The impaired status of these waters requires that the Department of Health establish Total Maximum Daily Loads (TMDLs) suggesting how much the existing pollutant loads should be reduced in order to attain water quality standards in the stream and coastal waters.

Although these TMDLs are yet to be established and implemented, a first step in achieving TMDL objectives would be to prevent any project-related increases in pollutant loads. The proposed project would address this by using construction best management practices, decreasing on-site storm runoff, vegetating stream banks, and providing long-term maintenance of the stream banks and bed in the project area, including trash removal. When TMDLs are

Mr. Glen T. Kimura, President
October 22, 2002
Page 3

established for Kalihi Stream, the State will establish pollutant load allocations for the lands surrounding the stream and an implementation plan to improve its water quality. One of the components of this implementation plan will be to reduce the polluted runoff entering the stream under the City's NPDES storm water permit, and we suggest that a new Middle Street Transit Center drainage system include additional practices for reducing any pollutant loads carried by runoff from the site.

It appears that the proposed project would increase the amount of vehicle traffic, vehicle parking, and vehicle-associated pollutants on the site. Appendix J (Infrastructure Analysis) states, "The proposed drainage improvements will also address storm water quality improvements," and "The purpose of the water quality criteria is to reduce the pollution associated with storm water runoff from new development and redevelopment. This includes establishing controls on the timing and rate of discharge of storm water runoff to reduce storm water runoff pollution through the implementation of best management practices and engineering control facilities designed to reduce the generation of pollutants. The criteria can be met by either detaining storm water for a length of time to allow storm water pollutants to settle, or by use of filtration or infiltration methods, such as vegetated swales." We suggest that a combination of all available methods be used to meet the criteria. Also, the Draft Environmental Assessment notes (page 3-11) that "Landscaped areas along the stream could be bermed to provide additional flood protection to the site." We suggest that this berming would also provide additional detention and retention of storm runoff that could reach the stream.

We encourage the Department of Transportation Services to participate in the TMDL process and suggest that they consult with the City Department of Environmental Services and the Department of Health Clean Water Branch (Engineering Section) to discuss how water pollution control permitting may be linked with TMDL implementation.

If you have any questions or would like more information on the TMDL program, please call David Penn at (808) 586-4337.

Sincerely,



GARY GILL
Deputy Director
Environmental Health Administration

c: WWB
CAB
SHWB
NRJAO
EPO

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
150 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4510 • FAX: (808) 523-4210 • INTERNET: www.dts.hawaii.gov



PELEANI ALANIS
MAILING

CHEYLS D. SOON
DIRECTOR
STEPHEN W. HIRAKAWA
DEPUTY DIRECTOR

November 12, 2002

TPD02-00521

Mr. Gary Gill, Deputy Director
Environmental Health Administration
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Gill:

Subject: Middle Street Transit Center Draft Environmental Assessment (DEA)

This is in response to your letter dated October 22, 2002, regarding your comments on the Middle Street Transit Center DEA. We have the following responses to your comments:

Wastewater Branch (WWB)

All wastewater plans will conform to applicable provisions of the DOH Administrative Rules, Chapter 11-62, "Wastewater Systems."

Clean Air Branch (CAB)

Mitigative measures proposed for construction-related dust problems will be adequate to comply with the provisions of HAR, Section 11-60.1-33 on Fugitive Dust.

Solid and Hazardous Waste Branch (SHWB)

A solid waste management plan will be developed that encompasses all project phases including demolition, construction and occupation of the buildings. The plan will also address the recycling elements (green waste, construction and demolitions wastes, locally produced compost, recycled content building materials, etc.) you mention in your letter. All solid waste generated during construction will be directed to a DOI-permitted solid waste disposal or recycling facility.

Mr. Gary Gill
November 12, 2002
Page 2

Noise, Radiation and Indoor Air Quality (NRIAC) Branch
All project activities will comply with the DOH Administrative Rules, Chapter 11-46 on
"Community Noise Control."

Environmental Planning Office (EPO)

The project will include methods to prevent project-related increases in pollutant loads to Kalia Stream. These will include construction best management practices, minimizing on-site storm runoff, vegetating stream banks, and providing long-term maintenance of the stream banks and bed.

We acknowledge your suggestion to utilize a combination of all available methods to meet water quality criteria for drainage improvements. Your letter will be forwarded to the project design engineers, who will be asked to consider storm water detention to allow pollutants to settle, including the use of berms along the stream, as well as the use of filtration or infiltration methods, such as vegetated swales.

The DTS will participate in the DOH's ongoing TMDL process, and consult with the Department of Environmental Services and the DOH Clean Water Branch to discuss how water pollution control permitting may be linked with TMDL implementation.

Thank you for reviewing the DEA. If you have questions or other comments, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,



CHERYL D. SOON
Director

cc: Kimura International, Inc.

Sep 19 02 01:34p

Dept. of Health (DEQC)

(808) 586-4186

P.1

BOULIMAI A. CAIRNS
GOVERNOR



STATE OF HAWAII

OFFICE OF ENVIRONMENTAL QUALITY CONTROL

1515 SOUTH BERTHOUD STREET
HONOLULU, HAWAII 96813
TELEPHONE: (808) 586-4186
FACSIMILE: (808) 586-4186

GENEVIEVE SALMONSON
DIRECTOR

September 19, 2002

Cheryl Soon,
Department of Transportation Services
711 Kapiolani Blvd., #1200
Honolulu, Hawaii 96813

Attn: Brian Suzuki

Dear Ms. Soon:

Subject: Draft Environmental Assessment (EA) for Middle Street Transit Center

We have the following comments to offer:

Secondary (Judged) Development: In #4 of your analysis according to the significance criteria (Section 5), you state that "it is likely that the project will encourage redevelopment of the area and may increase pressure for more commercial or retail development in the surrounding area." If such development is possible, then the law deems this a possible significant effect and requires the project to undergo an EIS review. In the final EA explain more fully how or if secondary development can be expected, and whether this project will proceed to an EIS review.

Runoff: What kinds of landscaping do you propose to prevent runoff from entering Kaihi Stream?

Paving/Landscaping: Hawaii Revised Statutes 103D-407 requires the use of recycled glass in paving materials whenever possible, and HRS 103D-408 requires the use of native Hawaiian flora whenever and wherever possible. For the text of these sections of HRS contact our office for a paper copy or go to our website at <http://www.state.hi.us/health/ocqg/guidance/index.html>.

Visual Impacts: Include photos or drawings of the proposed automated parking garage that will show its final appearance. Photos of similar existing garages can be used.

Environmental Site Assessment: Page 31 of the ESA (Appendix C) is missing. Please correct this in the final EA.

Traffic mitigation measures: Is DYS committed to implementing the measures listed in section 3.6.2, a second left turn lane from Middle Street and additional traffic signals?

Sep 19 02 01:35p

Dept. of Health (DEQC)

(808) 586-4186

P.2

Cheryl Soon
September 19, 2002
Page 2

Pile driving: Noise impacts have been analyzed from the pile driving required to construct the parking structure. In the final EA also list impacts and appropriate mitigation measures from vibrations.

Airport clear zone: In the final EA discuss whether this is an issue and, if so, what measures are needed to deal with this.

If you have any questions call Nancy Heinrich at 586-4185.

Sincerely,

Genevieve Salmonson
GENEVIEVE SALMONSON
Director

c: Leslie Kurisaki

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

400 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 534-9339 • FAX: (808) 532-4720 • INTERNET: www.dcts.hawaii.gov



JEREMY HARRIS
OFFICE

CHERYL D. SOON
DIRECTOR

GEORGE WEGOLF MATSUMOTO
SENIOR MANAGER

November 12, 2002

TPD10/02-03808R

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Middle Street Transit Center Draft Environmental Assessment (DEA)

This is in response to your letter of September 19, 2002 regarding the Middle Street Transit Center DEA. We have the following response to your comments:

Secondary (induced) development: Although there may be redevelopment of the surrounding area in the future, at this time, no further development is planned. The project is consistent with official City plans and policies for the area. The surrounding area is already zoned for industrial use and the specific site is identified for a transit center in the Primary Urban Center Development Plan, public facilities map. Future redevelopment of this area is not likely to result in population increases, as the surrounding area is fully developed.

Runoff: At this stage of the project, there are no specific landscape plans, and therefore we are unable to provide detail on what kind of landscaping is proposed to prevent runoff from entering Kailua Stream. However, we anticipate off-site runoff to decrease due to the landscaping and reduction in impervious surfaces on the site. There will be no effluent runoff from bus wash operations.

Paving/landscaping: The City is committed to utilizing recycled glass in paving materials whenever possible in accordance with HRS 103D-407. At this time, there is no specific landscaping plan. However, we will encourage the landscape consultant to utilize native Hawaiian flora if possible in accordance with HRS 103D-406.

Ms. Genevieve Salmonson
November 12, 2002
Page 2

Visual Impacts: At this stage of the project, a specific contractor for the automated parking has not been selected. However, the final EA will include photos of drawings of similar automated parking garages for information.

Environmental Site Assessment: Page 31 of the ESA in Appendix C will be included in the Final EA. We apologize for the oversight in the DEA.

Traffic mitigation measures: The City and County of Honolulu will implement the traffic mitigation measures listed in Section 3.6.2 of the Draft EA, including a traffic signal and second left turn lane at the Middle Street entrance.

Pile driving: Vibration impacts and appropriate mitigation measures resulting from pile driving will be included in the final EA.

Airport clear zone: We have consulted with Mr. Steve Takashima of the State DOT Airports Division, Planning Section. He indicated that the site is not in the Honolulu International Airport clear zone (i.e., Runway Protection Zone). The site, however, is within an area surrounding the airport that has a 163-foot height restriction. None of the proposed structures will be above this height. This information will be included in the Final EA.

Thank you for your review of DEA. If you have questions or further comments, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

CHERYL D. SOON
Director

cc: Kimura International, Inc.

BENJAMIN J. CLAYTON
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
P. O. Box 339
Honolulu, Hawaii 96809-0339

October 11, 2002

Mr. Brian Suzuki
Department of Transportation Services
City and County of Honolulu
650 S. King Street, 3rd Floor
Honolulu, Hawaii 96813

Dear Mr. Suzuki:

This is in response to the letter dated 09/18/02 from Kimura International, Inc., requesting our review of the Draft Environmental Assessment (DEA) for the Middle Street Transit Center. After a careful review of its contents, we find that the project does not have any direct impact on our operations. Therefore, we have no comments to offer.

If there are any questions regarding the above, please contact Mrs. Leimalama Lee Loy, Oahu Branch Administrator, at (808) 587-3330.

Sincerely,

Susan M. Chandler
for Susan M. Chandler
Director

TP 02-6750

SUSAN M. CHANDLER, M.S.W., P.H.D.
DIRECTOR
ELIZABETH KENT
DEPUTY DIRECTOR

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
430 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 525-5119 • FAX: (808) 523-4330 • INTERNET: www.cc.honolulu.gov



JEREMY HARRIS
Mayor

CHERYL D. SOON
DIRECTOR
GEORGE "LEO" MURAKI
DEPUTY DIRECTOR

November 12, 2002

TPD10/02-04250R

Ms. Susan M. Chandler, Director
Department of Human Services
State of Hawaii
P.O. Box 339
Honolulu, Hawaii 96809-0339

Dear Ms. Chandler:

Subject: Middle Street Transit Center Draft Environmental Assessment (DEA)

This is in response to your letter dated October 11, 2002 regarding the Middle Street Transit Center DEA. We acknowledge that you have no comments at this time.

Thank you for your review of the DEA. If you have any questions, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

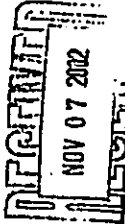
Cheryl D. Soon
CHERYL D. SOON
Director

cc: Kimura International, Inc.

BEULAM J. CAYETANO
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5087



BRANK MINAAL
DIRECTOR
DEPUTY DIRECTORS
JACQUE V. LUKASIAO
GLENNAL OSHIMOTO

IN REPLY REFER TO

HWY-PS
2.8537

NOV 6 2002

Ms. Cheryl Soon, Director
Department of Transportation Services
City and County of Honolulu
630 South King Street, 3rd Floor
Honolulu, HI 96813

Attention: Brian Suzuki

Dear Ms. Soon:

Subject: Draft Environmental Assessment (EA) for Middle Street Transit Center

Thank you for requesting our review of the Draft EA. We have the following comments:

1. Plans for work within the State highway right-of-way must be submitted to our Highways Division Traffic Branch for review and approval.
2. A signal warrant study must be provided for traffic signals proposed at the project driveway intersection with Middle Street.
3. We will not allow the proposed project driveway intersection with Kamehameha Highway due to the close proximity to the intersection of Kamehameha Highway with Middle Street.
4. Please clarify the location and number of existing driveways on Middle Street which will be retained for the project. Has consideration been given to consolidating some of these driveways?
5. Please revise the project Traffic Assessment Report to address the following concerns.
 - The Report should include any manual counts used to supplement DOT data.
 - The Report should provide worksheets and signal timing plans used for analyses of signalized intersection capacity.
 - The Report should explain if downstream congestion, which restrains traffic movements through signalized intersections, affects the validity of Report estimates of traffic delay at these intersections.

Ms. Cheryl Soon
Page 2

HWY-PS
2.8537

- The Report should address impacts to the intersection of Kamehameha Highway with the Gaspro driveway and the intersections of Middle Street with King Street and Kaula Street.
- The Report should explain the methodology used to estimate peak hour traffic assignments in Exhibit 6, which can not be directly derived from DOT data.
- Exhibit 6 should include turning movement counts at the entrance to the City Refuse Transfer Station.
- The Report should indicate which peak hour traffic movements, if any, in Exhibits 4, 5, and 6 are restrained by queues from downstream congestion.
- Table 1, which assumes optimization of signal timing, should be supplemented with capacity analysis based on current signal timing. Current signal timing should also be provided.
- The Report should provide more explanation of Exhibit 7 projections of future traffic without the project. For example, how was the additional traffic from the Honolulu Collection Yard determined? How was the 30% increase in other traffic determined? Which peak hour traffic movements will be restrained by queues from downstream bottlenecks? Which peak hour traffic movements would be further restrained if the City converts traffic lanes of Dillingham Boulevard to exclusive use by Bus Rapid Transit (BRT)? Will peak morning southbound traffic queues on Middle Street extend through the City Refuse Transfer Station driveway?
- Estimates of project trip generation should be revised to include all proposed activities within the project boundaries including commercial activities and the Handivan maintenance and storage facilities. No proposed activities should be excluded without justification.
- Traffic distribution factors shown in Table 7 are confusing. Please provide a figure showing project trip distribution/traffic assignment zones.
- The Report needs to disclose and justify its assumptions about pass-by and diverted trips.

If you have any questions, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

BRANK MINAAL
Director of Transportation

c: Office of Environmental Quality Control, Kimura International, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
630 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 522-4310 • FAX: (808) 522-4710 • INTERNET: www.cta.hawaii.gov



JEFFREY HARRIS
DIRECTOR

CHERYL D. SOON
DIRECTOR
GEORGE PETER MUALUOTO
DEPUTY DIRECTOR

November 12, 2002

TPD11/02-04600R

Mr. Brian Minaai, Director
State Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Minaai:

Subject: Middle Street Transit Center Draft Environmental Assessment

This is in response to your letter dated November 6, 2002 regarding the Middle Street Transit Center Draft Environmental Assessment (DEA). We have the following responses to your comments:

- Plans for work within the State highway right-of-way will be submitted to the DOT Highways Division Traffic Branch for review and approval.
- A signal warrant study will be provided for traffic signals proposed at the project driveway intersection with Middle Street.
- None of the existing driveways from the site on Middle Street will be retained. There will only be one proposed access point onto Middle Street.
- The Traffic Assessment Report will be revised to meet DOT concerns and requirements, as outlined in your letter.

Thank you for your review of the DEA. If you have questions or other comments, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

CHERYL D. SOON
Director

cc: Kimura International Inc.

RECEIVED
OCT 09 2002
HONOLULU



PHONE (808) 594-1986 FAX (808) 594-1985

STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

September 24, 2002

HRD02/629C

Mr. Glenn T. Kimura, President
Kimura International
1600 Kapiolani Blvd., Suite 1610
Honolulu, HI 96814

Dear Mr. Kimura:

Subject: Draft Environmental Assessment, Middle Street Transit Center, Oahu

This is in response to your letter and materials of September 18, 2002, relating to the draft environmental assessment being undertaken by Kimura International on behalf of the City relating to the above referenced project. OHA has the following comments relating to the document:

At 2-3, OHA will rely on your assurances that if significant historic sites are present in the project area which may be adversely affected, proper mitigation will be developed and implemented prior to construction. As a preliminary comment, it is necessary component of mitigation that the City assure and ensure that they shall engage in proper consultation and mitigation in accordance with state law should any unanticipated or unidentified cultural, historic, or burial sites be encountered during project development (including consultation and coordination with the Nahinu *okana*, which has expressed an interest in the burials of the area as a former *Konohiki* family).

At 3-31, OHA will rely on your assurances that there will be best practices employed to control runoff into the stream in the interest of curbing the diminishment of the ability to fish and swim in the nearby stream and in the Keeki Lagoon area.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR - HONOLULU, HAWAII 96813
TELEPHONE: (808) 531-4533 • FAX: (808) 531-4790 • INTERNET: www.hawaii.gov



JEREMY HARRIS
MAILER

CHERYL D. SOON
DIRECTOR
GEORGE W. EDGEMOND BUILDING
BEAULT WING

November 12, 2002

TPD02-00525

Thank you for the opportunity to comment on your draft environmental assessment. If you have any questions, please contact Wayne Kawamura, Policy Analyst at 594-1945, or email him at: waynek@oha.org.

Sincerely,

Jalna Keala
Acting Director, Hawaiian Rights Division

Ms. Jalna Keala
Acting Director, Hawaiian Rights Division
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Ms. Keala:

Subject: Middle Street Transit Center Draft Environmental Assessment (DEA)

This is in response to your letter of September 24, 2002 regarding the Middle Street Transit Center DEA.

We reiterate that an archaeological study will be conducted, and if significant historic sites are present that may be adversely affected, proper mitigation will be developed and implemented prior to construction. This includes consultation and coordination with the Nahinu ohana, which has expressed an interest in the burials of the area as a former *konohiki* family.

Best management practices will be employed to control runoff into the stream.

