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The Honorable Herbert Muraoka  
Director, Building Department  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

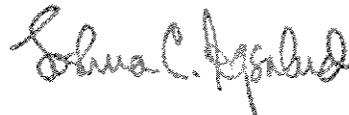
Dear Mr. Muraoka:

Based upon the recommendation of the Office of Environmental Quality Control, I am pleased to accept the Final Supplemental Environmental Impact Statement for the proposed Honolulu Corporation Yard, Sand Island and Sand Island Park Extension, Honolulu, Hawaii, as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes. This environmental impact statement will be a useful tool in the process of deciding whether the action described therein should be allowed to proceed. My acceptance of the statement is an affirmation of the adequacy of that statement under applicable laws and does not constitute an endorsement of the proposed action.

When the decision is made regarding the proposed action itself, I expect the proposing agency to weigh carefully whether the societal benefits justify the environmental impacts which will likely occur. These impacts are adequately described in the statement, and, together with the comments made by reviewers, provide a useful analysis of the proposed action.

With kindest regards,

Sincerely,



JOHN WAIHEE

cc: Marvin Miura, Ph.D. ✓

**FINAL ENVIRONMENTAL IMPACT STATEMENT**

for

**PROPOSED HONOLULU CORPORATION YARD**

**SAND ISLAND and SAND ISLAND PARK EXTENSION**

**CITY and COUNTY of HONOLULU BUILDING DEPARTMENT**

**JULY 1989**

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422A

Office of Environmental Quality Control  
235 S. Beretania #702  
Honolulu HI 96813  
586-4185

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**FINAL ENVIRONMENTAL IMPACT STATEMENT**  
**for PROPOSED HONOLULU CORPORATION YARD,**  
**SAND ISLAND and SAND ISLAND PARK EXTENSION**

**Prepared for:** City and County of Honolulu  
Building Department  
650 South King Street  
Honolulu, Hawaii 96813  
808-523-4564

**Accepting Authority:** Governor, State of Hawaii

**Responsible Official:**

*Herbert Muraoka*  
Herbert Muraoka  
Director, Building Department  
City and County of Honolulu

*July 13, 1989*  
Date

**Prepared by:** Wilson Okamoto and Associates, Inc.  
1150 South King Street, Suite 800  
Honolulu, Hawaii 96814  
808-531-5261

**July 1989**

**FINAL ENVIRONMENTAL IMPACT STATEMENT**  
**for PROPOSED HONOLULU CORPORATION YARD,**  
**SAND ISLAND and SAND ISLAND PARK EXTENSION**

**Recorded Owner: State of Hawaii**

**Applicant: City and County of Honolulu**

**Tax Map Key: 1-5-41:130**

**Zoning: P-2 General Preservation**

**Development Plan Designation: Public Facility (CY)**

**Request: Use of Public Funds and Lands**

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## INTRODUCTION

The City and County of Honolulu proposes to develop the Honolulu Corporation Yard and Sand Island Park Extension to meet the pressing need to relocate and consolidate a number of maintenance activities and to expand the recreational opportunities for the residents of central Honolulu. Both projects will be developed using public funds on State-owned lands. The project area lies within the City and County of Honolulu Special Management Area.

Chapter 343, Hawaii Revised Statutes (HRS), requires that projects be assessed to determine potential adverse environmental impacts and that impacts be documented. This Environmental Impact Statement (EIS) has been prepared to meet the requirements of Chapter 343, HRS and Chapter 200 of Title 11, State of Hawaii Department of Health Environmental Impact Statement Rules. In addition, this EIS is intended to satisfy the environmental documentation requirements of Chapter 33, Revised Ordinances City and County of Honolulu (ROH) which establishes the Special Management Areas (SMA) for Oahu and procedures for Special Management Area Use Permits (SMP) for projects located in the SMA.

## **I. BACKGROUND**

The City and County of Honolulu currently operates facilities for fleet maintenance and trades shops functions on State-owned land in the Kewalo Basin area, makai of Ala Moana Boulevard. Many of these facilities were built during the mid 1940's to mid 1950's and almost all of them are inadequate and beyond economic repair. In addition, the City occupies an abandoned incinerator and surrounding land on Kokea Street adjacent to Honolulu Community College. Due to the limited availability of land, it is not desirable to construct replacement facilities or expand existing operational areas in the Kewalo Basin area or at the abandoned incinerator. Moreover, continued use of these areas would not be consistent with other plans for these sites.

Toward addressing these limitations, the City and County of Honolulu initiated discussions in December 1986 with the State of Hawaii to use State-owned lands adjacent to the existing Sand Island Wastewater Treatment Plant for a corporation yard. Relocation of the fleet maintenance and trades shops to Sand Island would allow the City to vacate the Kewalo Basin lands and the Kapalama Incinerator site and permit the State to develop the proposed Waterfront Park at Kewalo and expand Honolulu Community College in Kapalama. In November 1987, the State agreed in principle to the relocation of City facilities to Sand Island, provided certain conditions were met and concerns expressed by the Kalihi Palama Community Council were considered. See Appendix A.

The City and County of Honolulu accepted the conditions set forth by the State in November 1987. The conditions for relocation of City functions to Sand Island set forth the Governor's letter are as follows:

- o Development by the City and County at its expense of the remaining underdeveloped area on the island planned for park use in accordance with the Sand Island State Park Master Plan (dated June 30, 1973), concurrent with the development of the baseyard.

- o Consultation with the community, especially the Kalihi Palama Community Council, in the planning and development of the remaining areas of the park.
- o Demolition and clearing of the buildings and other facilities at Kewalo at City expense, unless a request is made by a State agency, for their retention.
- o Demolition and clearing at City expense of the incinerator facility (on Kokea Street) now occupied by the City and County Parks Department.
- o Revocation of all executive orders making available land to the City and County for the baseyard facilities at Kewalo, and on Kokea Street.

Note, development of the Corporation Yard will require transfer of State-owned land to the City and County of Honolulu. This transfer will require approval of the Board of Land and Natural Resources and then execution of an Executive Order by the Governor. At this time, the land transfer has not been approved and the Executive Order executed. Further, it has not been resolved whether the Tand for Sand Island Park Extension will be transferred to the City or retained by the State. Questions are still under discussion regarding the operation and maintenance of Sand Island Park Extension. At this time, this issue has not been resolved.

## II. PURPOSE AND NEED FOR THE PROJECT

### A. CORPORATION YARD

The City and County of Honolulu currently operates fleet maintenance and trades shops activities from 12 different locations within central Honolulu. Although these decentralized shops provide certain operational advantages, almost all of the facilities are beyond economic repair and lack adequate space for the agencies to efficiently perform their assigned functions. For example, two maintenance facilities currently occupy converted incinerators. These conditions have resulted in a number of operating inefficiencies. Moreover, since these functions are decentralized, concerns have arisen regarding the duplication of facilities, excess inventory, inefficient storage of materials, and loss of a certain amount of management control and coordination.

The purpose of the Corporation Yard project is to relocate the fleet maintenance and trades shops into a centralized 26-acre facility on Sand Island, adjacent to the existing Sand Island Wastewater Treatment Plant. The facility is intended to increase operating efficiency by providing adequate space for agencies to perform their assigned functions. The consolidated Corporation Yard will also reduce duplication of facilities and equipment, and decrease material storage.

An additional consideration for relocating the City's fleet maintenance and trade shops is to release State lands they occupy for other purposes. The present baseyard site at Kewalo Basin is slated for alternative use in the Honolulu Waterfront Plan.

The City also uses State-owned land adjacent to Honolulu Community College along the Kapalama Canal for Department of Parks and Recreation Maintenance Support Services (MSS) trades shops. Honolulu Community College's plans for expansion of their facilities will require the use of the lands currently used by the trades shops.

The State's desire to use the land in Kewalo Basin for waterfront development and to expand Honolulu Community College and the need to consolidate and upgrade inadequate facilities have created the need for the City to relocate its maintenance functions.