Thank you for your review of the DEA. If you have questions or further comments, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

CHERYL D. SOON
Director

cc: Kimura International, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
630 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 522-4323 • FAX: (808) 522-1320 • INTERNET: www.ci.honolulu.hi.us



CHERYL D. SOON
DIRECTOR
GEORGE T. EDWARDS
SENIOR DIRECTOR

November 12, 2002

TPD10/02-04180R

Mr. Allan Ah San
Associate Vice President for Administration
University of Hawaii at Manoa
2444 Dole Street, Bachman Hall
Honolulu, Hawaii 96822

Dear Mr. Ah San:

Subject: Middle Street Transit Center Draft Environmental Assessment (DEA)

This is in response to your letter of October 4, 2002 regarding the Middle Street Transit Center DEA. We acknowledge that you have no comments at this time.

Thank you for your review of the DEA. If you have questions or comments, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

cc: Kimura International, Inc.

JEREMY HARRIS
MAYOR



UNIVERSITY OF HAWAII AT MANOA

October 4, 2002

OFFICE OF THE CHANCELLOR

Mr. Brian Suzuki
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, Hawaii 96813

Dear Mr. Suzuki:

Subject: Middle Street Transit Center
Oahu, Honolulu District
Developable Land: 1-2-18-01 (portion), 03, 09 10
Submerged Land (Kalihi Stream Areas): 1-2-17-03, 04, 05

Thank you for the opportunity to comment on the subject project. The University of Hawaii has no comments to offer at the present time, however, should there be any major deviations, we welcome the opportunity to review its changes.

If there are any questions on this matter, please call me at 956-7935.

Sincerely,

Allan Ah San

Allan Ah San
Associate Vice President for Administration

c: OEQC
Leslie Kurisaki, Kimura International, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
600 SOUTH BERETANIA STREET
HONOLULU, HI 96843



September 25, 2002

JEREMY HARRIS, Mayor
EDDIE FLORES, JR., Chairman
CHARLES A. BIRD, Vice Chairman
JAN BILLY AUM
HERBERT S.K. KAOPUA, SR.
DAVID LYN H. LINDRO
BRIAN K. LEMAL, Ex-Officio
CLIFFORD S. JAMILE
Manager and Chief Engineer
DONNA FAY K. KITOYANO
Deputy Manager and Chief Engineer

TO: MR. BRIAN SUZUKI
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: *Clifford S. Jamile*
CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER

SUBJECT: THE LETTER OF SEPTEMBER 18, 2002 ON THE DRAFT
ENVIRONMENTAL ASSESSMENT FOR THE MIDDLE STREET TRANSIT
CENTER, TMS: 1-2-18: 1, 3, 9, 10, AND 1, 2, 17, 3, 4, 5

Thank you for the opportunity to comment on the proposed Middle Street Transit Center Draft Environmental Assessment.

The existing water system is presently adequate to accommodate the proposed transit center.

The availability of water will be confirmed when the building permit is submitted for our review and approval. When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission, and daily storage.

The proposed project is subject to Board of Water Supply's Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the Building Permits.

If you have any questions, please contact Joseph Kaakua at 527-6123.

cc: Leslie Kurisaki, Kimura International, Inc.
Office of Environmental Quality Control

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
630 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 525-5319 • FAX: (808) 525-4750 • INTERNET: www.hawaii.gov/dts



JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR
GEORGE "TEDDY" MITCHELL
DEPUTY DIRECTOR

November 12, 2002

TPD09/02-04026R

MEMORANDUM

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: MIDDLE STREET TRANSIT CENTER
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

This is in response to your memo dated September 25, 2002, that reiterates that the existing water system is presently adequate to accommodate the proposed transit center. The project will comply with other BWS requirements, including payment of Water System Facilities Charges and Cross-Connection Control and Backflow Prevention requirements.

Thank you for your review of the Middle Street Transit Center DEA. If you have questions or other comments, please contact Brian Suzuki at Local 6880.

Cheryl D. Soon

CHERYL D. SOON

cc: Kimura International, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
400 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 525-4344 FAX: (808) 525-4347
WEB SITE ADDRESS: www.dcd.hawaii.gov

JERRY HARRIS
MAYOR



October 29, 2002

RAE M. LOUI, P. E.
DIRECTOR
ERIC G. OLSON, AIA
DEPUTY DIRECTOR
GEORGE T. TAMASHIRO, P. E.
ASSISTANT DIRECTOR
CD# 02-0270

RECEIVED
OCT 30 2002
HONOLULU

MEMORANDUM

TO: CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: RAE M. LOUI, P. E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT-MIDDLE STREET TRANSIT CENTER, TMK: 1-2-17: 3, 4 & 5; 1-2-18: POR. 1, 3, 9 & 10

We have reviewed the Draft EA and have the following comments:

It is our understanding that your department will be acquiring a portion of Kalihi Stream up to the centerline. This location of Kalihi Stream is a problem area. Streambank improvements are required.

Should you have any questions, please contact Timothy Trang at extension 7771.

hgs:dk

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
400 SOUTH KING STREET, 11TH FLOOR - HONOLULU, HAWAII 96813
TELEPHONE: (808) 525-4347 FAX: (808) 525-4320 - INTERNET: www.dts.hawaii.gov



November 12, 2002

TPD02-00523

JERRY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR
GEORGE T. TAMASHIRO
DEPUTY DIRECTOR

MEMORANDUM

TO: RAE M. LOUI, P. E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: MIDDLE STREET TRANSIT CENTER DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

This is in response to your memorandum dated October 29, 2002, stating that Kalihi Stream in the project area is a "problem area" and that streambank improvements are required.

The project includes cleaning and revegetating the stream bank at the site, as well as clearing major debris from the stream area that will be acquired. As you know, most of the nonpoint source pollution, including trash and debris in the stream, originate from upstream sources and land uses and is beyond our control. However, the project will not contribute additional pollutants to the stream during construction or operation. Moreover, we believe that the proposed landscaping will improve the visual appearance of the stream in this area.

Thank you for your review of the Middle Street Transit Center Draft EA. If you have questions or further comments, please contact Mr. Brian Suzuki at Local 6880.

cc: Kimura International, Inc.

Cheryl D. Soon
CHERYL D. SOON

**FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU**

3375 KOAUNIA STREET, SUITE 400 • HONOLULU, HAWAII 96818-1843
TELEPHONE: (808) 831-7711 • FAX: (808) 831-7750 • INTERNET: WWW.HONOLULU.HI



KERRY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
SUPPORT SERVICES

October 14, 2002

TO: CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

ATTENTION: BRIAN SUZUKI

FROM: ATTILIO K. LEONARDI, FIRE CHIEF

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
MIDDLE STREET TRANSIT CENTER
TAX MAP KEY NUMBERS:
DEVELOPABLE LAND: 1-2-018: 001 (PORTION), 003, 009, AND 010
SUBMERGED LAND (KALIHU STREAM AREAS): 1-2-017: 003, 004,
AND 005

We received a letter dated September 18, 2002, from Mr. Gleau T. Kimura, President of Kimura International, Inc., requesting our review of the above-mentioned project. The Honolulu Fire Department (HFD) requires that the following be complied with:

1. Provide a private water system where all appurtenances, hydrant spacing, and fire flow requirements meet Board of Water Supply standards.
2. Provide a fire department access road within 150 feet of the first floor of the most remote structure. Such access shall have a minimum vertical clearance of 13 feet 6 inches, be constructed of an all-weather driving surface complying with Department of Transportation Services (DTS) standards, capable of supporting the minimum 60,000-pound weight of our fire apparatus, and with a gradient not to exceed 20%. The unobstructed width of the fire apparatus access road shall meet the requirements of the appropriate county jurisdiction. All dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround having a radius complying with DTS standards.

Cheryl D. Soon, Director
Page 2
October 14, 2002

3. Submit construction plans to the HFD and the Department of Planning and Permitting.

Should you have any questions, please call Battalion Chief Kenneth Silva of our Fire Prevention Bureau at 831-7778.

ATTILIO K. LEONARDI
Fire Chief

AKL/KB:jl

cc: Office of Environmental Quality Control
Leslie Kurisaki, Kimura International, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
630 SOUTH KING STREET, 8th FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4114 • FAX: (808) 523-4730 • INTERNET: WWW.HONOLULU.HI.GOV



JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR
GEORGE W. MCKAY, HONOLULU
SENIOR DIRECTOR

November 12, 2002

TPD1002-04274R

MEMORANDUM

TO: ATTILIO K. LEONARDI, CHIEF
HONOLULU FIRE DEPARTMENT

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: MIDDLE STREET TRANSIT CENTER DRAFT ENVIRONMENTAL
ASSESSMENT (DEA)

This is in response to your memorandum dated October 14, 2002, and we will comply with the conditions listed, including:

1. Provision of a private water system where all appurtenances, hydrant spacing, and fire flow requirements meet Board of Water Supply standards.
2. Provision of a fire department access road within 150 feet of the first floor of the most remote structure, which meets County requirements.
3. Submission of construction plans to the HFD and the Department of Planning and Permitting.

Thank you for your review of the Middle Street Transit Center DEA. If you have questions or other comments, please contact Mr. Brian Suzuki at Local 6880.

Cheryl D. Soon

CHERYL D. SOON

cc: Kimura International Inc.

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
630 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4114 • FAX: (808) 527-8743 • INTERNET: WWW.HONOLULU.HI.GOV



JEREMY HARRIS
MAYOR

RAMONAL K. FUJIMORI, MA
DIRECTOR

LORETTA R.C. CHEE
SENIOR DIRECTOR

2002/ELOG-2679 (RS)

October 24, 2002

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Draft Environmental Assessment Report for the Middle Street Transit Center
TMK: 1-2-018: Por. 01, 02, 03, 09 and 010 and 1-2-17, 03, 04 and 05

Thank you for the opportunity to review the proposed Middle Street Transit Center September 2002 Draft Environmental Assessment, which you are preparing for the Department of Transportation Services.

We offer the following comments for your review and consideration for the Final EA report:

1. Page ES-1: TMK: 1-2-018: 02 should be added to the TMK list.
2. Page ES-5, Topography, Slopes and Soils: Revise the second sentence to read "Site work will be done in accordance with all City and County of Honolulu rules and standards, including but not limited to the Rules Relating to Storm Drainage Standards."
3. Page ES-6 and 3-11.
 - a. Natural Hazards: Insert the following after the third sentence on both pages: "Structures shall be built in conformance with FEMA regulations and certification for construction within FEMA floodway or flood fringe shall be provided."
 - b. Hydrology: Revise the last sentence to "The site improvements are expected to slightly decrease on-site runoff because of a reduction in impervious surfaces and increased landscaping improvements."

Mr. Glenn T. Kimura, President
Kimura International, Inc.
October 24, 2002
Page 2

4. Page 1-5: The parcel (the existing cold storage building) that will be set aside for Yee Hop Realty, Ltd. appears to be landlocked. Explain how access will be provided to the new lot.
5. Page 1-7: Please clarify "Construction Permit," which is listed under the Required City Permits. In addition, a Flood Hazard Certification must be submitted.
6. Page 2-4: From the discussion under Kalihii Stream Landscape Improvements, it appears that hardening of the stream channel is not being considered. However, the DEA should discuss other landscape improvements. Street trees and other landscaping improvements should be provided along the street frontages.
7. Pages 2-4, 3-5 and 3-39: We concur that the existing sewer easement is in favor of the Federal Government and is not a City sewer easement. The DEA should indicate who has jurisdiction of the drainage easement and their concerns.
8. Page 2-6: Future commercial development will require a zone change. Retailing is not permitted in the I-2 zoning district.
9. Page 3-11, Seismic Activity: According to the 1997 Uniform Building Code, the seismic zone for Oahu is 2A rather than the zone 1 listed.
10. Pages 3-38 and 3-39, Wastewater System: Currently, the existing municipal sewer system is adequate to accommodate the proposed project. However, the sewage capacity reservation will be confirmed when the DPP Site Development Master Application Form (Sewer Connection) is submitted and approved. The project may then be liable for payment of the Wastewater System Facility Charge.
11. Pages 3-40 to 3-48, Traffic:
 - a. Proposed entrances from Middle Street and Kamehameha Highway: Since both Middle Street and that portion of Kamehameha Highway are under the jurisdiction of the State Department of Transportation (SDOT) Highways Division, DPP will defer its traffic related comments to the SDOT.

Mr. Glenn T. Kimura, President
Kimura International, Inc.
October 24, 2002
Page 3

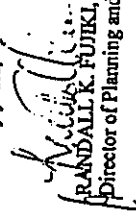
- b. New traffic signal on Kamehameha Highway. As you are aware, the City's DTS installs and maintains the traffic signals for the SDOT on SDOT owned roadways. The DEA should include a more detailed discussion of the proposed traffic signal, including its anticipated impacts and the results of discussion with the SDOT (especially the proposed location, and its proximity to the existing traffic signal at the Kamehameha Highway/Middle Street intersection; and the removal of a portion of the existing median on Kamehameha Highway).
12. Pages 4-3 to 4-5, City General Plan: We concur that the project will be in conformance with the listed objectives and policies of the General Plan.
We believe that the application should also address the consistency of the application with the GP Physical Development and Urban Design objectives and policies VII.A.1 and VII.B.1.
 13. Page 4-5, Primary Urban Center Development Plan (PUC DP):
 - a. Information should be included regarding the project's consistency with the proposed PUC DP.
 - b. The existing PUC DPPP Map shows a transit center symbol for the subject project called the Middle Street Transportation and TheHandi-Van Facility. This section should also note that, when the revised PUC DP is adopted, the Public Infrastructure Map for the PUC will be prepared and proposed for adoption, and will include the Middle Street Transportation and TheHandi-Van Facility as a project to be shown on the PIM.
 - c. Because of its proximity to Nimitz Highway and the prominent corner location of the proposed facility, the DEA should discuss how the development of this major public facility would enhance the attractiveness of the area, according to Sec. 24-2.2(b)(7) of the PUC DP regarding the Nimitz/Ala Moana Corridor.
 14. In Section 4.5, Consistency with Existing Plans, Policies and Controls, the DEA should discuss the Honolulu Bicycle Master Plan and any provisions for access to existing or proposed nearby bike paths.

Mr. Glenn T. Kimura, President
Kimura International, Inc.
October 24, 2002
Page 4

15. Page 4-8: County Zoning: If the proposed transit center is owned and operated by the City, it is considered a public use. Public uses are eligible to apply for a waiver from strict application of the development or design standards of the LUO for the I-2 Intensive Industrial District (or IMX-1 District, if appropriate), if the project cannot meet these standards (e.g. yard setbacks, landscaping and/or height requirements). Without more specific plans, DPP cannot determine if a waiver from any standard will be necessary. If a waiver is contemplated, it should be included in Table 1-1 "Possible Environmental Permits and Approvals" on page 1-7.

Please call Ray Sakai of my Policy Planning Branch staff at 523-4047 if you have any questions.

Sincerely yours,


RANDALL K. FUJIKI, AIA
Director of Planning and Permitting

RKF:js

Attachments

cc: Cheryl D. Soon, Director, Department of Transportation Services
Brian Suzuki, Planner, DTS

g:\planning\div\function\ea-ct\2002\madd\hesidea.doc

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

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JEREMY HAYES
DIRECTOR

CHERYL D. SOON
DIRECTOR

GEORGE YOUNG
DEPUTY DIRECTOR

November 12, 2002

TPD10/02-04426R

MEMORANDUM

TO: LOREITA K. C. CHEE, ACTING DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: MIDDLE STREET TRANSIT CENTER
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

This is in response to your memorandum dated October 22, 2002 regarding the Middle Street Transit Center DEA. We have the following responses to your comments:

- 1, 2 and 3. Changes will be made.
4. Access to the existing cold storage building owned by Yee Hop Realty, Ltd. will be available through the new Middle Street access drive that will be constructed during Phase I of the project. The City will grant Yee Hop Realty, Ltd. an easement for access. During Phase I construction, Yee Hop Realty, Ltd. will continue to have access to their building via the existing road located at the northern boundary of the project site.
5. The reference to "Construction Permit" should have been listed as "Building permit," and will be deleted. We will add Flood Hazard Certification to the table.
6. You are correct that hardening of the Kalihi Stream channel is not being considered. At this point, specific landscape improvements have not been finalized and therefore, more detail is not available. However, as you suggest, street trees and other landscaping improvements will be provided along the street frontages.
7. The final EA will indicate who has jurisdiction of the drainage easement and their concerns.

Loretta K. C. Chee
November 12, 2002
Page 2

8. Any future commercial development at the site will be transit-related, and directly support the proposed transit center facilities. There are no plans for a stand-alone shopping center. We do not anticipate that this accessory commercial/retail use will require a zone change.
9. Change will be made.
10. We acknowledge that sewer capacity reservation will be confirmed when the sewer connection application is submitted, and that the project may be liable for payment of the Wastewater System Facility Charge.
11. Traffic: We are working and will continue to work with State Department of Transportation regarding traffic issues and the location of the project entrances. We are aware that the DOT has some concerns with the proposed traffic signal on Kamehameha Highway, and this remains an unresolved issue.
12. The final EA will discuss General Plan Physical Development and Urban Design objectives and policies VII.A.1 and VII.B.1.
13. Primary Urban Center Development Plan
 - a. The final EA will note that the revised PUC DP is in its final public review stages, and is expected to be considered for approval in early 2003. We will also note that the Middle Street area is proposed for continued industrial use, and that the proposed transit center will be consistent with the proposed PUC DP.
 - b. The existing Development Plan Public Facilities map designation of "Transit Station, Site Determined, 6 Years" was approved in 2001. The EA will note that when the revised PUC DP is adopted, the revised Public Infrastructure Map (PIM) for the PUC will include the "Middle Street Transportation and TheHandi-Van Facility" as a PIM project.
14. The final EA will discuss the Honolulu Bicycle Master Plan as well as the existing bike path on Middle Street.
15. Because design plans for the Middle Street Transit Center have not been developed, we cannot say for sure whether a waiver of LUO development or design standards will be requested. However, our intent at the present time is to follow existing yard setbacks, height, and landscaping requirements to the extent possible.

Loretta K. C. Chee
November 12, 2002
Page 3

Thank you for reviewing the DEA. If you have questions or comments, please contact Brian Suzuki at Local 6880.

Cheryl D. Soon

CHERYL D. SOON

cc: Kimura International, Inc.

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

1000 ULUKOHA STREET, SUITE 300, HAWAII, HONOLULU, HAWAII 96813
PHONE: (808) 922-3301 • FAX: (808) 922-3301 • INTERNET: WWW.DPMR.HONOLULU.HI.US



JEREMY HARRIS
MAYOR

WILLIAM D. BALFOUR, JR.
DIRECTOR

EDWARD T. "DUPPA" DIAZ
DEPUTY DIRECTOR

October 4, 2002

TO: CHERYL SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

ATTENTION: BRIAN SUZUKI

FROM: WILLIAM D. BALFOUR, JR., DIRECTOR

SUBJECT: MIDDLE STREET TRANSIT CENTER
DRAFT ENVIRONMENTAL ASSESSMENT

Thank you for the opportunity to review and comment on the Draft Environmental Assessment relating to the Middle Street Transit Center.