B. SAND ISLAND PARK EXTENSION

Sand Island State Park, a facility under the control of the State of Hawaii Department of Land and Natural Resources (DLNR), is one of the most highly used parks in central Honolulu. The developed portion of the existing park occupies approximately 87 acres along the east and south shoreline of Sand Island and provides a variety of recreational opportunities to park users. The growing population of central Honolulu has created the need to expand the park area to provide additional recreation opportunities for the local communities and visitors.

The area proposed for the corporation yard is designated in the Sand Island State Park Final Report (1973) for park use. The plan includes development of ocean oriented recreation uses and boat launching areas. However, to date, the project area has not been developed and is used for the disposal of excess material from various construction projects.

The area proposed for Sand Island Park Extension (approximately 53 acres) has not been developed for a variety of reasons, including the lack of funding. The proposed park will be developed and maintained by the City and County of Honolulu and will be treated as city park. The proposed uses in the park will be primarily for day uses, including picnicking, informal recreation activities, and jogging. No overnight camping facilities and organized recreation areas such as ballfields are proposed. An area near the Sand Island Bridge along Kalihi Channel will be reserved for future maritime use. All development for the park will occur on the land area. No offshore improvements are proposed for Sand Island Park Extension. Access to the park and the parking lots will be operated in manner similar to other city parks.

### III. PROJECT DESCRIPTION

#### INTRODUCTION

The proposed project involves concurrent development of two adjacent properties, one for a corporation yard and the other for a park. (See Figure III-1) The proposed Honolulu Corporation Yard is located adjacent to and makai of the existing Sand Island Wastewater Treatment Plant. Sand Island Park Extension will occupy the land between the Corporation Yard and the southwest shoreline of Sand Island. The development of both the Corporation Yard and the Park Extension will be with City funds. Although the City and County of Honolulu requested project funding from the 1989 Legislature, to date, the use of State funds for development of the Corporation Yard and the park has not been determined. Construction for both facilities will be done in phases over a four to five year period. The access roads and parking areas will be used by City employees assigned to the Corporation Yard and by park users. Both sites are located within the State Coastal Zone Management (CZM) area and the City and County of Honolulu Special Management Area (SMA).

The proposed site is currently vacant and does not contain any buildings or structures. In addition to the Wastewater Treatment Plant, surrounding land uses include Sand Island State Park, a facility under the control of the State of Hawaii Department of Land and Natural Resources Division of State Parks, container loading/unloading and pier facilities operated by Matson Navigation Company, facilities under the jurisdiction of the U.S. Department of Transportation Coast Guard, land reserved by the State of Hawaii Airports Division for bulk fuel storage and a number of privately-owned commercial-light industrial facilities. Sand Island contains no family residential units.

Sand Island Wastewater Treatment Plant (SIWWTP) occupies a total of approximately 50 acres of land, including about 20 acres of vacant land. The Plant treats sewage for the area from Paiko Peninsula to Salt Lake and has a design average flow of 82.0 million gallons per day. The Plant



currently provides primary treatment of sewage before the effluent is disposed through offshore outfalls. SIWWTP is operating under a waiver from the U.S. Environmental Protection Agency (EPA) which permits the City to use primary treatment of sewage. Eventually, the EPA may require secondary treatment of sewage prior to disposal of effluent.

A. HONOLULU CORPORATION YARD

1. Project Features

The project will consolidate the existing maintenance and trades shops currently located at 12 sites in central Honolulu at a 26-acre site on Sand Island. The departments and functions are currently scattered around central Honolulu in a number of undersized, deteriorated and functionally inadequate shops.

The proposed Honolulu Corporation Yard will involve development of automotive maintenance shops, trades shops and materials storage facilities, vehicle and equipment parking sheds, fueling facilities, open storage areas for material and spoils, and internal circulation roads. Figure III-1 shows the location of the proposed Honolulu Corporation Yard.

The site plan for the Corporation Yard contemplates use of almost all the 26-acre area. If all of the 26 acres is not available, additional land would be required at some other location in the central area of Honolulu to accommodate the necessary functions.

The occupants of Honolulu Corporation Yard will include the following City and County of Honolulu departments and functions:

<u>Department</u>	<u>Function</u>
Fire	Fleet Maintenance
Police	Fleet Maintenance and Radio Shop
Public Works	
Automotive Equipment Service	Fleet Maintenance
Wastewater Management	Trades Shops

Road Maintenance  
 Refuse Collection  
 Engineering/Surveying  
 Parks and Recreation  
 Transportation Services

Trades Shops  
 Vehicle Parking  
 Laboratory  
 Fleet Maintenance and Trades  
 Shops  
 Trades Shops

The various departments and functions will be located in buildings and structures shown in Figure III-2 and as follows:

<u>Building</u>	<u>Function</u>	<u>Approx. (SF)</u>
A	Fueling facilities	7,400
B	Police vehicle and radio maintenance	28,000
C	Vehicle/equipment maintenance shops/storage	89,400
D	Vehicle wash racks	2,800
F	Transportation services shops/storage	33,300
G	Trades shops	37,100
H	DPW offices	5,500

Figure III-2 shows the site plan for the Corporation Yard. Depending on the function, some of the buildings will include administrative office space, meeting and conference rooms, lunch areas, locker, shower and toilet facilities. The vehicle wash racks will be equipped with oil-water separators to minimize run-off of pollutants to nearby areas. The fueling facility will permit fueling of vehicles from either direction, utilizing an unattended credit card type of system available for use on a 24-hour basis. The portion of the Yard adjacent to the park will be fenced with a 8-FT high concrete block wall.

In addition to the buildings, covered parking sheds will be constructed for overnight parking of vehicles and equipment domiciled at the Corporation Yard. These sheds will be open on all sides and sized to accommodate either sedans and other light duty vehicles, trucks, and large