The Department of Parks and Recreation has no comment on this project.

Should you have any questions, please contact Mr. John Reid, Planner, at 692-5454.

W.D. Balfour, Jr.

WILLIAM D. BALFOUR, JR.
Director

WDB:cu
(16091)

cc: Mr. Leslie Kurisaki, Kimura International, Inc.
Mr. Don Griffin, Department of Design and Construction
Office of Environmental Quality Control

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

830 SOUTH KING STREET, 3RD FLOOR - HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4119 • FAX: (808) 523-4120 • INTERNET: WWW.DOT.HONOLULU.HI.US



JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

EDWARD T. "DUPPA" DIAZ
DEPUTY DIRECTOR

November 12, 2002

TFD10/02-04167R

MEMORANDUM

TO: WILLIAM D. BALFOUR, JR., DIRECTOR
DEPARTMENT OF PARKS AND RECREATION

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: MIDDLE STREET TRANSIT CENTER
DRAFT ENVIRONMENTAL ASSESSMENT (IDEA)

This is in response to your memorandum dated October 4, 2002 regarding the Middle Street Transit Center DEA. We acknowledge that you have no comments at this time.

Thank you for your review of the DEA. If you have questions or comments, please contact Brian Suzuki at Local 6880.

Cheryl D. Soon

CHERYL D. SOON

cc: Kimura International, Inc.

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
601 SOUTH BENTAMIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 838-3111
<http://www.honolulu.org>
www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR



LEE D. DONOHUE
CHIEF
ROBERT AU
GLIER KAJIYAMA
DEPUTY CHIEFS

OUR REFERENCE CS-KP

October 17, 2002

TO: BRIAN SUZUKI, TRANSPORTATION PLANNER
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
MIDDLE STREET TRANSIT CENTER
OAHU, HONOLULU DISTRICT
DEVELOPABLE LAND: 1-2-18:01 (PORTION), 03, 09, 10
SUBMERGED LAND (KALIHI STREAM AREAS): 1-2-17:03, 04, 05

Thank you for the opportunity to review and comment on the subject project. We have noted that our past comments and concerns have been addressed in this document. Therefore, we have nothing further to offer at this time. If there are any questions, please call Ms. Carol Sodehani of the Support Services Bureau at 529-3658.

LEE D. DONOHUE
Chief of Police

By *Karl Godsey*
KARL GODSEY
Assistant Chief of Police
Support Services Bureau

cc: OEQC

✓ Ms. Leslie Kurisaki
Kimura International, Inc.

Serving and Protecting with Aloha

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
150 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 521-4319 • FAX: (808) 521-4730 • INTERNET: www.ci.honolulu.hi.us



JERRY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR
GEORGE WEDLEY MIZUMOTO
SENATE DIRECTOR

November 12, 2002

TPD1002-04311R

MEMORANDUM

TO: LEE D. DONOHUE, CHIEF
HONOLULU POLICE DEPARTMENT

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: MIDDLE STREET TRANSIT CENTER
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

This is in response to your memorandum dated October 17, 2002 regarding your previous review comments on the Middle Street Transit Center DEA. We acknowledge that you have no further comments at this time.

Thank you for your review of the DEA. If you have questions or other comments, please contact Brian Suzuki at Local 6880.

Cheryl D. Soon

CHERYL D. SOON

cc: Kimura International, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
 330 SOUTH KING STREET, 3RD FLOOR, HONOLULU, HAWAII 96813
 TEL: (808) 525-4375 • FAX: (808) 525-4730 • INTERNET: www.ctd.hawaii.gov



CHERYL D. SOON
 DIRECTOR
 GEORGE WIZDOM
 DEPUTY DIRECTOR

November 12, 2002

TPD02-00526

MEMORANDUM

TO: TIMOTHY E. STEINBERGER, P.E., DIRECTOR
 DEPARTMENT OF ENVIRONMENTAL SERVICES

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: MIDDLE STREET TRANSIT CENTER DRAFT ENVIRONMENTAL ASSESSMENT

This is in response to your letter to Glenn Kimura of Kimura International dated October 23, 2002 regarding the Middle Street Transit Center Draft Environmental Assessment (DEA). We have the following responses to your comments:

1. The traffic signalization for the access road to the existing Keehi Transfer Station will include signalized left turns for traffic entering and exiting the access road to and from Middle Street.
2. The EA will note that the existing cesspools in the area have experienced overflows, and that the proposed site improvements will include the removal of the cesspools. Existing cesspools will be removed and backfilled with approved material. The removal, disposal and clean up will be in conformance with the City and County of Honolulu requirements and State Department of Health regulations.
3. The EA will explain that the existing wastewater pump station at the southern portion of the property is privately owned and maintained (Yee Hop Realty, Ltd.). All on-site wastewater facilities for the proposed Middle Street Transit Center, including the pump station, will be owned and maintained by the City and County of Honolulu. If the pump station is upgraded or reconstructed, it will be done in conformance with City standards.
4. The EA will address the maintenance, protection and future status of the federal government's sewer easement that bisects the property, and discuss the federal government's proposed privatization initiatives.

00000

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
 1600 KAPIOLANI BLVD., SUITE 200, HONOLULU, HI 96814
 (808) 525-4375, Fax: (808) 525-4730



Timothy E. Steinberger, P.E.
 Director
 Frank J. Davis, P.E.
 Deputy Director

October 23, 2002

FRO 02-63

via fax: 941.8999
 Mr. Glenn T. Kimura, President
 Kimura International
 1600 Kapiolani Blvd., Suite 1610
 Honolulu, HI 96814

Dear Mr. Kimura:

Subject: Middle St. Transit Center, Draft Environmental Assessment

Thank you for the opportunity to review the Draft Environmental Assessment for the Middle St. Transit Center. We have the following comments:

1. The traffic signalization for the access road to the existing Keehi Transfer Station should include signalized left turns for traffic entering and exiting the access road to and from Middle Street.
2. Our Collection System Maintenance Division reports that the area serviced by cesspools has previously experienced cesspool overflows. Mitigation of this problem, or clean-up activities, may be required.
3. The report should explain who owns and maintains the wastewater pump station located at the southern portion of the property, and who will own and maintain it after the project is constructed. Does the pump station meet City design standards?
4. The maintenance, protection, and future status of the Federal Government's sewer easement that bisects the property should be addressed. The sewer facilities in this easement may be included in proposed privatization initiatives being developed by the Federal Government.

Should you have any questions, please call Jack Pobak, Program Coordinator, at 692-5727.

Sincerely,

TIMOTHY E. STEINBERGER, P.E.
 Director

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

GEN-6 (EIS/EA)



October 18, 2002

Mr. Brian Suzuki
Department of Transportation Services
City & County of Honolulu
650 S. King Street - 3rd Floor
Honolulu, Hawaii 96813

Dear Mr. Suzuki:

Re: Middle Street Transit Center

We have reviewed the draft EA of the Middle Street Transit Center as proposed by the Department of Transportation Services, City & County of Honolulu, and find that it adequately addresses HECO concerns.

HECO reserves the opportunity to further comment on the protection of existing powerlines bordering the project area until construction plans are finalized.

Thank you for the opportunity to comment on this draft EA.

Sincerely,

Kirk S. Tomita
Senior Environmental Scientist

cc: Ms. Genevieve Salmonson (OECC)
Ms. Leslie Kurisaki (Kimura Int'l, Inc.)



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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE HIZONAKI
DEPUTY DIRECTOR

November 12, 2002

TPD1002-4320R

Mr. Kirk S. Tomita
Senior Environmental Scientist
Hawaiian Electric Company, Inc.
P.O. Box 2750
Honolulu, Hawaii 96840-0001

Dear Mr. Tomita:

Subject: Middle Street Transit Center Draft Environmental Assessment

This is in response to your letter of October 18, 2002 regarding the Middle Street Transit Center Draft Environmental Assessment (DEA). We note your comment that the DEA adequately addresses HECO concerns. We acknowledge that you may have further comment on the protection of existing powerlines bordering the project area until construction plans are finalized.

Thank you for your review of the Middle Street Transit Center DEA. If you have questions or other comments, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

CHERYL D. SOON
Director

cc: Kimura International, Inc.

*Middle Street Transit Center Comments
October 22, 2002*

Doing so would reduce the number of vehicles that currently cause traffic congestion on H-1 and the Moanalua Freeway. Furthermore, there is a great possibility that with fewer vehicles, businesses along Dillingham Boulevard may lessen the anticipated increase in traffic resulting from the proposed use of two dedicated lanes on Dillingham for the BRT.

C. Parking Fees

In addition to reduced parking stalls, I suggest that my proposal for a graduated parking fee schedule at all transit centers and park-and-ride facilities be seriously considered. Parking rates at facilities in outlying areas should be cheapest and become more expensive as one gets closer to Downtown. Again, this staggered fee schedule would encourage commuters to leave cars in their own neighborhoods and deter others who would otherwise commute all the way into Honolulu's Urban Core.

D. Proposed Commercial/Retail Space

Phase III of the Middle Street Transit Center includes up to 16,000 square feet for proposed commercial/retail space, including a convenience store, bank, post office or transit information center. The entire project site should instead be devoted for transit, green space and/or the very real possibility of expansion.

While on the subject of expansion, historically, transit officials have chosen to expand facilities in Kahihi even after assuring the community I represent that no such expansion would take place. This was the case with:

- (1) Kahihi-Palama Bus Facility—the Kahihi-Palama Neighborhood Board was assured that the facility would be used to park buses only. However, the area was eventually expanded to include a bus maintenance facility.
- (2) Middle Street Transit Center—the original plans for the Middle Street Transit Center did not include Handi-Van facilities but have since changed.

Based on past history, there is good reason to anticipate expansion at the Middle Street Transit Center. It may therefore be prudent to instead use available space for future expansion of this transit facility. Any commercial/retail activities should be limited to a kiosk or sundries store for the convenience of transit passengers.

E. The Future of Nearby OCCC

As you may already know, the State Department of Public Safety is proposing to vacate the Oahu Community Correctional Center (OCCC) and relocate operations to Halawa Valley. The Kahihi Palama Community Council (KPCC) is in the process of brainstorming what facilities should replace OCCC. Proposals for the approximately 18-acre site—which is a mere stone's throw away from the Middle Street Transit Center—so far includes, but is not limited to, a day care center for seniors, a preschool, a park, a post office and other self-sustaining commercial activities.

Therefore, instead of plans for commercial and/or retail activities at the Middle Street Transit Center, the City should explore plans to develop a bus stop station at the OCCC site. This is an

RONY M. CACHOLA
COUNCILMEMBER
(808) 547-7007
(808) 593-4232 (fax)
e-mail: rmcachola@com.hawaii.gov

October 22, 2002

Mr. Brian Suzuki, Branch Chief
Regional Planning Branch
Department of Transportation Services
City & County of Honolulu
650 South King St., Third Floor
Honolulu, HI 96813

Dear Mr. Suzuki:

Re: Comments on the Draft Environmental Assessment (DEA) for the Middle Street Transit Center.

Thank you for this opportunity to submit comments on the aforementioned project. I wish to raise the following questions and concerns.

A. BRT's Involvement in the Middle Street Transit Center

Statements that the BRT is not a part of the Middle Street Transit Center are misleading. The \$1 billion BRT cannot be divorced from the proposed transit center, particularly when it is the vital link between the Regional BRT (from Kapolei to Middle Street) and the In-Town BRT (from Middle Street to Iwilei and Waikiki). To say otherwise is incorrect.

B. 1,000-stall automated parking structure

I have serious reservations about the proposed 1,000-stall automated parking structure at the Middle Street Transit Center. It has been my on-going contention during the entire BRT planning process that these stalls would work contrary to the City's goal of minimizing traffic gridlock because commuters will not be encouraged to use alternative modes of transportation beginning from their own neighborhoods or communities. We should be providing sufficient parking stalls in outlying transit centers in Waianae, Kapolei, Ewa Beach, Waipahu, Aloha Stadium and East Honolulu, where riders can make quick and convenient connections to Downtown via the City's reconfigured hub-and-spoke network system or the proposed Bus Rapid Transit system (BRT).

Middle Street Transit Center Comments
October 22, 2002

excellent opportunity for the City to work and bond with KPCC and the community in a coordinated fashion rather than develop competing interests.

I hope the issues I have raised above will receive your careful consideration. On behalf of my constituents, I would like to thank you for the opportunity to express my concerns on this very important transportation project for Oahu.

Very truly yours,



ROMY M. CACHOLA
Councilmember
Council District VII

cc: Gov. Benjamin Cayetano
Mayor Jeremy Harris
Cheryl Soon, Department of Transportation Services
Neighborhood Board No. 15
Neighborhood Board No. 20
Kalihi-Palama Community Council
Oahu Metropolitan Planning Organization (OMPO)
Kalihi Business Association (KBA)

DEPARTMENT OF TRANSPORTATION SERVICES
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR
GEORGE "KEOH" WAZUMOTO
COUNCIL DIRECTOR

November 12, 2002

TPD10/02-04401R

The Honorable Romy M. Cachola
Councilmember
City and County of Honolulu
Honolulu, Hawaii 96813

Dear Councilmember Cachola:

Subject: Middle Street Transit Center Draft Environmental Assessment (DEA)

This is in response to your letter dated October 22, 2002 regarding the Middle Street Transit Center DEA. We have the following responses to your comments:

A. BRT's Involvement in the Middle Street Transit Center

The Middle Street Transit Center could and would accommodate a future BRT. You are correct that the transit center would be a vital link between the BRT's regional and in-town components. However, the Middle Street Transit Center is needed regardless of whether or not BRT is implemented.

B. 1,000-Stub Automated Parking Structure

We agree that ideally, commuters would use alternative modes of transportation beginning in their own neighborhoods and communities. The City has attempted to encourage this by providing free parking at outlying park-and-ride facilities in Hawaii Kai, Mililani and Wahiawa. However, these facilities are consistently underutilized and in some instances, the communities are proposing their conversion to other uses.

Traffic congestion on the H-1 and Moanalua Freeways is often caused less by sheer volume of cars than by bottlenecks where freeways merge or where they exit onto surface streets. Currently, the Middle Street area is a major choke point, as commuters transition between the freeway and the backed up surface streets leading into town. We believe a parking structure at this location at the edge of downtown would reduce traffic that would otherwise continue through on in-town surface streets.

C. Parking Fees

Your concept for graduated parking fees is a good one, and is, in fact, what is being implemented. For example, parking at the outlying park-and-ride facilities at Hawaii Kai, Mililani and Wahiawa is free. There will be a nominal charge to park at the Middle Street Transit Center, which is closer to town, but these fees will still be considerably less than parking costs downtown.

D. Proposed Commercial/Retail Space

A portion of the site near Middle Street is being reserved for either transit center expansion or future commercial development. However, we would like to emphasize that any commercial or retail use at the Middle Street site will be in direct support of the transit center. That is, we do not envision an independent, stand-alone shopping center designed to attract customers that are not already at the transit center. The reference to 16,000 square feet of commercial/retail space was provided to illustrate the capacity of the area, should accessory commercial/retail use be proposed. You are correct that the land will probably be needed instead for future transit center expansion.

E. The Future of Nearby OCCC

You raise a good point about the nearby OCCC site becoming available in the future. Although this 18-acre site might have been considered for a transit center, it is not ideal for several reasons, the primary reason being timing. Although the State proposes to relocate OCCC operations to Halaawa Valley, there is no definite timetable, and the State has not announced the availability of the site. Development of the site would be further postponed until environmental remediation could be completed, which in reality, could be years away.

At the same time, the need for consolidated Handi-Van facilities is urgent. Existing Handi-Van facilities are unconsolidated and temporary. The proposed Middle Street site would also allow greater efficiency due to its location next to the existing bus maintenance facilities. For these reasons, the proposed Middle Street site appears to be most appropriate for this project.

However, we still hope to be involved with the Kalitii Palama Community Council as they develop proposals for the OCCC site.

Thank you for reviewing the DBA. If you have questions or comments, please contact Mr. Brian Suzuki at Local 6880.

Sincerely,



CHERYL D. SOON
Director

FORWARDED:



BENJAMIN B. LEE, FAIA
Managing Director

cc: Kimura International, Inc.

October 19, 2002

Ms. Dorcas Terzile
Senior Transportation Representative
Region IX
Federal Transit Administration
U.S. Department of Transportation
291 Mission Street, Suite 2210
San Francisco, California 94105-1839

RECEIVED

22 OCT 2002

DEPARTMENT OF
TRANSPORTATION SERVICES

Subject: Draft Environmental Assessment for Middle Street Transit Center, September 2002
Portion of Primary Corridor Transportation Project, City & County of Honolulu
Department of Transportation Services, City & County of Honolulu

Dear Ms. Terzile,

The site chosen for the Middle Street Transit Center does not seem enough land area if the Honolulu City Council chooses another form of transit alternative instead of the current at-grade BRT for the In-Town portion of the Primary Corridor Transportation Project. With construction of Phase 2 and Phase 3 on the suggested proposed site, after completion of Phase 1 other types of transit vehicles cannot be used without significant and expensive modifications which will be necessary to accommodate them. However coupled with the Middle Street site with one of the three alternative sites with relocation of some proposed facilities including some Phase 2 and 3 facilities will be sufficient for all other alternatives for the In-Town segment. This will provide additional space for other vehicle types/alternatives for the In-Town portion of the Primary Corridor Transportation Project, if so chosen in the future, to ingress and egress from Kaimuki and Highway 1 (Ikeia) to the west.

The Kaimuki Shopping Center alternative is adjacent to the southeast portion of the existing Kaimuki-Pahoa Bus Facility, as shown on page 2 & Figure 3, Location of Alternatives Considered with In-Town BRT alignments. It is mostly used as a parking facility today for the Hawaii-Venue program. The shopping center has been in a declining use and in disrepair with lack of major tenants. I believe there is less environmental ramifications the clean-up necessary after acquisition and probably the most best choice among those mentioned in this Draft Environmental Assessment. A major portion of its footprint is on King Street which is a major thoroughfare through central downtown Honolulu.

Yet because the In-Town BRT is not really the final choice why construct Phase 2 and Phase 3 according to the Draft Environmental Assessment. The selected site will best not other portable In-Town modes of mass transit that the newly elected Honolulu City Council may pursue instead of an In-Town BRT. An In-Town BRT which will take every last of traffic and space mostly will not be an exclusive transit will actually be a slow transportation choice. It may not get drivers out of their cars to use this form of public transportation and maybe a very big transportation blunder.