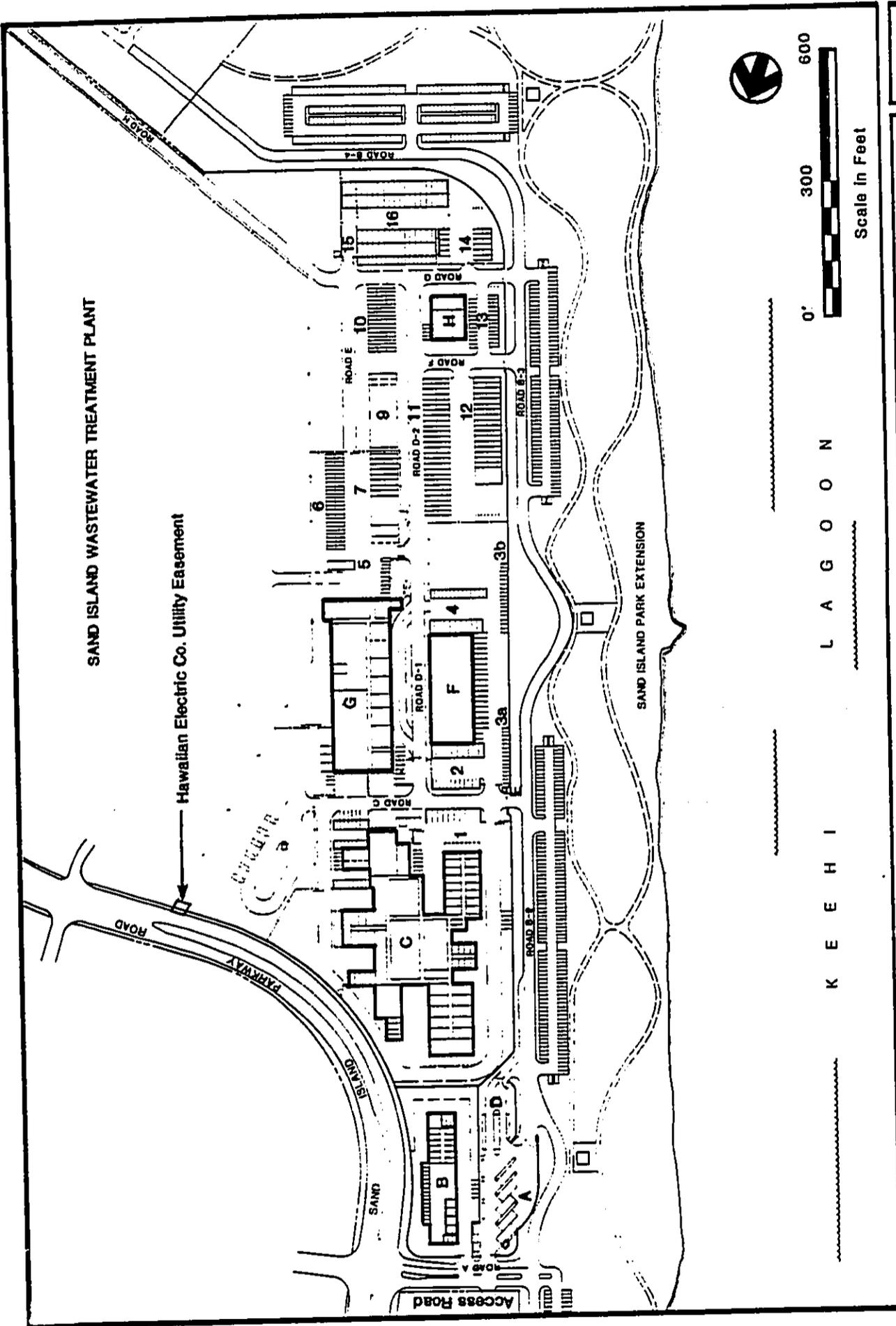


Fig.  
III-2

**SITE PLAN - CORPORATION YARD**

**CORPORATION YARD  
AND SAND ISLAND PARK**  
Environmental Impact Statement

equipment, such as cranes and bulldozers. The parking sheds and vehicle/equipment capacities are shown in Figure III-2 and listed below:

<u>Parking Structure</u>	<u>Capacity</u>
1	10 trucks
2	12 light vehicles
3a	14 light vehicles
3b	18 light vehicles
4	14 light vehicles
5	Misc. equipment and supplies
6	46 light vehicles
7	16 trucks/large equipment
8	Omitted
9	Large equipment
10	48 light vehicles
11	52 trucks
12	34 trucks/large equipment
13	13 light vehicles
14	12 street sweepers
15	35 trucks/15 light vehicles
16	40 trucks

Preliminary subsurface investigations of the proposed Sand Island site show most of the area is composed of material dredged from nearby channels and other deposited fill material placed on coral ledges. These subsurface conditions will not support heavy loads such as multi-story buildings or structures without the use of deep foundations which would add to the cost of the project. Thus, the proposed buildings and parking sheds will be predominately light weight metal structures. Preliminary plans include enclosing offices and administrative areas to mitigate noise generated by aircraft operations from Honolulu International Airport.

Most of the buildings will also be limited to a single story to minimize foundation loads and the visual profile from Sand Island Park Extension. A few of the buildings may have partial mezzanine levels for material

storage or offices. Accordingly, depending on the functions to be accommodated, building heights will be limited to 30 to 35 feet. A building height variance will be required since the established P-2 (General Preservation District) zoning limits building heights to 25 feet. (The actual heights of the buildings will be determined in the final design process.) A solid wall and extensive landscaping along the border between the park and the Corporation Yard will limit the visibility of the buildings and structures from the park areas.

The proposed fueling facility would be comparable in scale to commercial service stations found throughout Honolulu. It would be equipped with underground fuel tanks of approximately 10,000 gallons capacity; one for each type of fuel stored, regular, unleaded, and diesel. This configuration would be similar to those of most service stations which have tank capacities of 10,000 gallons for each of the various types of fuels they dispense. These underground storage tanks would comply with applicable U.S. Environmental Protection Agency (EPA) final technical rules and regulations which became effective on December 22, 1988.

The proposed fueling facility at the Corporation Yard would differ from conventional service stations as it would be surrounded by an 8-foot tall concrete masonry wall on all sides except for 24-foot wide gates for vehicle access. This concrete masonry wall would screen almost all views of the fueling facilities from the public. Visitors to Sand Island Park Extension should not be aware of fueling operations. Moreover, unlike commercial service stations which may operate 24 hours a day, fueling at the Corporation Yard will, for the most part, be performed between 7:30 and 10:00 AM during weekdays. Most fueling activities will occur between 9:00 and 10:00 AM on Saturdays and holidays. Fueling will be done by persons instructed in the procedure and supervised by staff at the fueling facility. All of the underground storage tanks and dispensing facilities will comply with Environmental Protection Agency (EPA) and City and County of Honolulu Fire Department standards.

In addition to the gasoline dispensing operation, the proposed fueling facility at the Corporation Yard would include above ground propane storage tanks. These tanks shall be separated from the public by concrete masonry walls in accordance with EPA and Fire Department standards.

The fleet maintenance functions would generate used oil, transmission fluids and other fluids (antifreeze, brake fluids, paints and solvents) normally associated with vehicle and equipment servicing. All of these used fluids and other hazardous substances (solvents, oil based paints and paint thinners) would be handled and stored according to established City procedures, which meet applicable Federal and State of Hawaii Department of Health regulations. If underground storage tanks are constructed to store these fluids and substances, the tanks would comply with applicable EPA and State rules and regulations.

The trades shops (carpentry, masonry, paint, welding, plumbing, radio, electrical and electronics) may also occasionally use hazardous materials. Operation of the trade shops will be governed by operating procedures established by the responsible City agencies. Proper handling and storage of hazardous materials and wastes are included in these procedures, which meet applicable EPA and State rules and regulations.

The drainage system at the fleet maintenance functions and the wash racks will be equipped with oil-water separators to protect against accidental discharge of pollutants into Honolulu Harbor. Solid material from refuse and other vehicles will be removed prior to washing in the wash racks. Any other remaining waste will be collected by the separators prior to discharge.

## 2. Project Operational Features

The Corporation Yard will operate primarily during the day-time hours, five days per week. However, to accommodate certain maintenance functions and emergency needs, the Corporation Yard will be accessible to City

employees on a 24-hour per day, seven days per week basis. The off-hours and weekend shifts are comprised of fewer personnel than day-time shifts.

The two major activities at the Corporation Yard will be the fleet maintenance and trades shops functions. Based on the analysis of operations, the majority of the fleet maintenance functions will occur during the afternoon shift, from 3:00 PM to 11:00 PM. Personnel assigned to the fleet maintenance functions will report to the Corporation Yard and spend most of their time within the Yard.

The fleet maintenance functions assigned to the Corporation Yard will involve garage-type activities associated with maintaining and servicing vehicles and equipment such as:

- o preventative maintenance (oil changes and lubrication);
- o service (tune-ups, brake work, wheel alignment); and
- o major repair (engine overhaul, transmission rebuilding, paint and body work).

Almost all the trades shops functions will occur between, 7:00 AM to 3:30 PM. The majority of the personnel assigned to the trades shops will report to the Corporation Yard about 7:00 AM, receive their assignments, pick-up tools and material, then depart for the project site between 7:30 to 8:30 AM in City vehicles. Personnel will return to the Corporation Yard around 2:30 to 3:00 PM prior to leaving for home at around 3:30 PM.

Most of the trades shops functions would be performed at the project sites. However, the shops at Sand Island would be used for functions better performed within trades shops. These functions include pre-cutting lumber, precasting concrete into forms, and making a large number of park furniture, such as park benches and tables.

The Corporation Yard will primarily be occupied from 7:00 AM to 3:30 PM weekdays by City and County workers. The major portion of automotive maintenance activities will occur during the second shift (3:00 PM to

11:00 PM). Other off-hour shifts include the Wastewater Management, Road Maintenance, and Refuse Collection functions.

B. SAND ISLAND PARK EXTENSION

1. Project Features

The proposed park encompasses the remaining portion of the existing Sand Island State Park, an area of approximately 53 acres. The site of the park is located between the shoreline and the Corporation Yard and lies within the City and County of Honolulu Shoreline Management Area. The new park (Sand Island Park Extension) will be under the jurisdiction of the City and County of Honolulu and will be compatible with the existing facilities in the State park. [At this time, it is not resolved whether the State would retain control over the Park once developed by the City. After development, the State may maintain and operate the Park.] The park will be primarily configured as a day-use park featuring open spaces, picnic areas, jogging trails, and comfort stations. Access to Sand Island Park Extension will be controlled in a manner similar to other City parks. Thus, access to Sand Island State Park should not be restricted or inhibited by Sand Island Park Extension.