Makaha



Wendell Lee

(member, Kaimuki Neighborhood Board No. 30)
(member, Citizens Advisory Committee of the Oahu Metropolitan Planning Organization)

cc: Ms. Cheryl Soos, Director, Department of Transportation Services, City & County of Honolulu
Office of Environmental Quality Control, State of Hawaii
Gary Okuno, member, City Council, City & County of Honolulu
Ann Kobayashi, member, City Council, City & County of Honolulu
Rory Cuchola, member, City Council, City & County of Honolulu

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

430 SOUTH KING STREET, 5TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: 1-808-525-1141 • 1-808-525-2710 • INTERNET: www.cc.hawaii.gov



November 15, 2002

Mr. Wendell Lum
45-135 Liliipuna Road
Kaneohe, Hawaii 96744-3022

Dear Mr. Lum:

Subject: Middle Street Transit Center Draft Environmental Assessment (DEA)

Thank you for your review of the Middle Street Transit Center DEA. We have received a copy of your letter to the Federal Transit Administration dated October 19, 2002 and have the following response to your comments.

The Middle Street Transit Center site and project has been approved by the City Council and is indicated in the City's Development Plans and funded in the City's Capital Improvements Program (CIP).

The EA states that the size and accessibility of the Kalihl Shopping Center site were key disadvantages of the shopping center. While shopping center site may be adequate for consolidation of the Handi-Van services, the site could not adequately accommodate a 1,000 vehicle park-and-ride parking structure. Further, the site is not readily accessible to the I-1 Freeway, and it is not possible to determine if the shopping center site would require less environmental remediation than the Middle Street site without a proper Phase I & Phase II environmental study. Since the shopping center was constructed more than 30 years ago, the structures may contain asbestos and lead paint which would require extensive environmental remediation.

The development of Phase 2 and Phase 3 of the proposed Middle Street Transit Center is needed whether or not the BRT system is implemented. The Center will be an important "hub" in the new "hub-and-spoke" transit service system. Commuters from Leeward and Central Oahu can park and transfer to transit at the Center to avoid the traffic congestion through the "downtown" area.

If you have questions or comments, please contact Mr. Brian Suzuki at 527-6880.

Sincerely,

CHERYL D. SOON
Director

cc: Kimura International, Inc.

dc (B. Suzuki) PD *MS*

FILE COPY

CHERYL D. SOON
DIRECTOR

CHERYL D. SOON
DIRECTOR

GEORGE "GEORGE" MARANO
PLANNING DIRECTOR

TPD1002-04402R

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**Preliminary Geotechnical Engineering Exploration
Geolabs, Inc.**



GEOLABS, INC.

Geotechnical Engineering and Drilling Services

February 15, 2002
W.O. 4849-00



Mr. Kurt Mitchell
Kober/Hansen/Mitchell Architects
55 Merchant Street, Suite 1400
Honolulu, HI 96813

Preliminary Findings
Preliminary Geotechnical Engineering Exploration
Middle Street Transportation Center
Intersection of Dillingham Boulevard and Middle Street
Honolulu, Oahu, Hawaii

Dear Mr. Mitchell:

In accordance with our proposal of October 9, 2001, we conducted a preliminary geotechnical engineering exploration at the project site from January 28 to February 1, 2002. This letter presents the results of our field exploration and our preliminary findings. A final report will be issued following completion of the laboratory soil testing and additional analyses.

Project Considerations

A five-story parking structure is planned at the northeast corner of the intersection of Dillingham Boulevard and Middle Street on the Island of Oahu, Hawaii. The parcel of land covers more than 350,000 square feet and minimal filling is anticipated. We understand that the building will be 55 feet in height, and relatively high structural loading is anticipated.

A review of the general geology of the area and previous explorations in the vicinity indicate that the southern and eastern portions of the site may be underlain by deep deposits of soft harbor mud. The mud may be underlain by stiffer alluvial soils to depths in excess of 200 feet. Pile foundations may need to penetrate deep into the alluvial soils to develop sufficient frictional resistance, as basalt bedrock is anticipated at great depths. The northwestern portion of the site may be underlain by moderately dense coral formation at relatively shallow depths. The transition between the harbor mud and coral formation may be erratic and abrupt.

2008 Kalihi Street • Honolulu, Hawaii 96819
Phone: (808) 841-5064 • Facsimile: (808) 847-1749 • E-mail: hawaii@geolabs.net

Hawaii • California • Taiwan

The critical aspects of the technical exploration include:

- The thickness and consolidation properties of the very soft harbor mud. Typically, these deposits are normally consolidated; therefore, significant settlements may occur if the loading on the mud is increased. Additionally, settlements of the soft mud would result in downdrag forces on the pile foundations, greatly reducing the allowable capacity of the piles.
- The lengths and allowable capacities of the pile foundations. Since basalt bedrock is anticipated at very great depths below the site, the piles would derive their capacities from frictional resistance in the alluvial deposits below the soft harbor mud. Therefore, it is critical to determine the shear strength of the alluvial soils as this will determine the length of pile required.
- The presence of coral formation below portions of the site may allow the use of spread footing foundations, provided the layer is sufficiently thick and differential settlements with the pile foundations are tolerable.

Field Exploration

Three borings, designated as Boring Nos. 1, 2, and 3, were drilled at the site within the parking structure footprint. The approximate locations of the borings are shown on the attached Site Plan, Plate 2. Highly variable subsurface conditions were encountered. The subsurface conditions are generalized below.

Boring No. 1 (Southern Corner of Building)

This boring encountered about 5 feet of variable fill material consisting of silty sand to silty clay over very soft lagoonal deposits consisting of organic clayey silt and silty sand to a depth of about 74 feet. Below this, stiff alluvial silty clay with layers of coral detritus were encountered to 152.5 feet, the final depth of the boring.

Groundwater was encountered at about 5 feet below the ground surface at the time of the drilling.

Boring No. 2 (North-Central Portion of Building)

This boring encountered about 5 feet of fill, consisting primarily of silty sand and gravel, over medium dense to dense coralline silty sand and gravel to 43.5 feet. Below this, stiff alluvial silty clay was encountered to 77 feet, the final depth of the boring.

Groundwater was encountered at about 7 feet below the ground surface at the time of the drilling.

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Boring No. 3 (Eastern Corner of Building)

This boring encountered about 13 feet of fill, consisting of medium to stiff silty clay and silty sand over a thin (3-foot) layer of cemented volcanic ash. Below this, alluvial boulders and cobbles were encountered to about 32 feet underlain by stiff to very stiff alluvial silty clay to 77 feet, the final depth of the boring.

Groundwater was encountered at about 6.5 feet below the ground surface at the time of the drilling.

It should be noted that the water levels will vary, depending on the tidal fluctuations, rainfall, and other factors. Detailed descriptions of the materials encountered are presented on the Logs of Borings, Plates, A-1.1 thru A-3.3.

Preliminary Findings

Variable subsurface conditions were encountered at the site of the parking structure. The southern portion of the site is underlain by very soft lagoonal deposits to depths in excess of 70 feet. The soft lagoonal deposits were not encountered in the northern portion of the site, instead coralline deposits and alluvial boulders were encountered to depths of about 32 to 43 feet. These materials were underlain by a thick layer of stiff silty clay (older alluvium) in all three borings.

High column loads are anticipated for the parking structure. The soft lagoonal soils in the southern portion of the site are highly compressible and cannot support the structural loads of the building. Therefore, pile foundations extending through the soft soils and into the stiff alluvial silty clay are recommended. Hard rock or coral layers suitable for end bearing support of the piles were not encountered within practical depths; therefore, the piles would derive their support from frictional resistance in the alluvium. We believe that 16 ½-inch octagonal, precast, prestressed concrete piles may be used to support the parking structure. An allowable compressive load capacity up to about 100 tons may be used for piles extending about 50 feet into the stiff alluvium. We estimate that pile lengths on the order of about 100 to 140 feet may be required for the southern portion of the parking structure.

The northern portion of the structure appears to be underlain by better soil conditions; however, in order to reduce potential differential settlements, pile foundations are recommended. The piles would derive their support from frictional resistance in the alluvium. We believe that 16 ½-inch octagonal, precast, prestressed concrete piles may be used to support the parking structure. An allowable compressive load capacity up to about 100 tons may be used for piles extending about 50 feet into the stiff alluvium. We estimate that pile lengths on the order of about 75 to 100 feet may be required for the northern portion of the parking structure. We anticipate that pre-drilling through the upper

coralline deposits and boulders may be necessary to allow penetration of the piles into the underlying stiff alluvium. Pre-drilling depths on the order of 40 feet are anticipated, based on the current subsurface information.

Downdrag is the downward shear force acting on piles due to downward movement of surrounding soil strata relative to the piles. Downdrag may occur by placement of fill over a compressible soil layer causing the soil to move downward relative to the pile, inducing a drag load that could be a substantial increase to the anticipated loads. The southern half of the parking structure site appears to be underlain by soft compressible soil; therefore, fills placed would induce settlements and corresponding downdrag loads on the piles. The above pile capacity and length estimates do not account for downdrag loads. If fills are required to raise the site, significantly longer pile lengths would be needed. We consider this a critical design consideration in the foundation of the project.

Prior to final design, a detailed subsurface exploration should be conducted to attempt to delineate the boundaries between the soft lagoonal deposits and more competent coralline deposits in order to provide a better estimate of the pile lengths required.

Closure

We appreciate the opportunity to be of service to you on this project. If you have questions or need additional information, please contact our office.

Respectfully submitted,

GEOLABS, INC.

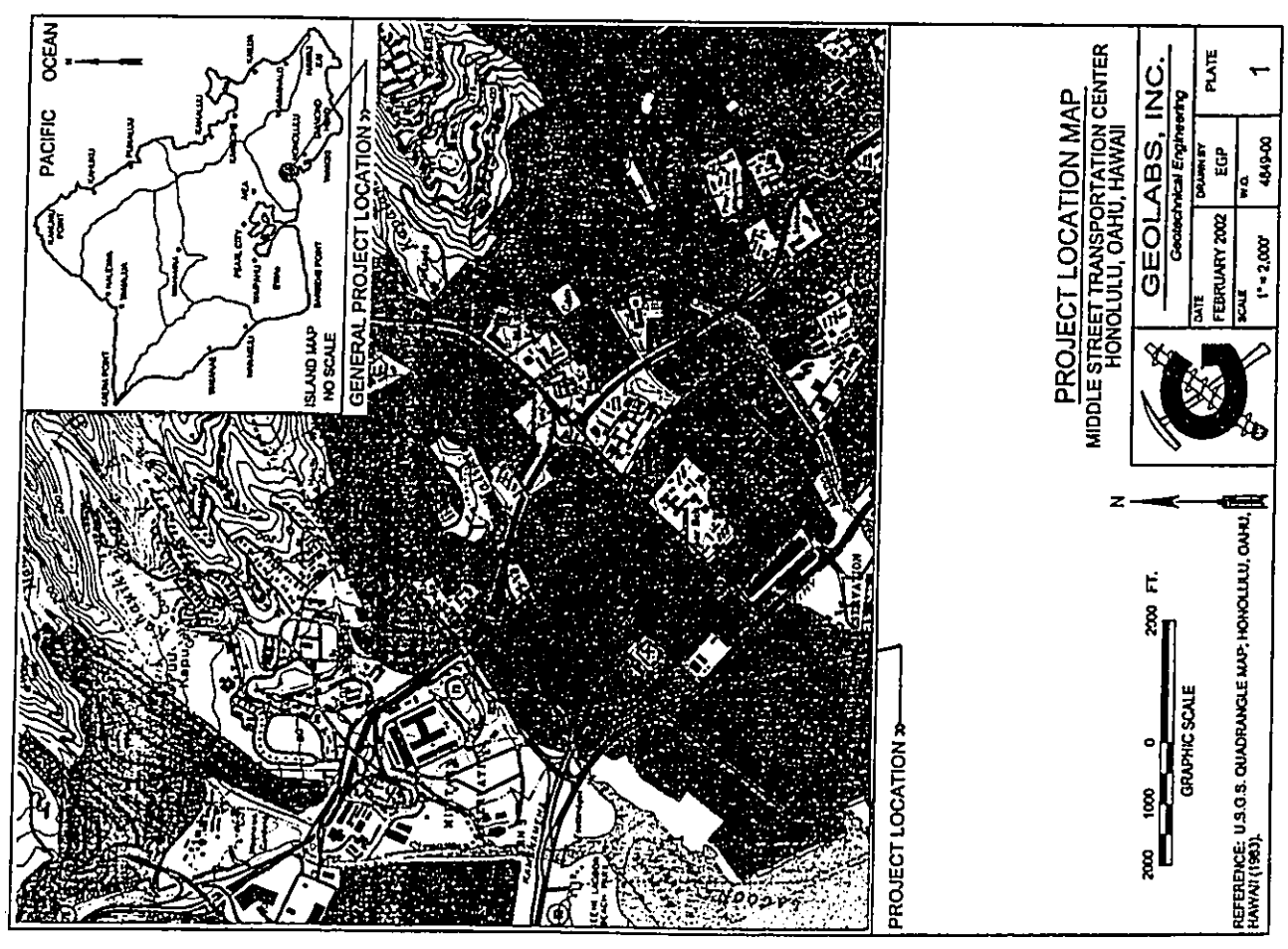
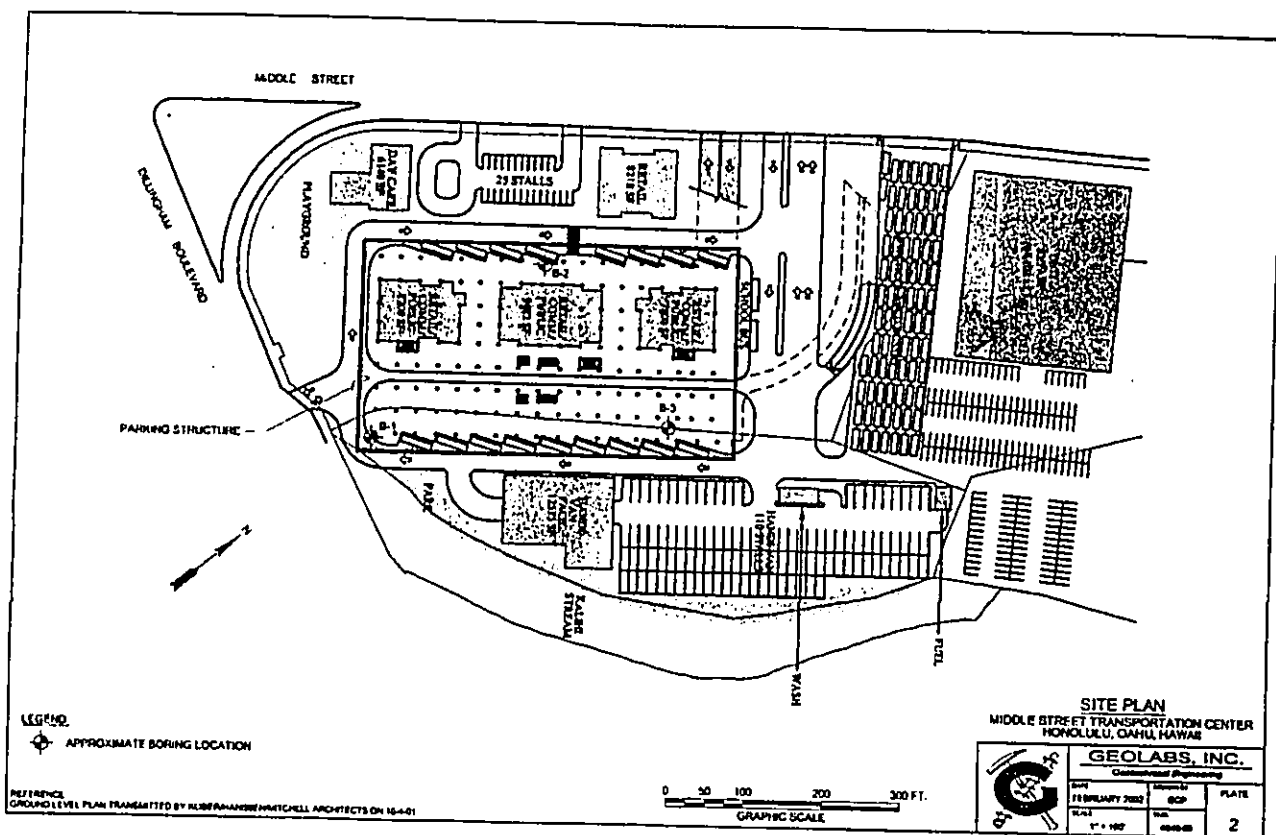
By Clayton S. Mimura
Clayton S. Mimura, P.E.

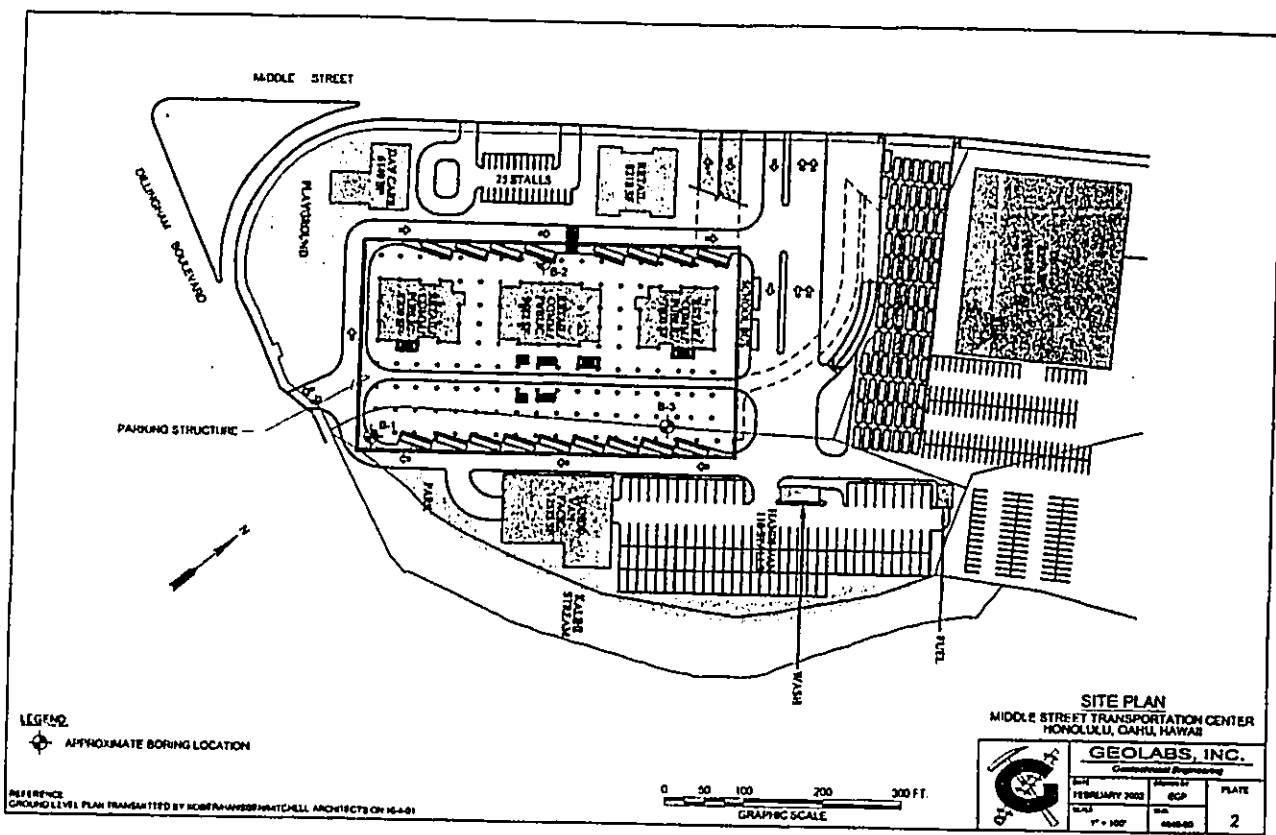
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Attachments: Project Location Map, Plate 1
Site Plan, Plate 2
Boring Log Legend, Plate A
Logs of Borings, Plates A-1.1 thru A-3.3

(2 Copies to Addressee)

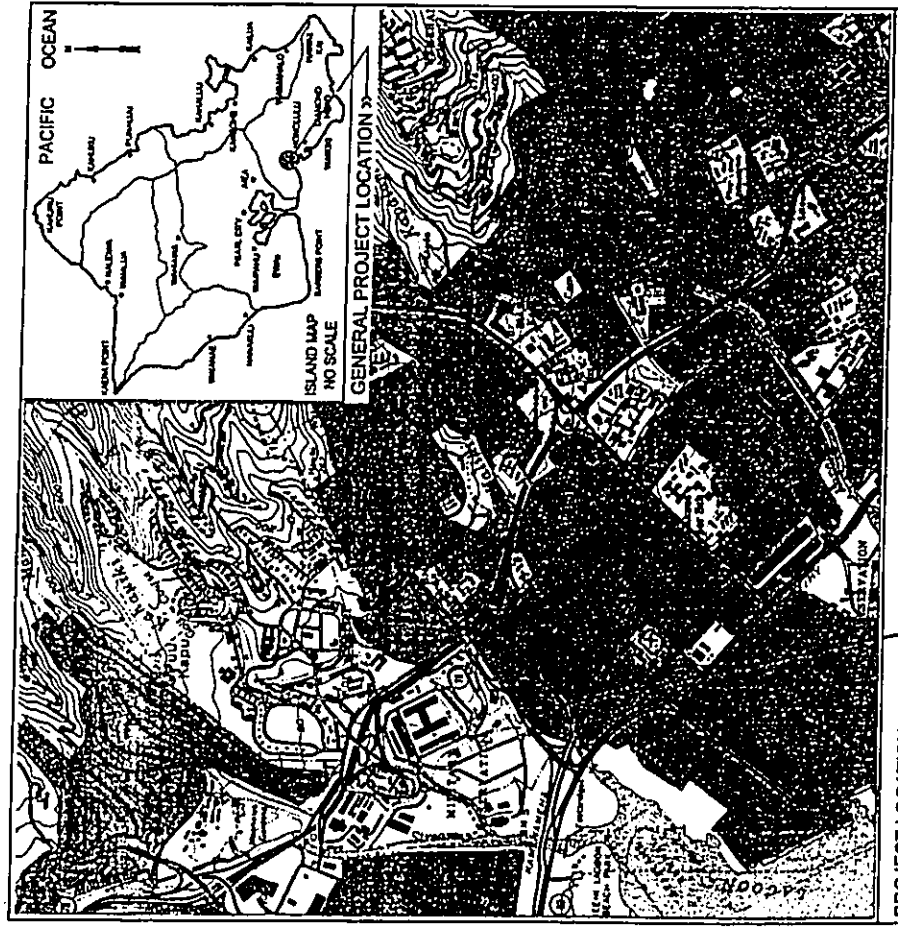
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SITE PLAN
MIDDLE STREET TRANSPORTATION CENTER
HONOLULU, OAHU, HAWAII

GEOLABS, INC. Geotechnical Engineering	
DATE FEBRUARY 2002	PLATE 2
DRAWN BY EGP	W.D.
SCALE 1" = 100'	4418-00



PROJECT LOCATION MAP
MIDDLE STREET TRANSPORTATION CENTER
HONOLULU, OAHU, HAWAII

GEOLABS, INC. Geotechnical Engineering	
DATE FEBRUARY 2002	PLATE 1
DRAWN BY EGP	W.D.
SCALE 1" = 2,000'	4418-00

REFERENCE: U.S. G.S. QUADRANGLE MAP, HONOLULU, OAHU, HAWAII (1983)

GEOLABS, INC.
Geotechnical Engineering

Boring Log Legend

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

MAJOR DIVISIONS	USCS	TYPICAL DESCRIPTIONS
GRAVELS	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
SANDS	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
SANDS	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
SANDS	SM	SILTY SANDS, SAND-SILT MIXTURES
	SC	CLAYEY SANDS, SAND-CLAY MIXTURES
SILTS AND CLAYS	ML	MEDIUM SILTS AND VERY FINE SANDS, ROCK FLOES, SILT AND SAND MIXTURES OR CLAYEY SILTS WITH SLIGHT PLASTICITY
	CL	MEDIUM CLAYS OF LOW TO MEDIUM PLASTICITY, SANDY CLAYS, SANDY CLAYEY SILTS, LEAN CLAYS
SILTS AND CLAYS	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	MH	ORGANIC SILT, IMBIBICIOUS OR ORGANIC FINE SAND OR SILTY SAND
SILTS AND CLAYS	CH	ORGANIC CLAYS OF HIGH PLASTICITY
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS	PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

LEGEND

- (2-INCH) O.D. STANDARD PENETRATION TEST
- (3-INCH) O.D. MODIFIED CALIFORNIA SAMPLE
- SHELBY TUBE SAMPLE
- GRAB SAMPLE
- CORE SAMPLE
- LL LIQUID LIMIT
- PI PLASTICITY INDEX
- TV TORVALE SHEAR (qs)
- PEN POCKET PENETROMETER (pp)
- UC UNCONFINED COMPRESSION (qu)
- ∇ WATER LEVEL OBSERVED IN BORING

Plats **A**

GEOLABS, INC. Geotechnical Engineering		MIDDLE STREET TRANSPORTATION CENTER HONOLULU, OAHU, HAWAII		Log of Boring 1		
Laboratory		Field		Approximate Ground Surface Elevation: N/A		
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RDD (%)	Penetration Resistance (kN/m ²)	
					14	SM 1-inch ASPHALTIC CONCRETE Dark brown SILTY SAND with some clay, medium dense, moist (fill)
					3	CH Brownish orange SILTY CLAY with sand, very soft, wet Brownish gray SILTY CLAY with sand, very soft
					2	SM Brownish gray SILTY SAND with rounded gravel and shell fragments, very loose (lagooonal deposit)
					3	MH OH Gray with brown mottling CLAYEY SILT, ORGANIC with fine sand, very soft (lagooonal deposit)

Depth (feet): 0, 5, 10, 15, 20, 25, 30, 35

Sample Graphic


USCS

Water Level: ∇ 5.2 ft. 1/30/02 1621 HRS

Date Started: January 30, 2002
Date Completed: February 1, 2002
Logged By: Y. Chiba
Total Depth: 152.5 feet
Work Order: 4649-00

Drill Rig: CME-75
Drilling Method: 4" Auger, 4" Casing & HQ Coring
Driving Energy: 140 lb. wt., 30 in. drop


Plate **A - 1.1**

 GEOLABS, INC. Geotechnical Engineering		MIDDLE STREET TRANSPORTATION CENTER HONOLULU, OAHU, HAWAII		Log of Boring 1					
Laboratory		Field							
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RDD (%)					
Penetration Resistance (blow/foot)	Penetration Resistance (tsf)	Pocket Pen. (tsf)	Depth (feet)	USCS					
Description <small>(Continued from previous plate)</small>									
TV=0.1			18	0	1/1.5		35	OH	
TV=2.0			0	0	1		40	OH	
TV=2.0			0	0	1/1.5		45	OH	
TV=2.0			0	0	2		50	OH	
TV=2.0			0	0	1/1.5		55	OH	
TV=0.15			0	0	WL of flame		60	OH	
			0	0	2		65	SM	Brownish gray SILTY SAND with coral and shell fragments, very loose (lagooonal deposit)
							70		

Date Started: January 30, 2002
 Date Completed: February 1, 2002
 Logged By: Y. Chiba
 Total Depth: 152.5 feet
 Work Order: 4849-00

Water Level: ∇ 5.2 ft. 1/3002 1621 HRS
 Drill Rig: CME-76
 Drilling Method: 4" Auger, 4" Casing & HQ Coring
 Driving Energy: 140 lb. wt., 30 in. drop


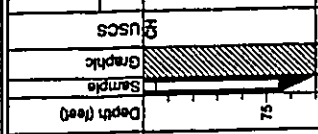
Plate
A - 1.2


 GEOLABS, INC. Geotechnical Engineering		MIDDLE STREET TRANSPORTATION CENTER HONOLULU, OAHU, HAWAII		Log of Boring 1					
Laboratory		Field							
Other Tests	Moisture Content (%)	Dry Density (pcf)	Core Recovery (%)	RDD (%)					
Penetration Resistance (blow/foot)	Penetration Resistance (tsf)	Pocket Pen. (tsf)	Depth (feet)	USCS					
Description <small>(Continued from previous plate)</small>									
			0		2.5		75	OH	
			48	0	13		80	OH	
			35	0	2.0		85	OH	Dark brown SILTY CLAY, stiff (old alluvium)
			48	0	3.5		90	OH	
			83	0	3.0		95	OH	
			83	0	3.0		100	OH	
			95	0	3.5		105	SM	Brownish tan mottled with white CORALLINE SILTY SAND with gravel, loose (coral detritus)

Date Started: January 30, 2002
 Date Completed: February 1, 2002
 Logged By: Y. Chiba
 Total Depth: 152.5 feet
 Work Order: 4849-00

Water Level: ∇ 5.2 ft. 1/3002 1621 HRS
 Drill Rig: CME-76
 Drilling Method: 4" Auger, 4" Casing & HQ Coring
 Driving Energy: 140 lb. wt., 30 in. drop

Plate
A - 1.3

 GEOLABS, INC. Geotechnical Engineering		MIDDLE STREET TRANSPORTATION CENTER HONOLULU, OAHU, HAWAII		Log of Boring 2
Laboratory Other Tests Moisture Content (%) Dry Density (pcf)		Field Core Recovery (%) RRD (%) Penetration Resistance (blows/foot) Pocket Pen. (tsf)		Description (Continued from previous plate) USCS Sample Graphic Depth (feet)
		75 0 24 4.0		75 
		Boring terminated at 77 feet		80 85 90 95 100 105
Date Started: January 29, 2002 Date Completed: January 30, 2002 Logged By: Y. Chiba Total Depth: 77 feet Work Order: 4849-00		Water Level: ∇ 7.1 ft. 1/28/02 1702 HRS Drill Rig: CME-75 Drilling Method: 4" Auger, 4" Casing & HQ Coring Driving Energy: 140 lb. wt., 30 in. drop		Plate A - 2.3

 GEOLABS, INC. Geotechnical Engineering		MIDDLE STREET TRANSPORTATION CENTER HONOLULU, OAHU, HAWAII		Log of Boring 3
Laboratory Other Tests Moisture Content (%) Dry Density (pcf)		Field Core Recovery (%) RRD (%) Penetration Resistance (blows/foot) Pocket Pen. (tsf)		Description Approximate Ground Surface Elevation: N/A USCS Sample Graphic Depth (feet)
		79 0 25/3' Ref. 1.0		5 10 15 20 25 30 35
		13 0 >4.5		1-inch ASPHALTIC CONCRETE (base course) Reddish brown SILTY CLAY with sand and gravel, medium stiff, moist Brown SAND with silt, loose, moist Brown SILTY CLAY with sand and coral gravel, medium stiff, moist Brown CLAYEY SAND with gravel, medium dense Grayish tan SILTY CLAY with sand and gravel, stiff Dark gray mottled with white cemented SANDY GRAVEL, dense (volcanic ash) BOULDERS AND GOBBLES in a silty clay matrix (alluvium) Dark orange brown SILTY CLAY with fine sand, very stiff (clinker)
Date Started: January 28, 2002 Date Completed: January 28, 2002 Logged By: Y. Chiba Total Depth: 77 feet Work Order: 4849-00		Water Level: ∇ 6.5 ft. 1/28/02 1107 HRS Drill Rig: CME-75 Drilling Method: 4" Auger, 4" Casing & HQ Coring Driving Energy: 140 lb. wt., 30 in. drop		Plate A - 3.1

Appendix B

**Air Quality Impact Report
J.W. Morrow**

AIR QUALITY IMPACT REPORT (AQIR)

***MIDDLE STREET TRANSIT CENTER
HONOLULU, HAWAII***

30 August 2002

PREPARED FOR:

Kimura International, Inc.

PREPARED BY:

**J. W. MORROW
Environmental Management Consultant
1481 South King Street, Suite 548
Honolulu, Hawaii 96814**

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1	Project Location
2	A.M. Peak-Hour Conditions, Middle Street at Kamehameha Highway, 18 July 2002
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4	August Wind Rose - Honolulu International Airport
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APPENDIX TABLES

<u>NUMBER</u>	<u>TITLE</u>
A-1	Results of Dispersion Modeling: Year 2002 - A.M. Peak Hour
A-2	Results of Dispersion Modeling: Year 2002 - P.M. Peak Hour
A-3	Results of Dispersion Modeling: Year 2025 - A.M. Peak Hour
A-4	Results of Dispersion Modeling: Year 2025 - P.M. Peak Hour

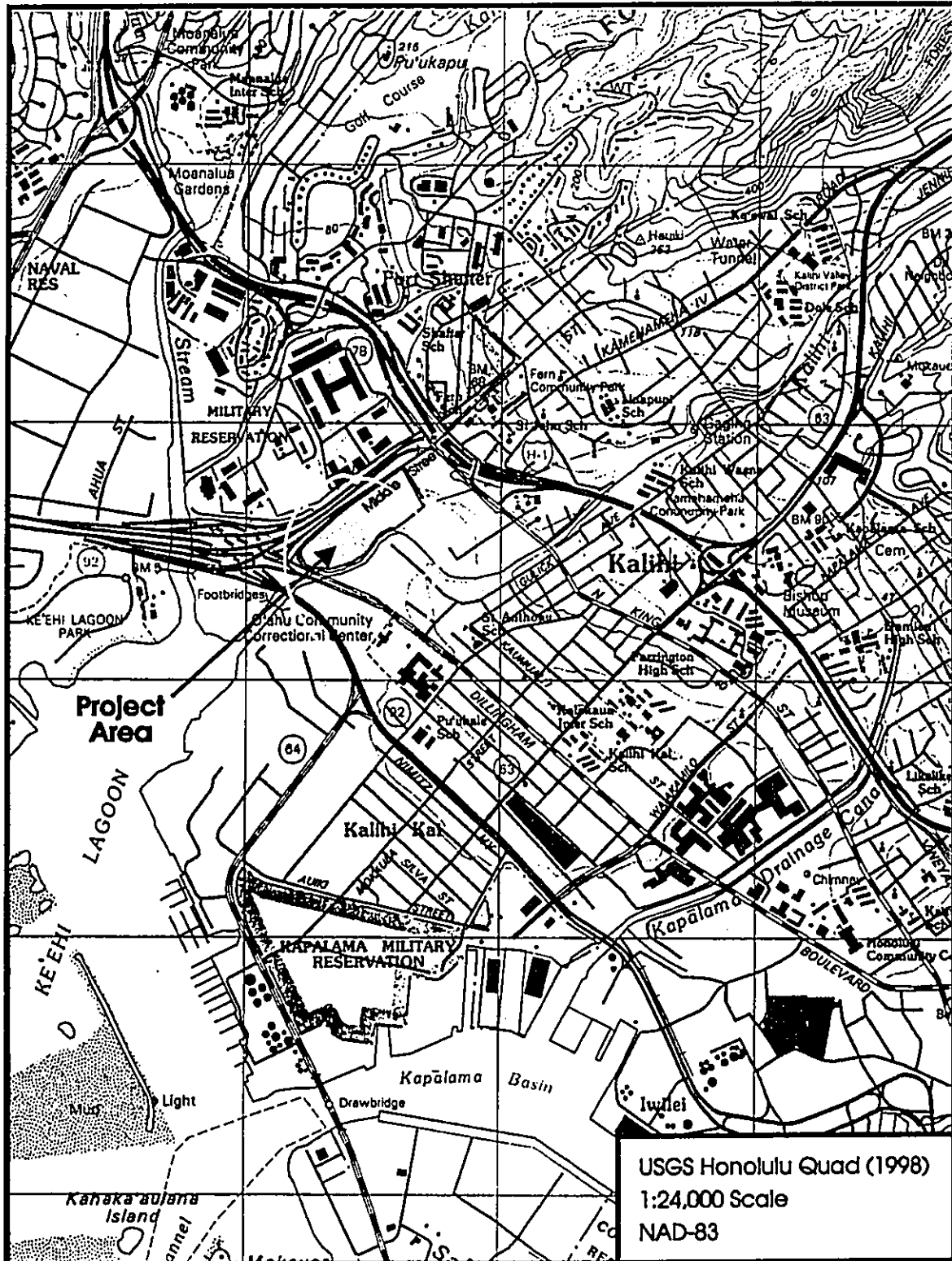
1. INTRODUCTION

The Department of Transportation Services, City and County of Honolulu, is proposing to develop a major transit center and consolidate Handi-Van facilities on property adjacent to its existing Kalihi-Palama Bus Facility. This property is located at the corner of Middle Street and Kamehameha Highway in Honolulu (Figure 1). The proposed facility will include the following major components:

- Handi-Van parking and maintenance facilities
- bus terminal
- 1,000 stall automated parking structure
- reserved area for future commercial, community facility or transit center expansion

The purpose of this report is to assess the short and long-term impacts of the proposed development on air quality. The overall project can be considered an "indirect source" of air pollution as defined in the federal Clean Air Act¹ since its primary association with air quality is its inherent attraction for mobile sources, i.e., motor vehicles. Much of the focus of this analysis, therefore, is on the project's ability to generate additional traffic and the resultant impact on air quality. Air quality impact was evaluated for existing (2002) and future (2025) conditions both with and without the proposed development.