The proposed park will include trees and landscaping to provide large open areas for picnicking and informal sports activities. A looped jogging trail parallel to the shoreline will be connected to the existing jogging path in the State Park. No playing courts or formal playing fields will be included in the proposed park. No off-shore features are included in the proposed park. Figure III-3 shows the site plan for Sand Island Park Extension.

The park area will be designed utilizing topographic features and landscaping so that the buildings and structures of the Corporation Yard will not be prominently visible to visitors of the park.

Employees of the Corporation Yard and park visitors will use the same parking lots. The concept of dual use parking lots will permit the employees of the Corporation Yard to share parking during the weekdays with ample parking for visitors on weekends. The dual-use parking lots (See Figure III-3) and capacities are as follows:

<u>Parking Lot</u>	<u>Vehicle Capacity</u>
1, 2, and 3	300
4	150
5	100
6	<u>200</u>
Total	750

The vehicle capacities of the parking lots should accommodate City employees of the Corporation Yard and park visitors during weekday morning hours. A total of about 725 City employees are expected to use the parking lots between 6:00 to 10:00 AM on weekdays. Thus, approximately 25 parking spaces will be available for park users during this period. Department of Public Works Division of Refuse Collection and Disposal employees can be expected to normally finish their assigned functions about 9:30 AM, return to the Corporation Yard, then depart. After that time, about 10:00 AM, approximately 175 more parking spaces, or a total of about 200 spaces, should be available for weekday visitors to Sand Island Park Extension. After about 3:30 PM on weekdays, most of the parking spaces should be available for park users.

On Saturdays, the Division of Refuse Collection and Disposal employees and another 75 to 100 other City employees would use the parking lots in the 6:00 to 10:00 AM period. After that time, approximately 650 to 675 parking spaces would be available for park users. Only a minimum number of City employees would use the parking lots on Sundays.

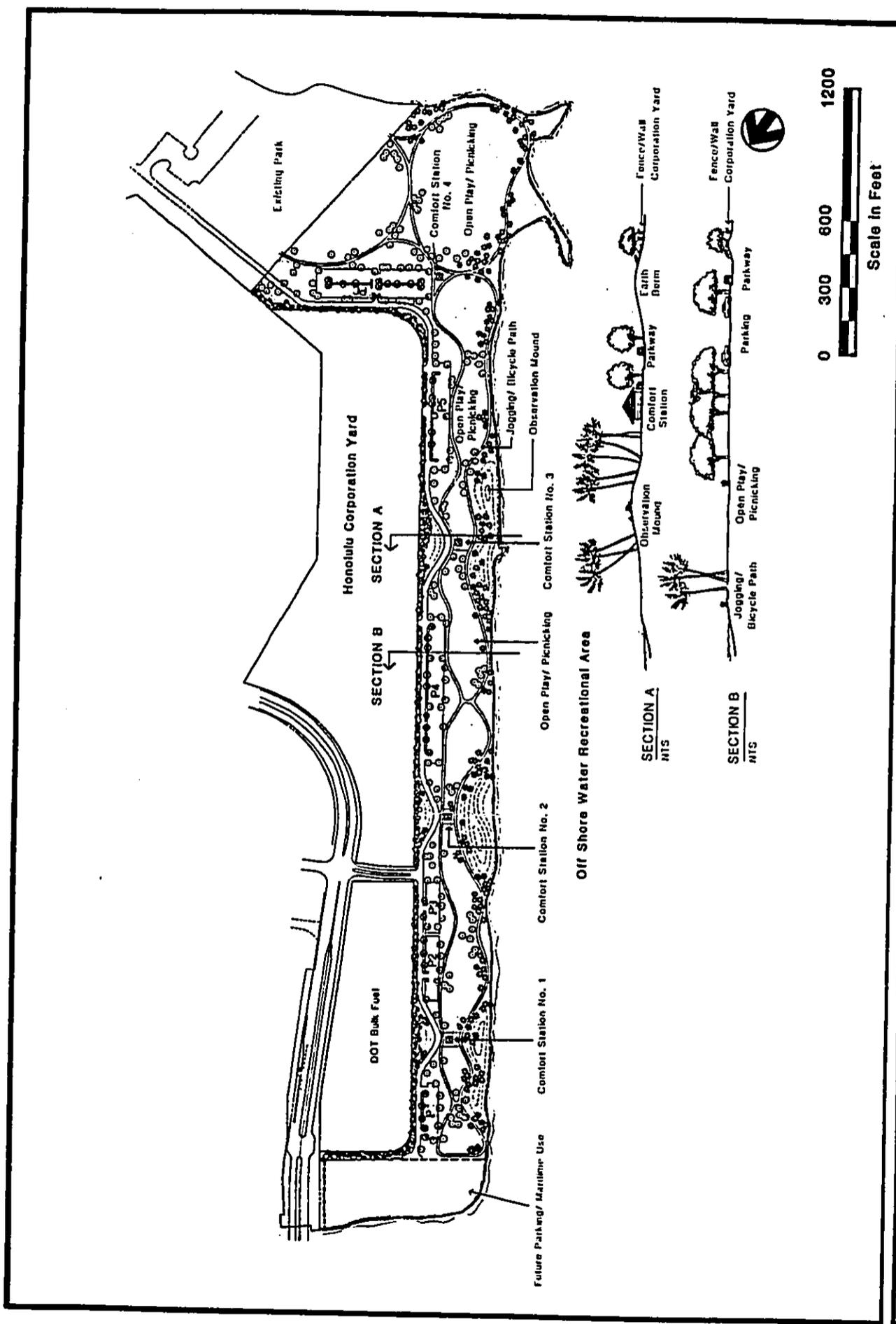


Fig. III-3

**SITE PLAN - SAND ISLAND PARK EXTENSION**

**CORPORATION YARD AND SAND ISLAND PARK Environmental Impact Statement**



The parking lots will be located along the mauka perimeter of the park and will be visible from the shoreline. This configuration will permit park users to clearly see their vehicles from the beach area.

A series of comfort station designed to meet City and County of Honolulu standards for this type of facility will be provided for park visitors.

A large open area near the Sand Island Bridge has been designated as a reserve area to permit future construction of facilities for recreation boating activities. Construction of the boating facilities will be under the jurisdiction of the State of Hawaii Department of Transportation Harbors Division. Boating facilities could be constructed along the shoreline. Agreements and easements between the City and the State of Hawaii will be necessary prior to construction of any boating facilities within the Park or offshore areas.

Land not used for boating activities could be used by the University of Hawaii Sand Island Aquatics Center. No City facilities are planned in this area of the Park.

#### C. SITE ACCESS AND SECURITY

The Corporation Yard and Sand Island Park Extension will be linked to the Oahu roadway network via Sand Island Parkway Road and Sand Island Access Road to Nimitz Highway with secondary routes via Auiki Street and Kalihi, Puuhale, Mokauea, or Libby Streets. Access to the dual-use parking lots for employees of the Corporation Yard and park visitors will be from a single road which connects to Sand Island Parkway Road. This access road will be connected to the existing State Park road system so that park visitors will have access to the existing and proposed sections of the park without having to travel on Sand Island Parkway Road.

A secondary accessway to the Corporation Yard is proposed at the Diamond Head perimeter extent of the Sand Island WWTP for use by City heavy vehicles.

The border between the Corporation Yard and Sand Island Park Extension will be fenced with an approximately 8-FT high concrete block wall to provide security and screen views. Standard 6-FT high security chain fences will be provided along other borders of the Corporation Yard. Lighting will be provided for security along the fences and in dual-use parking lots.

#### D. SEWAGE AND SOLID WASTE DISPOSAL

Sewage from the Corporation Yard and the proposed park will be routed to existing sewer lines and eventually to the Sand Island Wastewater Treatment Plant (SIWWTP). The treatment plant is adequate to accommodate the Corporation Yard or Sand Island Park Extension.