Figure 1
Project Location



Finally, during construction of the various buildings and facilities air pollutant emissions will be generated onsite and offsite due to vehicular movement, grading, concrete and asphalt batching, and general dust-generating construction activities. These impacts have also been addressed.

2. AIR QUALITY STANDARDS

A summary of State of Hawaii and national ambient air quality standards (NAAQS) is presented in Table 1.^{2,3,4} Note that Hawaii's standards are not divided into primary and secondary standards as are the federal standards.

Primary standards are intended to protect public health with an adequate margin of safety while secondary standards are intended to protect public welfare through the prevention of damage to soils, water, vegetation, man-made materials, animals, wildlife, visibility, climate, and economic values⁵. Note that in the case of the principal automotive pollutants [CO, NO₂, and O₃], the primary and secondary standards are identical.

Some of Hawaii's standards (CO, NO₂, and O₃) are clearly more stringent than their federal counterparts and like their federal counterparts in the case of short-term standards, they may be exceeded once per year. Note also that the federal PM_{2.5} and 8-hour O₃ standards, while promulgated in 1997,^{6,7} were remanded to EPA by a federal court in 1999 and are currently under appeal.⁸

TABLE 1

SUMMARY OF STATE OF HAWAII AND FEDERAL
AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING PERIOD	NAAQS PRIMARY	NAAQS SECONDARY	STATE STANDARDS
PM ₁₀	Annual	50	50	50
	24-hr	150	150	150
PM _{2.5}	Annual	15	15	—
	24-hr	65	65	—
SO ₂	Annual	80	—	80
	24-hr	365	—	365
	3-hr	—	1,300	1,300
NO ₂	Annual	100	100	70
CO	8-hr	10	—	5
	1-hr	40	—	10
O ₃	1-hr	235	235	100
	8-hr	156	156	—
H ₂ S	1-hr	—	—	35
Pb	Calendar Quarter	1.5	1.5	1.5

KEY: PM₁₀ - particulate matter ≤ 10 microns
 PM_{2.5} - particulate matter ≤ 2.5 microns
 SO₂ - sulfur dioxide
 NO₂ - nitrogen dioxide
 CO - carbon monoxide
 O₃ - ozone
 H₂S - hydrogen sulfide
 Pb - lead

All concentrations in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) except CO which is in milligrams per cubic meter.

Finally, the State of Hawaii also has fugitive dust regulations for particulate matter (PM) emanating from construction activities⁹. There simply can be no visible emissions from fugitive dust sources.

3. EXISTING AIR QUALITY

3.1 General. The state Department of Health (DOH) maintains a network of air monitoring stations around the state to gather data on the following regulated pollutants:

- particulate matter ≤ 10 microns (PM_{10})
- sulfur dioxide (SO_2)
- nitrogen dioxide (NO_2)
- carbon monoxide (CO)
- ozone (O_3)

In the case of PM_{10} , measurements are made on a 24-hour basis to correspond with the averaging period specified in state and federal standards. Depending on the sampling equipment and site, samples are collected either continuously or once every six days in accordance with U. S. Environmental Protection Agency (EPA) guidelines. Carbon monoxide, sulfur dioxide, and ozone, however, are measured on a continuous basis due to their short-term (1- and 3-, and 8-hour) standards. Nitrogen dioxide is also measured with continuous instruments and averaged over a full year to correspond to its annual standards. Lead sampling was discontinued in October 1997 with EPA approval. This was

largely due to the elimination of lead in gasoline and the resulting reduction of ambient lead levels in Hawaii to essentially zero.

3.2 Department of Health Monitoring. There are no DOH monitoring stations in the vicinity of the project site. . A summary of the most recent published air quality data ¹⁰ from the nearest sites at Honolulu (Department of Health building), Sand Island (the only ozone monitoring site), and West Beach (one of two NO₂ monitoring sites), is presented in Table 2. These data are indicative of the generally good air quality in Honolulu County and may be considered reasonably representative of existing air quality in the project area.

3.3 Onsite Carbon Monoxide Sampling. In conjunction with this project, air sampling was conducted in July 2002 at the Middle Street - Kamehameha Highway intersection in the vicinity of the project site. A continuous carbon monoxide (CO) instrument was set up and operated during the a.m. and p.m. peak traffic hours. An anemometer and vane were also installed to record onsite surface winds during the sampling period. A simultaneous manual count of traffic was performed. The variability of each of the parameters measured during the peak hours is clearly seen in Figures 2 and 3.

On Thursday, 18 July 2002, sampling equipment was set up on the makai (south) side of the intersection approximately 75 meters south of Kamehameha Highway and 20 meters west of Kalihi Stream. Weather conditions during the morning peak hour were characterized by overcast skies and northeasterly trade winds averaging 3.8 mph. Carbon monoxide concentrations measured were very

TABLE 2
AIR QUALITY DATA
DEPARTMENT OF HEALTH MONITORING SITES
2000

Pollutant	Concentration ($\mu\text{g}/\text{m}^3$)
Particulate matter \leq 10 microns (PM ₁₀) 24-hr (second highest) Annual	83 14
Sulfur dioxide (SO ₂) 3-hr (max) 24-hr (max) Annual	65 9 1
Carbon monoxide (CO) 1-hr (max) 8-hr (max)	4.0 1.8
Ozone (O ₃) 1-hr (max) Annual	98 32
Nitrogen Dioxide (NO ₂) Annual	7
Notes: 1. NO ₂ data from West Beach site. 2. PM ₁₀ , SO ₂ and CO data from Honolulu DOH site. 3. O ₃ data are from the Sand Island site. 4. CO data are milligrams per cubic meter (mg/m^3)	

Source: Hawaii Department of Health (Reference 10)

low, averaging 0.39 mg/m³. Two-way traffic on Kamehameha Highway fronting the project site was 2,913 vehicles between 7:30 and 8:30 Hawaiian Standard Time (HST).

On Monday afternoon, 22 July 2002, the equipment was set up at the same location. Skies were clear and winds were brisk northeasterly trades averaging 11.1 mph. The hourly 2-way traffic on Kamehameha Highway was 3,028 vehicles. The mean CO level of 0.41 mg/m³ was again very low.

4. CLIMATE AND METEOROLOGY

4.1 Climate. Climatic norms, means and extremes for Honolulu ¹¹ are presented in Table 3. Analysis of the monthly temperature and rainfall data for the National Weather Service station at Honolulu International Airport in accordance with Thornwaite's scheme for climatic classification, yields a precipitation/evaporation (P/E) index of 26.6 which classifies the area as "semi-arid". ¹²

4.2 Surface Winds. Meteorological data records were reviewed from the Honolulu International Airport and Hickam Air Force Base. The annual prevalence of northeast trade winds is clearly shown in Table 4. A closer examination of the data, however, indicates that low velocities (less than 10 mph) occur frequently and that the normal northeasterly trade winds tend to break down in the Fall giving way to more light, variable wind conditions through the Winter and on into early Spring. It is during these times that Honolulu generally experiences elevated pollutant levels. This seasonal difference in wind conditions can be easily contrasted by comparing August and January wind roses (Figures 4 and 5). Of particular interest from an air pollution standpoint were the stability wind roses prepared

FIGURE 2
A.M. PEAK HOUR CONDITIONS
MIDDLE STREET AT KAMEHAMEHA HIGHWAY
18 JULY 2002

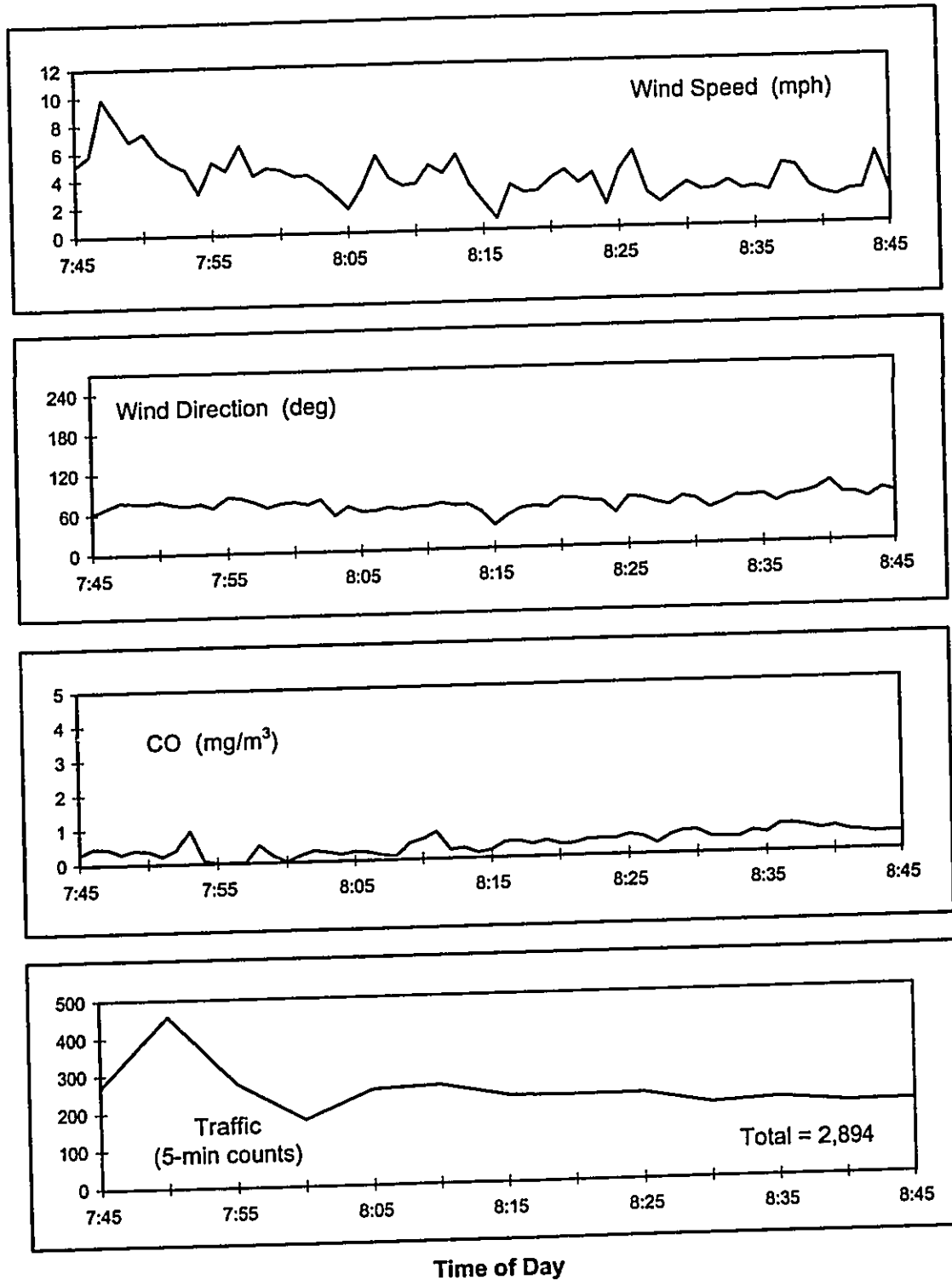


FIGURE 3
P.M. PEAK HOUR CONDITIONS
MIDDLE STREET AT KAMEHAMEHA HIGHWAY
22 JULY 2002

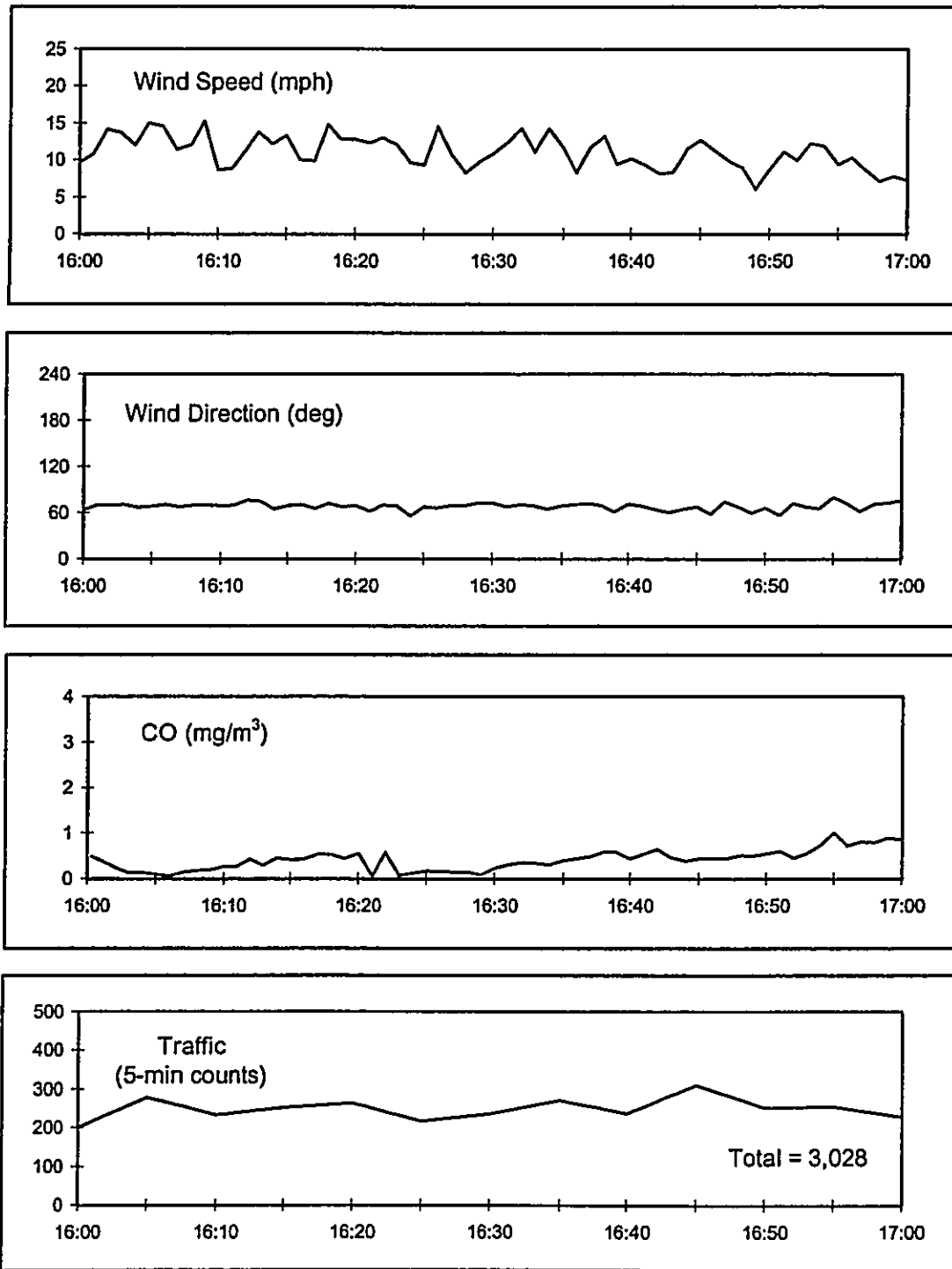


TABLE 3

**CLIMATIC NORMS, MEANS AND EXTREMES
HONOLULU INTERNATIONAL AIRPORT (HIA)**

Parameter	Descriptor	Honolulu International Airport
Temperature (deg F)	Daily maximum	84.4
	Daily minimum	70.0
	Annual mean	77.2
Precipitation (inches)	Maximum monthly	20.91
	Minimum monthly	trace
	Annual mean	22.02
Humidity (%)	Normal	68
Wind Speed (mph)	Mean	11.4
Sunshine	Percent of possible	71
Sky cover (mean # days)	Clear	90.0
	Partly cloudy	179.8
	Cloudy	92.0

Sources: National Climatic Data Center (NCDC) (Reference 11)

for Hickam Air Force Base ¹³. These data indicated that stable conditions, i.e., Pasquill-Gifford stability categories E and F ¹⁴, occur about 28% of the time on an annual basis and 36% of the time during the peak winter month (January). It is under such conditions that the greatest potential for air pollutant buildup from groundlevel sources, e.g., motor vehicles, exists.

5. SHORT-TERM IMPACTS

5.1 Onsite Impacts. The principal source of short-term air quality impact will be construction activity. Construction vehicle activity can at times increase automotive pollutant concentrations along adjoining existing streets as well as on the project site itself. Construction activity itself as well as additional construction vehicle traffic may at times cause a temporary reduction in average travel speeds with a concomitant increase in vehicle emissions due to the "stop and go" traffic conditions. The site preparation and earth moving will create particulate matter (PM) emissions as will construction of new buildings and roadways themselves. Construction vehicle movement on unpaved on-site areas will also generate PM emissions. EPA studies on fugitive dust emissions from construction sites indicate that about 1.2 tons/acre per month of activity may be expected under conditions of medium activity, moderate soil silt content (30%), and a precipitation/ evaporation (P/E) index of 50 ^{12, 15}.