Solid waste from the Corporation Yard and proposed park will be disposed by the City and County of Honolulu. Large pieces of solid material and spoils from project sites will be temporarily stored at the Corporation Yard, then taken to the existing City and County of Honolulu Kapaa Sanitary Landfill according to procedures established to dispose this type of material. These storage areas have been located adjacent to the SIWWTP to minimize intrusion into the park areas.

#### E. WATER DEMAND

Analysis of the water demand shows that the Corporation Yard will have an average daily demand of approximately 108,000 gallons per day, or about 4,000 gallons per acre for the light industrial use based on City and County of Honolulu Board of Water Supply (BWS) standards. Sand Island Park Extension will have an average daily demand of about 215,000 gallons

per day, or 4,000 gallons per acre for park use. Thus, when both projects are fully developed, the total average daily demand will be about 323,000 gallons per day.

The fire flow requirements for the Corporation Yard will be met through the use of fire sprinkler systems in each of the buildings. A fire sprinkler system will satisfy the Fire Department alternative fire flow requirement for these types of buildings and uses.

#### F. PROJECT PHASING

The Corporation Yard and Sand Island Park Extension will be constructed concurrently in phases. Construction activities will begin after final design of the Corporation Yard and the park, and after the Governor signs the Executive Order to transfer control of the land to the City. The project phasing schedule is shown in Figure III-4 and described below:

<u>Phase</u>	<u>Project</u>
Phase 1:	Site work for Corporation Yard and Park.
Phase 2A:	Trade shops for DPR and DPW. HPD Radio Maintenance Shop and Fleet Maintenance Facility and DTS Electrical Shop.
Phase 2B:	First half of park improvements.
Phase 3A:	AES Fleet Maintenance Facility including fuel system and vehicle wash facility. DPW facilities and demolition of Kapalama Incinerator.
Phase 3B:	Remainder of Park improvements.
Phase 4:	Demolition of Kewalo Incinerator and existing baseyard facilities.

<u>Phase</u>	<u>Cost</u>	<u>Tentative Timetable</u>
1	\$ 5,000,000	Start Construction - May 1990 Complete Construction - April 1991
2A	\$22,100,000	Start Construction - June 1991 Complete Construction - June 1992

<u>Phase</u>	<u>Cost</u>	<u>Tentative Timetable</u>
2B	\$ 3,200,000	Start Construction - June 1991 Complete Construction - May 1992
3A	\$21,600,000	Start Construction - June 1992 Complete Construction - May 1992
3B	\$ 4,100,000	Start Construction - August 1992 Complete Construction - August 1993
4	\$ 1,000,000	Start Construction - September 1993 Complete Construction - April 1994
	<hr/>	
	\$57,000,000	Total Construction Cost
	<u>3,000,000</u>	Planning and Engineering
	\$60,000,000	Total Project Cost

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

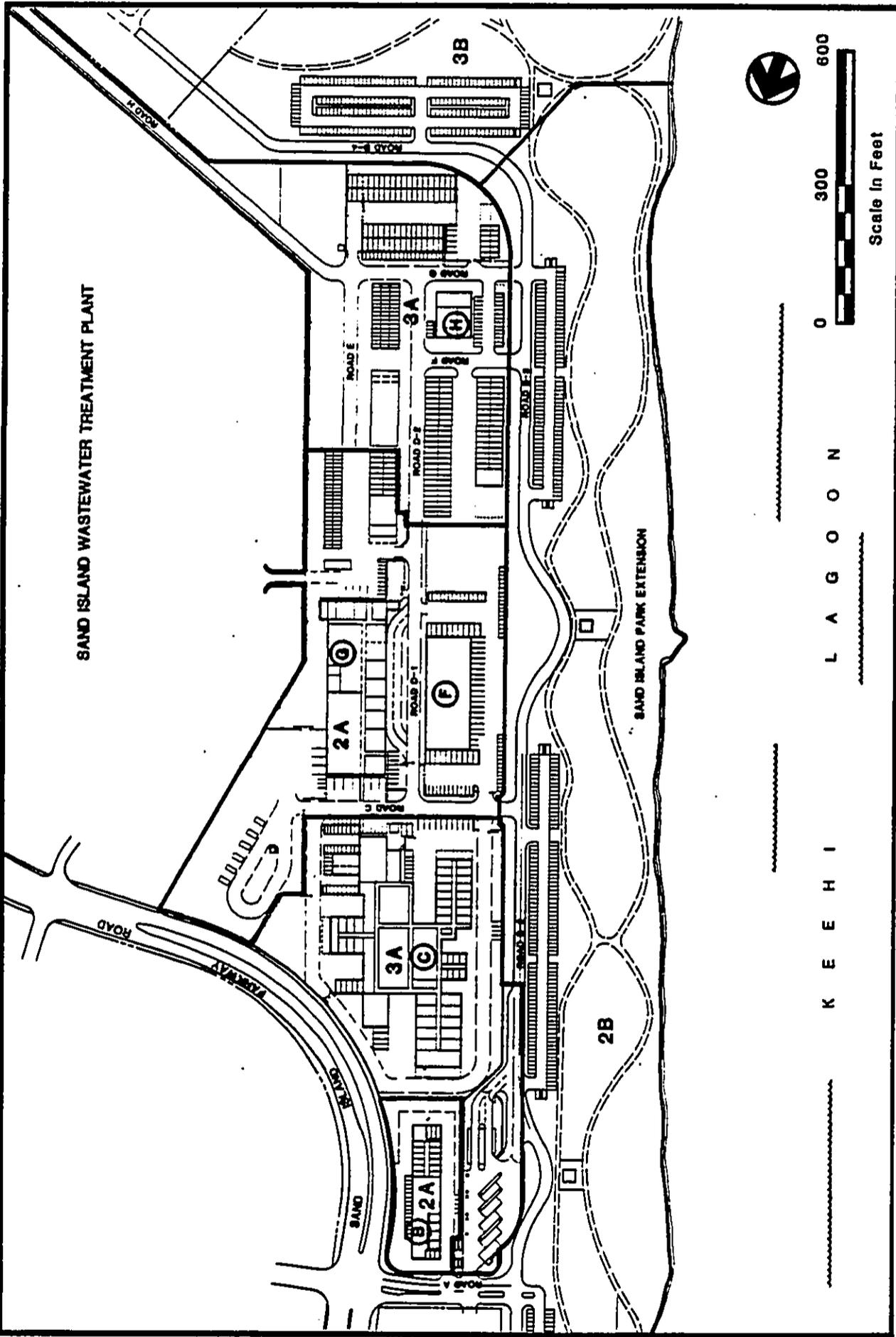


Fig. III-4

# PHASING PLAN

CORPORATION YARD AND SAND ISLAND PARK  
Environmental Impact Statement

#### IV. AFFECTED ENVIRONMENT

##### A. REGIONAL ENVIRONMENT

##### 1. Climate

The climate of the Sand Island area is typical of the leeward coastal lowlands of Oahu. The area is characterized by abundant sunshine, persistent trade winds, relatively constant temperatures, moderate humidities and the infrequency of severe storms.

The prevailing wind throughout the year is the northeasterly trade wind, although its average frequency varies from more than 90% during the summer months to only 50% in January. The monthly mean velocity of the wind varies between 10 and 15 miles per hour. The project area is sheltered from the north winds, but is exposed to westerly, northwesterly and southwesterly winds which are strongest during storms. While Sand Island protects Honolulu Harbor from westerly and southerly winds, the two entrance channel areas to the harbor are exposed.

Rainfall is relatively low, averaging 20 to 25 inches a year, with considerable monthly rainfall variations. During the cooler winter season when occasional major storms provide much of the rain, monthly quantities of the rainfall are more variable than in the summer season when the rain occurs primarily from showers that form as the moist trade winds pass over the mountains. This trade wind rainfall occurs more frequently at night; daytime showers are usually light. On the average about 50% of the total annual rainfall occurs during the three wettest months - December through February.