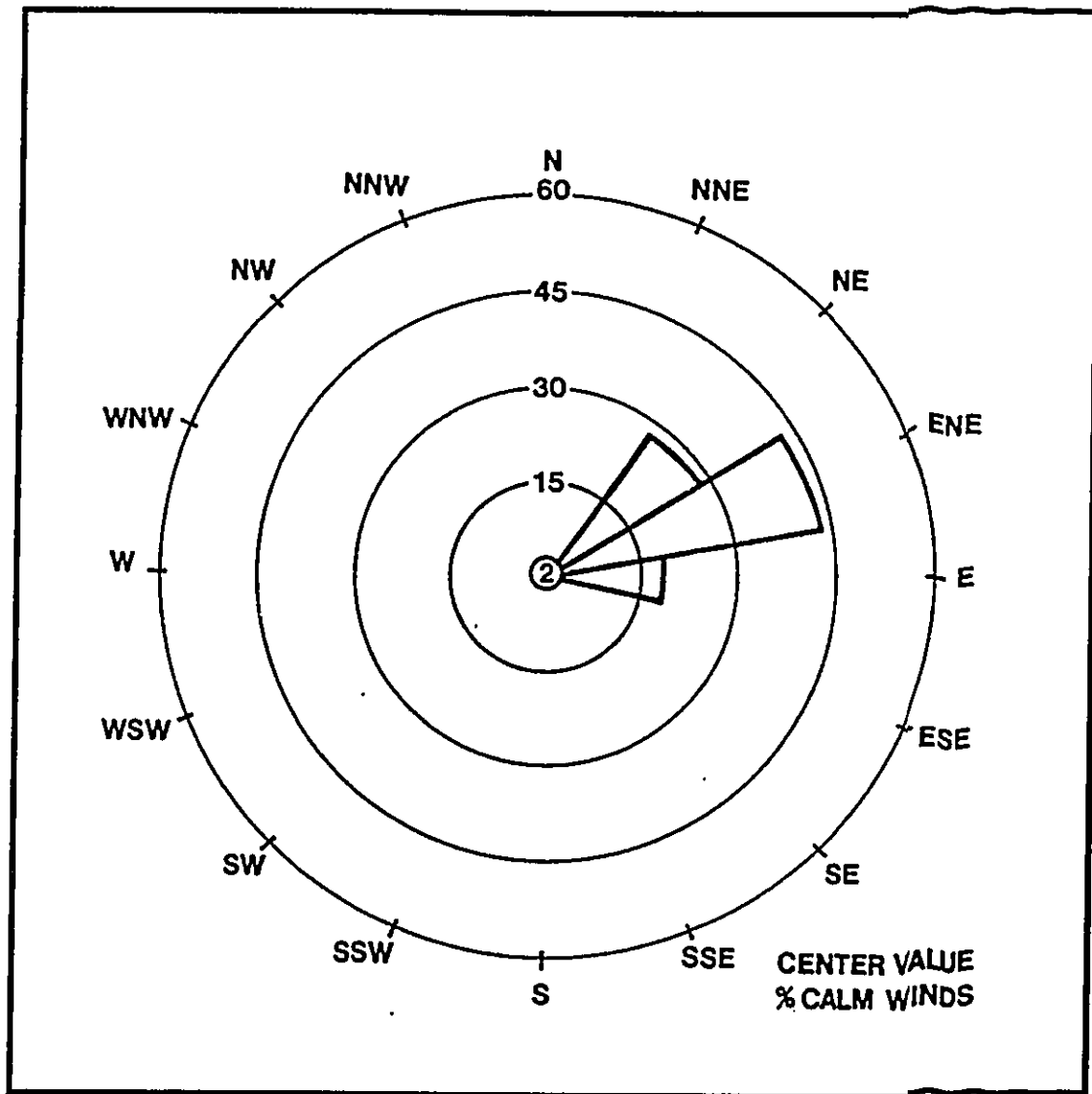
5.2 Offsite Impacts. In addition to the onsite impacts attributable to construction activity, there will also be offsite impacts due to the operation of concrete and asphalt batching plants needed for construction of buildings and parking areas. Such plants routinely emit particulate matter and

TABLE 4
ANNUAL JOINT FREQUENCY DISTRIBUTION
OF WIND SPEED AND DIRECTION
HONOLULU INTERNATIONAL AIRPORT

Dir (deg)	Wind Speed (m/sec)						All
	< 3.1	< 4.5	< 5.8	< 7.2	< 8.5	>= 8.5	
10	0.0065	0.0038	0.0023	0.0016	0.0009	0.0001	0.0151
20	0.0082	0.0041	0.0025	0.0023	0.0011	0.0001	0.0183
30	0.0100	0.0061	0.0051	0.0038	0.0028	0.0007	0.0286
40	0.0188	0.0157	0.0258	0.0222	0.0174	0.0040	0.1039
50	0.0268	0.0290	0.0449	0.0385	0.0307	0.0054	0.1752
60	0.0344	0.0289	0.0436	0.0273	0.0238	0.0041	0.1621
70	0.0250	0.0181	0.0197	0.0122	0.0096	0.0009	0.0855
80	0.0113	0.0081	0.0065	0.0039	0.0009	0.0003	0.0310
90	0.0073	0.0049	0.0040	0.0009	0.0008	0.0000	0.0179
100	0.0031	0.0016	0.0014	0.0006	0.0002	0.0000	0.0068
110	0.0027	0.0019	0.0010	0.0007	0.0005	0.0001	0.0069
120	0.0027	0.0013	0.0019	0.0009	0.0003	0.0003	0.0075
130	0.0022	0.0032	0.0018	0.0015	0.0007	0.0002	0.0096
140	0.0034	0.0033	0.0039	0.0018	0.0011	0.0006	0.0141
150	0.0022	0.0030	0.0019	0.0003	0.0002	0.0005	0.0081
160	0.0024	0.0033	0.0023	0.0010	0.0005	0.0000	0.0094
170	0.0031	0.0046	0.0023	0.0007	0.0003	0.0000	0.0109
180	0.0055	0.0042	0.0018	0.0008	0.0005	0.0000	0.0128
190	0.0065	0.0038	0.0013	0.0002	0.0000	0.0000	0.0117
200	0.0057	0.0032	0.0011	0.0001	0.0000	0.0000	0.0101
210	0.0076	0.0038	0.0016	0.0001	0.0000	0.0000	0.0131
220	0.0083	0.0077	0.0016	0.0001	0.0001	0.0000	0.0179
230	0.0076	0.0049	0.0014	0.0001	0.0001	0.0000	0.0141
240	0.0042	0.0016	0.0013	0.0000	0.0000	0.0000	0.0071
250	0.0040	0.0010	0.0003	0.0000	0.0000	0.0000	0.0054
260	0.0064	0.0023	0.0005	0.0000	0.0000	0.0000	0.0091
270	0.0065	0.0010	0.0005	0.0002	0.0000	0.0000	0.0082
280	0.0099	0.0005	0.0002	0.0000	0.0000	0.0000	0.0106
290	0.0123	0.0003	0.0002	0.0001	0.0000	0.0000	0.0130
300	0.0167	0.0018	0.0011	0.0000	0.0000	0.0000	0.0197
310	0.0235	0.0022	0.0015	0.0001	0.0000	0.0000	0.0272
320	0.0200	0.0022	0.0013	0.0006	0.0001	0.0000	0.0241
330	0.0121	0.0023	0.0011	0.0005	0.0000	0.0000	0.0159
340	0.0094	0.0010	0.0003	0.0001	0.0000	0.0000	0.0109
350	0.0082	0.0025	0.0016	0.0002	0.0000	0.0000	0.0125
360	0.0093	0.0027	0.0022	0.0006	0.0005	0.0001	0.0154
All	0.3537	0.1898	0.1917	0.1240	0.0932	0.0174	0.9698
						Calms:	0.0302

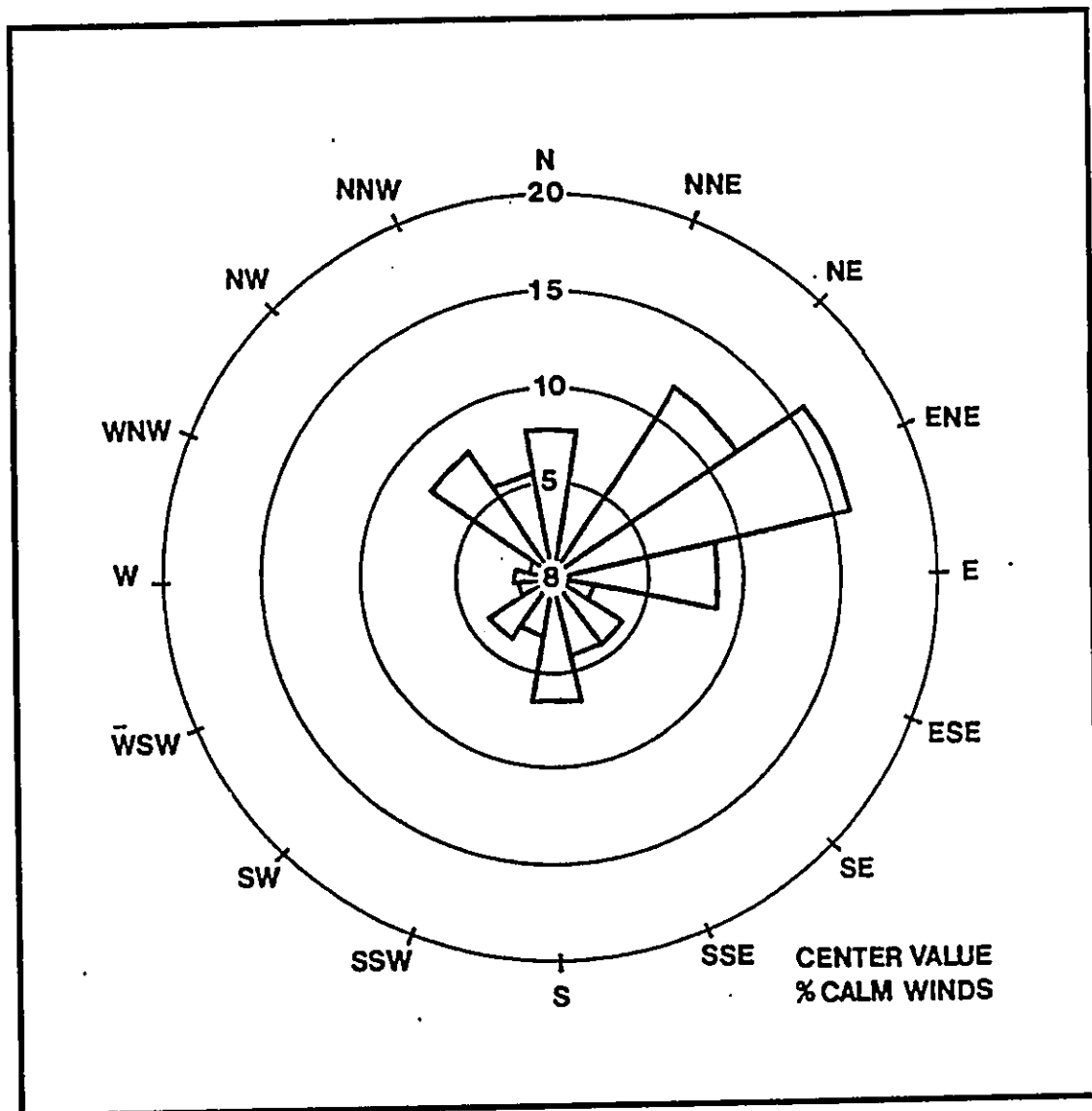
SOURCE: National Weather Service, 1992

FIGURE 4
AUGUST WIND ROSE
HONOLULU INTERNATIONAL AIRPORT



SOURCE: National Weather Service
Historical Records, 1940-57

FIGURE 5
JANUARY WIND ROSE
HONOLULU INTERNATIONAL AIRPORT



SOURCE: National Weather Service
Historical Records, 1940-57

other gaseous pollutants; however, it is too early to identify the specific facilities that will be providing these materials and thus the discussion of air quality impacts is necessarily generic. The batch plants which will be producing this concrete and asphalt must be permitted by the Department of Health Clean Air Branch pursuant to state regulations⁹. In order to obtain these permits they must demonstrate their ability to continuously comply with both emission⁹ and ambient air quality⁴ standards. Under the federal Title V operating permit requirements¹⁶, now incorporated in Hawaii's rules⁹, air pollution sources must regularly attest to their compliance with all applicable requirements. A typical concrete batch plant in Hawaii is equipped with fabric filters, i.e., "baghouses" for particulate matter (PM) control. Similarly, a typical asphalt plant is equipped with either a wet venturi scrubber or fabric filters. The efficiency of such controls is normally 95 - 99%.

6. MOBILE SOURCE IMPACTS

6.1 Mobile Source Activity. The traffic analysis report¹⁷ prepared for the proposed project served as the basis for this mobile source impact analysis. Existing and projected future peak-hour traffic volumes for the principal roads serving the project site were obtained from that report.

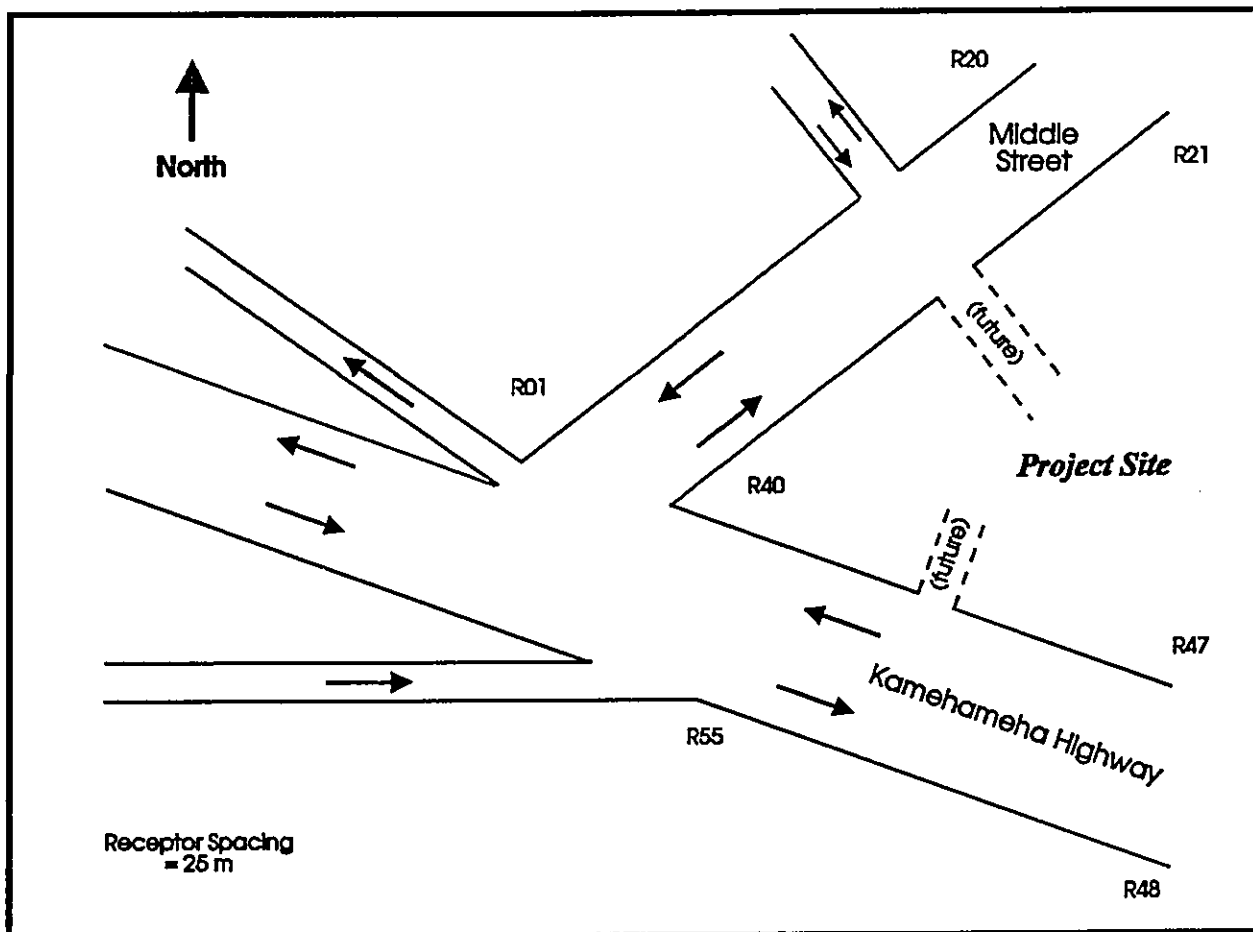
6.2 Emission Factors. Automotive emission factors for carbon monoxide (CO) were generated for calendar years 2002 and 2025 using EPA's Mobile Source Emissions Model (MOBILE-5B)¹⁸. To localize the emission factors as much as possible, an age distribution for registered vehicles in the City & County of Honolulu¹⁹ was used in lieu of national statistics. That same age distribution was the basis for the distribution of vehicle miles traveled as well.

6.3 Modeling Methodology. Mobile source air quality modeling has historically focused on estimating concentrations of non-reactive pollutants, primarily carbon monoxide (CO). This has been the case because CO is relatively stable in the atmosphere having a half-life on the order of about one (1) month,²⁰ and it comprises the largest fraction of automotive emissions.¹⁸

Using the traffic data provided, modeling was performed for the for the years 2002 and 2025 with and without the project. The EPA guideline model CAL3QHC^{21,22} as revised to allow for use of hourly meteorological data files²³ was employed to estimate near-intersection carbon monoxide concentrations. CO concentrations were estimated at an array of 55 receptor sites, each 10 meters from the road edge and spaced at a distance of 25 meters along each leg of the Middle Street - Kamehameha Highway intersection. A background concentration of 1.6 mg/m³ from the Department of Health's 2000 monitoring data was also used as the background concentration in the modeling. Hourly meteorological data for a.m. and p.m. peak traffic hours used in the model were extracted from National Weather service data collected at the Honolulu International Airport²⁴ and preprocessed with EPA's PCRAMMET program.²⁵

6.4 Results: 1-Hour CO Concentrations. The results of this modeling are summarized in Figure 6, and all the maximum CO concentrations are listed in the tables in the Appendix. Maximum estimated 1-hour CO concentrations in milligrams per cubic meter (mg/m³) for each of the evaluated scenarios are presented along with the particular receptor location at which they were predicted. The results suggest that, under *worst case* conditions of meteorology and traffic, both the federal and state 1-hour CO standards would be met at receptor locations 10 meters and beyond the edge of roadways expected to

FIGURE 6
ESTIMATES OF MAXIMUM 1- AND 8-HOUR
CARBON MONOXIDE CONCENTRATIONS
Middle Street at Kamehameha Highway
Peak Traffic Hours
2002 - 2025



Estimated Maximum CO Concentrations
(mg/m³)

<u>Period</u>	<u>Existing</u>	<u>2025 w/o Project</u>	<u>2025 w/Project</u>	<u>Receptors</u>
A.M.	10.0	9.7	9.9	R01, R06
P.M.	5.8	5.6	5.9	R02, R07
8-Hr	4.5	4.8	4.9	n/a

be affected by project-related traffic. The small changes in CO levels over the study period are in large part due to the offsetting effect of the federal motor vehicle emissions control program. Vehicle emissions standards for motor vehicles get progressively more stringent over time; thus, older, higher emitting vehicles are lost by attrition and replaced by newer, lower-emitting vehicles which comply with the more stringent standards.

6.5 Results: 8-Hour CO Concentrations. The 8-hour values presented in Figure 6 are very conservative estimates because they are based on averages of the worst case 1-hour values during a.m. and p.m. peak hour traffic and meteorology. Nevertheless, the results are similar to the 1-hour findings in that compliance with state and federal standards is indicated.

7. CONCLUSIONS AND MITIGATION

7.1 Short-Term Impacts. Since, as noted in Section 4, the project area is considered to be "semi-arid" by Thomwaite's climatic classification system with a P/E index lower than that associated with the EPA fugitive dust emission factor, there appears to be an increased potential for fugitive dust. It will therefore be important to employ adequate dust control measures during the construction period, particularly during the drier summer months. Dust control could be accomplished through frequent watering of unpaved roadways and areas of exposed soil. The EPA estimates that twice daily watering can reduce fugitive dust emissions by as much as 50%¹⁵. The soonest possible paving of roadways and parking areas and landscaping of bare areas will also help.