The constant amount of incoming solar energy, combined with the tempering effect of the ocean, produces equable temperatures. The monthly range in temperature between the warmest months (August and September) and the coolest months (January and February) averages only seven degrees. Daily maximum temperatures ranges from the high 70's in the winter to the mid

80's in the summer; the daily minimum temperatures run from the mid-60's in the winter to the low 70's during the summer.

The persistence of the northeasterly trade winds results in moderate humidity even in the warmest months. When the trade winds diminish or give way to southerly winds, a situation known locally as "Kona weather", the humidity may become oppressively high.

## 2. Air Quality

Present air quality on Sand Island is likely to be affected by air pollutants from three different sources: natural, industrial, and vehicular. Natural air pollutant producers which could affect local air quality include the ocean (sea spray), plants (aero-allergens), dust (from wind blowing over unvegetated areas or from construction of commercial activities), or a distant volcanic eruption on the island of Hawaii. An air quality study for the proposed Honolulu Corporation Yard and Sand Island Park Extension was conducted in May 1989. The study can be found in Appendix F.

Ambient air quality in the Sand Island area is good, due to the presence of the northeast tradewinds which predominate throughout the year and blow pollutants from inland areas out to sea. Problems of poor air quality may be more likely to occur when tradewinds diminish or give way to southerly winds. Localized problems of poor air quality may occur under adverse Kona wind conditions in areas of intense industrial development or along heavily used vehicle corridors.

The State air quality sampling stations are located in Liliha and at the Department of Health building approximately one mile away. These air monitoring stations are located at sites upwind of Sand Island, but from the readings at these sites it seems reasonable to conclude that air pollutants from industrial sources are generally present in levels within allowable standards in the Sand Island area.

### 3. Population

The State's resident population has grown steadily from 154,000 in 1900, to 633,000 in 1960, 770,000 in 1970 and 965,000 in 1980. Immigration is the major factor in Hawaii's rapid population growth between 1970 and 1980 when 101,000 people moved to Hawaii. The resident population of Oahu in 1980 was 763,000 with an estimated 365,000 living in urban Honolulu. This figure reflects a population density of 1,290 persons per square mile for Oahu, and 4,510 persons per square mile in urban Honolulu.

Sand Island comprises Census Tract 57.99, a subclassification of Census Tract 57, which includes parts of Kalihi Kai. According to the Census of Population and Housing, 1980, the total population of Sand Island is 592, including 540 military personnel in group quarters. Most of the population on Sand Island are part of the U.S. Department of Transportation Coast Guard permanently stationed bachelor enlisted personnel.

Neighborhoods surrounding Sand Island are Downtown, Liliha-Kapalama, Kalihi-Palama and Kalihi Valley. Population information for these surrounding neighborhoods can be found in Table 1. According to the State of Hawaii Data Book the Downtown neighborhood experienced a 13.1 percent increase in population between 1980 and 1985; Liliha-Kapalama experienced a 9.8 percent increase in the same period and Kalihi Valley experienced a 0.5 percent increase. The Kalihi-Palama neighborhood experienced a 0.7 percent decrease in population between 1980 and 1985. The overall population increase between 1980 and 1985 was about 3.4% for these neighborhoods.

Table 1  
Population by Neighborhood Board Areas

<u>Neighborhood Area</u>	<u>Census Tracts</u>	<u>1985 Population Estimates</u>
Downtown 13	40, 41, 42, 51	9,813
Liliha-Kapalama 14	46, 47, 49, 50, 60	23,126
Kalihi-Palama 15	51, 53, 56, 58, 60, 61, 62	39,859
Kalihi Valley 16	63, 64, 65	<u>17,696</u>
	Total	90,494

4. Recreation

The developed portion of Sand Island Park occupies 87 acres of land owned and managed by the State Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation and Historic Sites. The nearshore waters around Sand Island provide recreational activities such as sailing and boating, water skiing, surfing, sunbathing, fishing, limu (seaweed) gathering, snorkeling and swimming.

Sand Island supports a large recreational fishery, consisting mainly of pole fisherman with occasional spearfishing. Honolulu Harbor is used to catch bait fish (nehu) for the Skipjack tuna fleet.

The park is being developed incrementally as funding becomes available. Phase I of the park, completed 1976, included 13 acres of passive recreation area along the southeastern shoreline. Phase II included 30 acres of beach park along the southern shore of Sand Island. Phase III improvements include camping, picnic and field areas, and ocean oriented park facilities along the shoreline.

Sand Island State Park is a day use park open from 7:00 AM to 7:45 PM from April 1 to Labor Day, and from 7:00 AM to 6:45 PM from the day after Labor Day to March 31. Park facilities include camping areas, four comfort station pavilions, showers, picnic tables, play equipment, paved roadways,

paved and marked parking stalls, signs and overflow unpaved parking lot. The area of former military bunkers is a paved pedestrian walkway landscaped with trees and shrubs. An abandoned Navy observation tower in this area affords a 360 degree panorama of Sand Island and Leeward Oahu. A maintenance building and caretaker's home are located on park grounds.

The Division of State Parks currently has no plans for major changes, new facilities or renovations to the State Park. Minor renovation to provide handicapped access is planned for certain facilities in the Park.

Permits are issued for camping, weddings, picnics and large group functions. Based on the permits, these were a total of 721,512 recreation visits for fiscal year 1986-1987 and a total of 722,000 recreation visits for fiscal year 1987-1988. These statistics account for only a small portion of the total users of Sand Island Park.

Sand Island is located within State Recreational Planning Area 21 in the East Honolulu Primary Urban Center, stretching from Kahala to Kalihi. Proposed recreation facilities/areas in Planning Area 21 include Kahala Beach Park, Fort DeRussy Regional Park, Manoa Stream Greenbelt Park, Ala Moana Park expansion, Kaka'ako Waterfront State Recreation Area, and Nuuanu Stream Greenbelt Park. Table 2 lists the various recreational facilities in the neighborhoods surrounding Sand Island.

According to the State Recreational Plan's Technical Reference Document (DLNR, January 1980), Planning Area 21 is served by community recreation park facilities, but lacks passive parks. Due to the intense concentration of urban development, the number of residents and visitors within the Primary Urban Center and the continued importance of ocean related recreation to residents and visitors, development of more public beach areas and the acquisition of more public beach accessways is an important part of public recreation planning within the Primary Urban Center.

**Table: 2**  
**Neighborhood Recreation Areas**

<u>NEIGHBORHOOD AREA 13 - DOWNTOWN</u>		<u>Acres</u>
BOTANIC GARDENS	Foster Botanic Garden	13.545
NEIGHBORHOOD PARKS	Kamama'u Playground	5.269
URBAN PARKS AND SQUARES	Emma Square	.560
	Kamalii Park	.680
	*Union Street Mall	.150
	*Fort Street Mall	1.020
	(includes Fort Street Mini Park at Beretania, 6130 sq. ft.; 4,286 sq. ft.)	
OTHER		
PAUHI COMMUNITY SERVICE FACILITY		3.021 sq. ft.
COMMUNITY GARDENS	Foster Botanic Garden	80 plots
<u>NEIGHBORHOOD AREA: 14-LILIHA/KAPALAMA</u>		<u>Acres</u>
DISTRICT PARKS	Lanakila Playground	5.535
COMMUNITY PARKS	Puunui Playground	1.650
NEIGHBORHOOD PARKS	Alewa Playground	2.043
	Kunawai Playground	.956
	Na-Pueo Park	3.800
URBAN PARKS AND SQUARES	Kunawai Springs	.590
OTHER		
BOTANIC GARDENS	Liliuokalani Garden	7.023
<u>NEIGHBORHOOD AREA: 15-KALIHI/PALAMA</u>		<u>Acres</u>
DISTRICT PARKS	Kalakaua Recreation Center	7.766
COMMUNITY PARKS	Beretania Community Park	5.360
	Kuhio Park Terrace Playground	6.400
	Kauluwela Playground	2.440
	Kamehameha Field	8.603
NEIGHBORHOOD PARKS	Kalihi Waena Playground	1.231
	Fern Playground	2.144

BOTANIC GARDENS	Loi Kalo Botanic Garden	2.313
MINI PARKS	Kanoa Street Mini Park	.379
	Mokauea Mini Park	.315
	Auld Lane Mini Park	.170
	Palama Triangle Mini Park	.190
	Peter Buck Mini Park	1.113
URBAN PARKS AND SQUARES	Banyan Court Mall	.270
	Aala Park	6.691
	Kauluwela Mall	.404
	Kalidikimaka Kila Mall	.155

NEIGHBORHOOD AREA: 16-KALIHI VALLEY

Acres

DISTRICT PARKS	Kalihi Valley Field	11.847
COMMUNITY PARK	Kalihi Uka Playground	1.030
NEIGHBORHOOD PARKS	DeCorte Playground	3.910
	Kupehau Park	6.857
NATURE PARKS AND RESERVES	Kalihi Valley Park (undeveloped)	99.646
OTHER		
GARDEN PLOTS	Kupehau Park	80 plots

\*Department of Parks and Recreation maintains entire mall area. (Department of Public Works' land.)