Short-term air quality impacts due to offsite activities supporting the proposed development, i.e., concrete and asphalt production, appear to be *de minimus* due in large part to the high removal of control devices typically found on such production facilities. Furthermore, any emissions will be strictly regulated by the Department of Health permit which each batch plant must have in order to operate.

7.2 Mobile Source Impacts. As reported in Section 6, compliance with federal and state carbon monoxide standards is demonstrated under *worst case* conditions of meteorology and peak hour traffic; thus, no special mitigative measures are required.

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APPENDIX
MODELING RESULTS

TABLE A-1

RESULTS OF DISPERSION MODELING
YEAR 2002 - A.M. PEAK HOUR

Receptor	CO Concentration (mg/m ³)		CO Concentration (mg/m ³)		
	1-hr	8-hr	1-hr	8-hr	
1	10.03	3.76	41	4.58	3.77
2	9.92	3.71	42	4.33	3.55
3	9.80	3.60	43	4.33	3.39
4	9.48	3.44	44	4.33	3.29
5	8.44	3.25	45	4.33	3.09
6	8.84	3.19	46	4.45	2.93
7	6.95	3.09	47	4.22	2.70
8	6.95	2.84	48	4.79	3.31
9	5.47	2.67	49	5.24	3.85
10	4.79	2.54	50	5.70	4.17
11	4.33	2.38	51	5.81	4.53
12	3.88	2.29	52	5.93	4.64
13	3.53	2.21	53	6.04	4.74
14	3.31	2.15	54	6.04	4.83
15	3.19	2.12	55	6.73	5.23
16	2.96	2.09			
17	2.86	2.09			
18	2.85	2.04			
19	2.74	2.03			
20	2.74	2.02			
21	2.28	2.10			
22	2.28	2.10			
23	2.28	2.12			
24	2.28	2.12			
25	2.28	2.12			
26	2.39	2.12			
27	2.39	2.12			
28	2.51	2.17			
29	2.62	2.21			
30	2.85	2.28			
31	3.31	2.33			
32	3.76	2.41			
33	4.22	2.53			
34	5.13	2.85			
35	5.59	4.49			
36	5.70	4.53			
37	5.70	4.53			
38	5.70	4.53			
39	5.70	4.56			
40	5.93	4.45			

TABLE A-2

RESULTS OF DISPERSION MODELING
YEAR 2002 - P.M. PEAK HOUR

Receptor	CO Concentration (mg/m ³)		CO Concentration (mg/m ³)		
	1-hr	8-hr	1-hr	8-hr	
1	5.36	3.20	41	3.65	2.39
2	5.81	3.49	42	3.31	2.35
3	5.70	3.48	43	2.96	2.33
4	5.59	3.71	44	2.74	2.33
5	5.13	3.81	45	2.74	2.33
6	5.24	3.82	46	2.74	2.33
7	4.22	3.43	47	2.62	2.06
8	3.31	2.85	48	2.85	1.95
9	2.96	2.53	49	3.42	2.03
10	2.74	2.41	50	3.53	2.20
11	2.62	2.29	51	3.65	2.26
12	2.51	2.23	52	3.76	2.29
13	2.39	2.20	53	3.65	2.29
14	2.39	2.12	54	3.65	2.36
15	2.28	2.11	55	4.10	2.52
16	2.39	2.10			
17	2.28	2.06			
18	2.28	2.10			
19	2.28	2.10			
20	2.28	2.10			
21	2.39	1.95			
22	2.39	1.95			
23	2.39	1.95			
24	2.51	1.96			
25	2.51	2.00			
26	2.51	2.01			
27	2.62	2.02			
28	2.62	2.03			
29	2.74	2.04			
30	2.85	2.05			
31	2.96	2.11			
32	3.08	2.17			
33	3.31	2.23			
34	3.53	2.38			
35	3.88	2.50			
36	4.22	2.49			
37	4.45	2.42			
38	4.45	2.50			
39	4.45	2.63			
40	4.45	2.90			

TABLE A-3

RESULTS OF DISPERSION MODELING
YEAR 2025 - A.M. PEAK HOUR
WITHOUT PROJECT

Receptor	CO Concentration (mg/m ³) 1-hr	CO Concentration (mg/m ³) 8-hr	Receptor	CO Concentration (mg/m ³) 1-hr	CO Concentration (mg/m ³) 8-hr
1	9.69	3.89	41	4.67	3.75
2	9.69	3.88	42	4.90	3.50
3	9.69	3.81	43	4.90	3.42
4	9.58	3.72	44	4.90	3.29
5	9.46	3.64	45	5.02	3.18
6	9.23	3.55	46	4.90	3.07
7	8.44	3.41	47	5.47	3.00
8	6.73	3.20	48	6.04	3.59
9	6.84	3.14	49	6.04	4.18
10	6.84	3.08	50	6.16	4.48
11	5.59	2.85	51	6.27	4.82
12	5.02	2.75	52	6.38	4.94
13	4.56	2.60	53	6.61	5.10
14	4.22	2.48	54	7.41	5.20
15	3.88	2.37	55	0.00	5.70
16	3.65	2.29			
17	3.42	2.22			
18	3.31	2.18			
19	3.19	2.15			
20	2.39	2.12			
21	2.39	2.12			
22	2.39	2.12			
23	2.51	2.17			
24	2.51	2.18			
25	2.62	2.19			
26	2.96	2.23			
27	3.31	2.30			
28	3.88	2.38			
29	4.33	2.45			
30	5.02	2.59			
31	5.59	3.09			
32	5.59	4.45			
33	5.59	4.46			
34	5.59	4.46			
35	5.70	4.48			
36	5.81	4.46			
37	5.93	4.46			
38	6.04	4.48			
39	6.04	4.49			
40	4.79	4.41			

TABLE A-4

RESULTS OF DISPERSION MODELING
YEAR 2025 - P.M. PEAK HOUR
WITHOUT PROJECT

Receptor	CO Concentration (mg/m ³) 1-hr	CO Concentration (mg/m ³) 8-hr	Receptor	CO Concentration (mg/m ³) 1-hr	CO Concentration (mg/m ³) 8-hr
1	5.24	3.29	41	3.53	2.54
2	5.59	3.51	42	3.19	2.50
3	5.59	3.58	43	2.96	2.50
4	5.59	3.68	44	2.96	2.49
5	5.59	3.77	45	2.96	2.49
6	5.47	3.83	46	2.96	2.49
7	5.24	3.88	47	2.85	2.14
8	5.24	3.88	48	2.96	1.97
9	4.22	3.47	49	3.65	2.05
10	3.53	2.92	50	3.76	2.26
11	3.19	2.67	51	3.76	2.38
12	2.85	2.49	52	3.99	2.41
13	2.85	2.39	53	4.10	2.47
14	2.74	2.34	54	4.33	2.57
15	2.62	2.28	55	4.56	2.74
16	2.51	2.22			
17	2.51	2.20			
18	2.39	2.18			
19	2.39	2.18			
20	2.39	2.18			
21	2.51	2.05			
22	2.51	2.05			
23	2.51	2.09			
24	2.62	2.09			
25	2.62	2.07			
26	2.74	2.10			
27	2.85	2.11			
28	2.96	2.12			
29	3.08	2.18			
30	3.31	2.20			
31	3.42	2.28			
32	3.53	2.41			
33	3.76	2.55			
34	4.10	2.58			
35	4.33	2.55			
36	4.33	2.51			
37	4.33	2.66			
38	4.33	2.74			
39	4.33	2.80			
40	4.33	3.26			

TABLE A-5

RESULTS OF DISPERSION MODELING
YEAR 2025 - A.M. PEAK HOUR
WITH PROJECT

Receptor	CO Concentration (mg/m ³) 1-hr	CO Concentration (mg/m ³) 8-hr	Receptor	CO Concentration (mg/m ³) 1-hr	CO Concentration (mg/m ³) 8-hr
1	9.92	4.00	41	4.79	3.80
2	9.92	3.94	42	4.67	3.52
3	9.92	3.89	43	5.02	3.42
4	9.92	3.82	44	4.90	3.31
5	9.92	3.73	45	4.90	3.23
6	9.92	3.65	46	5.02	3.12
7	9.90	3.56	47	4.90	3.07
8	9.58	3.43	48	5.47	3.63
9	8.78	3.24	49	6.04	4.18
10	6.95	3.18	50	6.16	4.57
11	7.07	3.09	51	6.27	4.89
12	7.07	2.87	52	6.38	5.00
13	5.81	2.78	53	6.50	5.13
14	5.13	2.62	54	6.73	5.23
15	4.79	2.51	55	7.41	5.73
16	4.33	2.41			
17	3.99	2.33			
18	3.65	2.22			
19	3.42	2.19			
20	3.31	2.15			
21	2.51	2.17			
22	2.51	2.17			
23	2.51	2.25			
24	2.62	2.25			
25	2.74	2.29			
26	3.08	2.41			
27	3.53	2.54			
28	3.99	2.47			
29	4.45	2.61			
30	5.02	3.15			
31	5.59	4.53			
32	5.59	4.53			
33	5.59	4.53			
34	5.59	4.53			
35	5.81	4.53			
36	5.93	4.53			
37	6.04	4.53			
38	6.16	4.55			
39	6.16	4.56			
40	6.27	4.48			

TABLE A-6

RESULTS OF DISPERSION MODELING
YEAR 2025 - P.M. PEAK HOUR
WITH PROJECT

Receptor	CO Concentration (mg/m ³) 1-hr	CO Concentration (mg/m ³) 8-hr	Receptor	CO Concentration (mg/m ³) 1-hr	CO Concentration (mg/m ³) 8-hr
1	5.47	3.37	41	3.53	2.58
2	5.93	3.58	42	3.19	2.52
3	5.93	3.65	43	2.96	2.52
4	5.81	3.77	44	2.96	2.51
5	5.81	3.82	45	2.96	2.51
6	5.81	3.89	46	2.96	2.51
7	5.81	3.91	47	2.85	2.15
8	5.59	3.94	48	3.08	1.98
9	5.24	3.98	49	3.65	2.05
10	5.24	3.97	50	3.76	2.28
11	4.10	3.40	51	3.76	2.39
12	3.53	2.92	52	4.22	2.45
13	3.19	2.66	53	4.22	2.51
14	3.08	2.54	54	4.45	2.64
15	2.96	2.44	55	4.45	2.80
16	2.85	2.37			
17	2.74	2.33			
18	2.74	2.28			
19	2.62	2.27			
20	2.62	2.23			
21	2.85	2.14			
22	2.85	2.14			
23	2.85	2.14			
24	2.96	2.15			
25	3.08	2.15			
26	3.31	2.27			
27	3.19	2.25			
28	3.31	2.28			
29	3.53	2.38			
30	3.65	2.50			
31	3.76	2.67			
32	4.10	2.69			
33	4.45	2.66			
34	4.45	2.61			
35	4.45	2.61			
36	4.45	2.61			
37	4.45	2.79			
38	4.45	2.85			
39	4.45	2.88			
40	4.45	3.31			

Appendix C

**Phase II Environmental Site Assessment Report
Kimura International, Inc.**

**PHASE II
ENVIRONMENTAL SITE ASSESSMENT**

**PROPOSED MIDDLE STREET TRANSIT CENTER
MIDDLE STREET AND KAMEHAMEHA HIGHWAY
HONOLULU, HI 96819**

**TMK: (1) 1-2-18: PARCELS 1, 2, 3, 9, & 10
and TMK: (2) 1-2-17: PARCELS 3, 4, & 5**

Prepared for:

**The City and County of Honolulu
Department of Transportation Services
711 Kapiolani Boulevard, Suite 300
Honolulu, HI 96813**

Prepared by:



**KIMURA INTERNATIONAL, INC.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, HI 96814**

July 11, 2002

PHASE II
ENVIRONMENTAL SITE ASSESSMENT REPORT

SITE OF PROPOSED MIDDLE STREET TRANSIT CENTER
MIDDLE STREET AND KAMEHAMEHA HIGHWAY
TMK: (1) 1-2-18: PARCELS 1, 2, 3, 9 AND 10
AND TMK: (2) 1-2-17: PARCELS 3, 4, AND 5

Prepared For:
The City and County of Honolulu
Department of Transportation Services
650 South King Street
Honolulu, Hawaii 96813

Prepared By:
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Contract No. F90442

July 11, 2002

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ACRONYMS

ALD – American Leak Detection
AST – Aboveground Storage Tank
BTEX – Benzene, Toluene, Ethylbenzene, and Xylene
CA-LUFT – California, Leaking Underground Fuel Tank
DPT – Direct-Push Technology
EPA – U.S. Environmental Protection Agency
ESA – Environmental Site Assessment
ESN – Environmental Services Network
FIFRA- Federal Insecticide, Fungicide, and Rodenticide Act
HDOH – Hawaii Department of Health
HVOC – Halogenated Volatile Organic Compounds
PAH – Polynuclear Aromatic Hydrocarbons
PCB – Polychlorinated Biphenyls
PID – Photoionization Detector
PRG – Preliminary Remediation Goal
RCRA – Resource Conservation and Recovery Act
SAL – Soil Action Level
TMK – Tax Map Key
TCLP – Toxicity Characteristic Leaching Procedure
TSD – Treatment, Storage, and Disposal facility
UST – Underground Storage Tank
VOC – Volatile Organic Compound

1.0 CERTIFICATIONS AND LIMITATIONS

The findings and conclusions presented in this report are professional opinions based solely upon visual observations of the property and upon the interpretation of the historical information and documents available to us and reviewed. This report is intended for the sole use of the City and County of Honolulu, Department of Transportation Services, exclusively for the property indicated. The scope of services performed in execution of this assessment may not be appropriate to satisfy the needs of other users, and any use or reuse of this report or the findings and conclusions presented herein is unauthorized and at the sole risk of said user.

Kimura International makes no guarantee or warranty; either expressed or implied, except that our services are consistent with good commercial or customary practices designed to conform to acceptable industry standards. It is impossible to dismiss absolutely the possibility that parts of the site, or adjacent properties, may be adversely impacted or affected by environmental conditions. Furthermore, there is always a possibility that undisclosed, unknown, or undetermined contamination may exist from the improper handling or disposal of hazardous substances or petroleum products at the property. No warranty or representation, expressed or implied, is included or intended in its proposal, contracts, or reports.

Opinions stated in this report apply only to the property as outlined and apply to the conditions present at the time of our assessment. Moreover, these opinions do not apply to site changes that occur after the site inspection.

Prepared By: _____
Bryce Hataoka
Project Manager

Date: _____

Reviewed By: _____
Brant Tanaka
Vice President

Date: _____

2.0 EXECUTIVE SUMMARY

Kimura International, Inc. was contracted by the City and County of Honolulu, Department of Transportation Services to perform a Phase II Environmental Site Assessment (ESA) at the Middle Street site, Honolulu, Hawaii (Tax Map Key 1-2-18 Parcels 1, 2, 3, 9, and 10, and Tax Map Key 1-2-17 Parcels 3, 4, and 5). This assessment follows a previous investigation conducted by Masa Fujioka and Associates, "Hazardous Material Survey" dated September 2001. Based upon the findings and recommendations of the previous report and a site reconnaissance conducted by Kimura International, several areas were targeted for further investigation.

Kimura International identified the following areas for investigation:

- 1) Car, truck, and equipment sales lot oil-water separator
- 2) Past and present transformer locations
- 3) Former Underground Storage Tank (UST) locations
- 4) Aboveground Storage Tank (AST) locations
- 5) Vehicle service areas
- 6) Solvent and petroleum drum storage areas
- 7) Subsurface petroleum plumes from offsite sources
- 8) Potentially chlordane treated buildings

Kimura International's investigation included identification of potential areas of contamination, document research, site reconnaissance, and field screening of subsurface soils and groundwater with subsequent laboratory analyses of selected soil and water samples for the presence of potentially hazardous substances. These hazardous substances included petroleum products (gasoline, diesel, fuel oil), waste petroleum products, solvents, heavy metals, chlordane, and polychlorinated biphenyls (PCBs). This investigation was limited to targeted areas suspected of having a potential for contamination that may pose a health or environmental risk to future land users of the site and did not include a comprehensive (grid-like) sampling of the entire site.

Investigation activities performed under the current scope of work have confirmed that contamination is present in certain localized areas on the subject property. Most of the contaminants were found to be below the laboratory detection limit or below the HDOH Tier I action levels. During the investigation, Kimura International made note that much of the site is paved with asphalt and this acts as a barrier to the spread of contamination. It can also act as a screen that hides areas of historical contamination. Due to the scope of the investigation, the number of samples collected and analyzed was limited and biased towards those areas most likely to be contaminated. A detectable level of any contaminant was carefully scrutinized for possible further assessment.

Investigation activities performed under the current scope of work have confirmed that contamination exists on-site. In order to fully delineate contamination of the selected areas, additional fieldwork will be necessary.

Certain small "hot spots" of contamination are present and these include the area around Building E, the soil under and around Building A and F, and surface soil around the Pineridge service area. Specifically, Kimura International recommends the following:

- Building E was found to have elevated lead levels and potentially high petroleum hydrocarbons under the AST along the west side of the building. The lead levels may be due to lead paint from the building and further tests may be conducted to confirm this. Petroleum hydrocarbons are associated with spills from the fuel tank and appears to be localized and limited to soil near the trailer. Removal of the contaminated soil is recommended.
- Building A and F are some of the oldest buildings on the site and ground treatment for termites was suspected. One soil sample was analyzed and found to have chlordane at 5,500 ppb. This is well above the PRG of 1,600 ppb. The other had dieldrin at 74 ppb with a PRG of 30 ppb. FIFRA exclusion applies to these buildings because registered pesticides were applied according to the label. This exclusion would be waived once the treated soil is moved. Kimura International recommends that additional testing of the soil under the building be done before demolition and grading takes place. The contamination currently in place is not exposed. However, if the soil is exposed and not adequately remediated, then the risk to the public will increase beyond acceptable levels.
- The Pineridge service area has visible staining from the releases of petroleum products. Some of the soil beneath the existing asphalt cap may also be affected. Further investigation of the impacted soil should be conducted.
- Kimura International recommends that the pole-mounted transformers near Building H where surface soils have been impacted with Aroclor 1260 be investigated. The impacted soils may need to be removed.
- The suspected UST on the west side of Building B should be further investigated to determine its presence and potential contamination of subsurface soils.
- Subsurface soils (5 ft. bgs) around boring B2 (southeast side of Building B) should be managed properly if removed, due to the lead level above HDOH Tier I SAL.
- Contamination is present under Building C. Removal of the contamination would involve excavation of the ground beneath the existing building, which may not be feasible. It is possible that natural attenuation of the oil will occur over time and no further actions will be necessary. However, this area may require future testing and investigation or remediation.