## B. LOCAL ENVIRONMENT

### 1. Topography

Sand Island was created on a shallow reef by incremental deposition of material from adjacent dredging in Honolulu Harbor and Keehi Lagoon. Except for intermittent small land forms and depressions in the undeveloped areas, the site for the Corporation Yard and Sand Island Park Extension is relatively flat with an average gradient of less than minus 1 percent towards the shoreline. The project area rises from a seven foot embankment along the harbor shoreline to generally eight feet along the existing Sand Island Access Road. The small hills and berms that occur are about ten feet above mean lower low water level at their highest elevation, and are probably the result of the dumping of fill or the result of military activities, such as bunkers and pill boxes.

### 2. Geology and Soils

#### a. Geology

The Honolulu Harbor complex which includes Sand Island is located within the narrow coastal plain of Oahu's south central coast, geologically referred to as the Honolulu Plain. The Honolulu Plain and much of the rest of the southern edge of Oahu is underlain by a broad elevated coral reef, covered by alluvium carried out from the mountains. The coral reef rocks were deposited during prehistoric time when the sea level was higher. The Honolulu Plain ranges in elevation from 0 to 10 feet.

Prior to the dredging and filling of Honolulu Harbor, the original Sand Island area consisted of lands of a marginal nature, mainly submerged coral reefs, mudflats, and islands of varying sizes, shapes and elevations.

b. Soils

The surface and substrata soils of the project area consist mostly of fill material from past dredging operations. The fill material is characterized by silty sand and coral gravel, which has high porosity and permeability. The conditions of the landfill varies, due to the incremental formation of Sand Island. On the older sections, some topsoil has evolved or accumulated from dumping activity and is sustaining vegetation. The new sections are less developed, and vegetation is minimal. According to the Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai State of Hawaii, the land type of the project area is classified as fill land, mixed (FL) and is used for urban development including airports, housing areas, and industrial facilities. This land type occurs mostly near Pearl Harbor and in Honolulu, adjacent to the ocean.

A five acre portion of the project area located near the center of the Island includes part of the original landform not created by the fill. This area is classified as Jaucus sand, (JaC). The profile of the soil is described as single grain, pale brown, sandy and more than 60 inches deep. The hazard of water erosion is slight, but wind erosion is a severe hazard where vegetation has been removed. This type of soils neutral to moderately alkaline. Permeability is rapid and runoff is slow. The available water capacity is 0.5 to 1 inch per foot of soil. Workability is slightly difficult because the soil is loose and lacks stability needed for the use of equipment. These soil conditions, as they presently exist, impose severe limitations for landscaping because of the lack of nutrients and low water holding capacities.

3. Hydrology

a. Groundwater

The hydrological character of Sand Island and the surrounding Mamala Bay region was greatly influenced by the submergence and emergence of major

areas of the Island of Oahu. The interface between the upper sedimentary layers and the underlying basalt constitutes a zone of low permeability known as caprock. This caprock extends along the coastline about 800 to 900 feet below sea level, decreasing in thickness inland. In areas of relatively high permeability through which water percolates, this impervious zone of caprock prevents the downward flow of any nonpotable brackish water containing high nutrient and salt concentrations from reaching the basalt aquifers, which contain Oahu's water supply. Conversely, the caprock also prevents the seaward movement of potable water from the basaltic aquifers.

The great width and thickness of the caprock suggests that the basaltic potable water supply will be relatively unaffected by modifications along the coastline. This concept is supported by the fact that the filling of most of Honolulu's salt marshes and lowlands over the past 50 years with dredged marine deposits of high saline content has produced no deteriorations in the quality of the basal water recovered by the Board of Water Supply's wells.

b. Surface Water

Sand Island has a dry climate, flat terrain, and highly porous soils. Surface runoff conditions are not a serious problem. Even during heavy rains, no undue ponding occurs in the low areas. While there are no natural surface water features on Sand Island, two nearby streams discharge into Honolulu Harbor. The Kapalama Stream discharges into Kapalama Basin, and the Nuuanu Stream discharges into the main harbor basin.

4. Coastal

a. Tides

A general west current exists along the coast between Honolulu Harbor and Barbers Point. Except during strong kona winds, anchorages for deep draft

vessels exist outside the harbor in Mamala Bay off Sand Island and west of the Main, or Fort Armstrong Channel. An explosives anchorage area lies 1.3 miles west of Sand Island's Kalihi Channel, directly off Keehi Lagoon.

The mean tidal range between mean lower low and mean higher high water is 1.9 feet. The usual extreme range is 2.3 feet. The lowest tide on record has been minus 1.15 feet, and the highest plus 3.1 feet.

b. Currents

Currents and circulation in Honolulu Harbor are influenced by wind, freshwater influx, tidal direction, and shoreline configuration. Tidal currents are generally weak with no dominant direction.

Although circulation within the harbor has not been studied in detail, available information indicates that the double entry configuration of the harbor results in the absence of serious circulation problems within the harbor. Thermal studies conducted by the Hawaiian Electric Company estimated the harbor flushing time at about six hours.

c. Federal FIRM Zone and LUO Flood Hazard District

According to the Flood Insurance Rate Map (Community Panel Number 150001 0115 B revised September 4, 1987) a portion of the proposed project site is designated as Zone X, areas determined to be outside 500-year flood plain, and a portion Zone A, no base flood elevation determined. (See Figure V-5).

The entire shoreline of Sand Island is designated as a Coastal High Hazard District.

d. Shoreline

Along the project shoreline, several different interface conditions have developed. The Kalihi Channel shoreline by the Bascule Bridge consists

of fine sand deposits and gentle slope. Sandy shore conditions also occur intermittently along the Keehi Lagoon side where either erosion or currents have broken down the shelf of coral spoils paralleling the seaplane runway. Ewa of the point a spit of crushed coral protects the end of the seaplane runway. Between this spit and the reveted point, shoreline erosion from wave action and currents resulted in continual receding of fastlands. Coarse sand and broken coral formed beach areas along the ocean shore. Separating these areas is a section known as "iron beach" where scrap iron and rubbish have fused together with rocks and concrete.

## 5. Flora and Fauna

### a. Flora

Vegetation in the Sand Island area is influenced by generally low rainfall, saline soil, the man-made origin of the area, and the high degree of development and human activity. Consequently, only a small variety of plant life can be found, which is characterized as drought resistant, highly salt tolerant, and hardy in dry areas. No Federal or State listed or candidate threatened or endangered plant species are currently found on any areas of Sand Island.

The inland portions of Sand Island are dominated by haole koa shrubs (*Leucocephala leucaena*) and kiawe trees (*Prosopis pallida*). The seaward areas have large sections of dry, brown desmanthus (*Desmanthus virgatas*) grow several feet tall. Patches of sourbrush (*Pluchea odorata*) and Indian pluchea (*Pluchea indica*), opiuma (*Pithecellobium dulce*) and ironwood trees (*Casuarina equisetifolia*) are scattered throughout the area. Three species of grass exist; manila grass (*Zoysia Metralla*), star grass (*Chloris divarcata*, and (*Chloris inflata*).

Vegetation at Sand Island generally consists of introduced species, which are usually part of grassing and landscaping projects associated with the development of buildings and facilities, or are a resultant of the dumping

of yard clippings. Few plants, however, can survive on Sand Island unattended.

b. Fauna

Wildlife on Sand Island is essentially limited to mammals and birds which have adapted to the urban environment. Mongooses, rats, mice, feral dogs and cats are common. Most of the existing wildlife can be found in the under utilized and more heavily vegetated areas of the island. A variety of migratory shore birds frequent Sand Island, especially the seaward shore areas. No Federal or State listed or candidate threatened or endangered bird species are currently found on Sand Island.

6. *Archaeological and Historic Sites*

Most of Sand Island is composed of dredging material from past improvements to Honolulu Harbor in the early 1900's and the seaplane runway in the early 1940's. Because Sand Island is manmade, it is highly unlikely that there are areas of archaeological significance. There are no known archaeological sites on the Corporation Yard or Sand Island Park Extension sites. However, human burials have been discovered in the Keehi Lagoon area in the past.

There are no state buildings, structures or other man made features of historical significance on the Corporation Yard or Sand Island Park Extension sites.

7. *Traffic*

Nimitz Highway (Federal Aid Project 92) is a six-lane highway which serves a primary route between Honolulu International Airport and the industrial areas around the airport to the downtown area of Honolulu. It is under the control of the State of Hawaii Department of Transportation. Sand Island Access road is a four-lane roadway which provides access to Sand Island from Nimitz Highway via the John H. Slattery Bridge. Sand Island

Parkway Road is primarily a two-lane roadway with construction progressing to add two more lanes. Sand Island Parkway Road extends from the existing bridge to the entrance of Sand Island State Park. Another bridge adjacent to the existing one is currently under construction and should be completed in late 1989. This new two-lane bridge will carry traffic onto Sand Island while the old bridge will carry traffic off of the island.

Auiki Street, Puuhale Road, Mokauea Street, and Kalihi Street are all relatively narrow streets through most of the Kalihi Kai area. Makai of Nimitz Highway, the streets generally have 40-foot curb-to-curb widths with parking permitted along both sides of the streets. The light industrial land uses result in large numbers of trucks and heavy equipment traffic on these streets, with frequent disruption of traffic flow by parking or maneuvering of vehicles within the street. Mauka of Nimitz Highway, Puuhale Road, Mokauea Street, and Kalihi Street provide one travel lane in each direction. Long-range plans include the widening of roadways to two lanes in each direction mauka of Nimitz Highway. However, it is not certain when these improvements will be implemented. Appendix B contains the traffic study.

In addition to these improvements, the State of Hawaii is proposing improvements to Nimitz Highway to improve traffic flow. The most significant improvement is the proposed Makai Viaduct project. As proposed, this project would construct a two-lane viaduct for high occupancy vehicles over the center median on Nimitz Highway between the Keehi Interchange on the H-1 Freeway and Pacific Avenue. This project would effectively add two more travel lanes to this segment of Nimitz Highway and would relieve intersection capacity problems along Nimitz Highway.

#### 8. Noise

Sand Island is located approximately 8,000 FT off the east end of Runway 8R-26L, the Reef Runway, of Honolulu International Airport (HIA). Commercial air carrier, air taxi/commuter and military aircraft operations

all affect the noise environment on Sand Island. During trade wind conditions, aircraft depart on Runway 8R directly over Sand Island, and those departing from the other HIA runways, 8L, 4R and 4L ascend over the island. During Kona conditions (about 10 percent of the time), aircraft arriving on Runways 26R, 22L and 22R approach over the island. According to the latest Master Plan Update for HIA approximately 143,000 aircraft departures and arrivals occurred over Sand Island in 1986. The projections for 2005 indicate 170,000 aircraft operations will occur over the Island.

The areal extent of aircraft noise was calculated in the Master Plan Update using the Federal Aviation Administration approved Integrated Noise Model (INM) Version 3.8. Based on the 1986 number of operations, aircraft mix, and the noise characteristics of the aircraft, the Corporation Yard and Sand Island Park Extension are within the 75 Ldn noise contour. Although the number of aircraft operations is projected to increase by 2005, the noise level is expected to decrease to approximately 70 Ldn at these two locations. This noise level reduction is expected to occur primarily because of the introduction of quieter aircraft into the aircraft mix and the various noise mitigation measures set forth in the Master Plan Update.

#### 9. Aesthetics

Sand Island, Honolulu Harbor and Downtown Honolulu comprise the downtown section of the South Shore Viewshed. The SMA Boundary cuts across the harbor to Sand Island and excludes the entire Downtown Honolulu area. According to the Coastal View Study, Sand Island, Honolulu Harbor, the Downtown skyline and the Koolau Mountains are interrelated in establishing the visual composition and quality of the area.

The variety of scenic views from Sand Island Park and park extension is one of the most significant features of the project area. At the ewa end near the bascule bridge, where the sea plane runway and Kalihi Channel intersect, the view includes Honolulu International Airport, central Keehi

Lagoon, and the Waianae Range. The offshore islands of Mokauea and Kahakaaulana are visible along the Keehi Lagoon shore of Sand Island.

Due to the low profile of Sand Island, one of its most significant features from an aesthetic standpoint is the variety of scenic views and vistas offered in almost any direction. Offshore viewing along the southern or seaward coastline allows enjoyment of a diversity of natural seascapes, striking sunsets and ocean oriented recreational activities. The eastern end of Sand Island provides a vantage point for observation of maritime traffic entering and departing the harbor through the main access channel. The State Anuenue Fisheries site offers a panoramic view of downtown Honolulu and the waterfront, including the docks, piers, highrise architecture, historic ships, and the Aloha Tower, contrasted against the Koolau Mountain Range, which forms a natural green backdrop. Stationary views from Sand Island Park capture the visual quality of urban Honolulu in the mauka direction from east to west. The mauka view includes Nuuanu Valley, leeward Oahu, from Barbers Point to Diamond Head.

With the exception of the improved and maintained Sand Island State Park lands, the arid and saline climate of Sand Island presents a harsh visual setting to viewers from the land, air or ocean. In the past, much of Sand Island has been visually perceived as a junkyard and refuse dump. In recent years, Sand Island has developed into a mixed light and heavy industrial area. The existing project area is an undeveloped area along the southwestern shore of Sand Island and is used for the disposal of excess material from various construction projects.

## V. LAND USE PLANS, POLICIES AND ZONING

The Honolulu Corporation Yard and Sand Island Park extension will be developed in consonance with various governmental land use plans, policies, and regulatory controls. These controls are discussed in this section.

### A. LAND USE PLANS

#### 1. Hawaii State Plan

The purpose of the Hawaii State Plan is to establish a statewide planning system that will serve as a long range guide to Hawaii's future. One of the State's goals is to achieve "a desired physical environment characterized by beauty, cleanliness, quiet stable natural systems, and uniqueness, that enhances the mental and physical well being of the people. Another State Plan goal is "to accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans."

Among the State's objectives for land-based, shoreline and marine resources is to provide for:

- Prudent use of Hawaii's land based shoreline, and marine resources.

To achieve this objective, the following State Plan policies are considered in formulating plans for recreation areas and facilities:

- Ensure compatibility between land based and water based activities and natural resources and ecological systems.
- Take into account the physical attributes of areas when planning and designing activities and facilities.
- Promote greater accessibility and prudent use of the shoreline for public recreational, educational, and scientific purposes.

Another State Plan objective is the "enhancement of Hawaii's scenic assets, natural beauty and multicultural/historical resources." The policies to achieve this objective are to:

- Promote the preservation and restoration of significant natural and historic resources.
- Promote the visual and aesthetic enjoyment of mountains, ocean vistas, scenic landscapes, and other natural features.
- Encourage the design of developments and activities that complement the natural beauty of the islands.

The State Plan objective for socio-cultural advancement with regard to leisure is the "adequate provision of resources to accommodate diverse cultural, artistic and recreational needs for present and future generations." To achieve this objective, State Plan sets forth the following policies which are to:

- Enhance the enjoyment of recreational experiences through safety measures, educational opportunities, and improved facility design and maintenance.
- Provide a wide range of activities and facilities to fulfill the recreation needs of all diverse and special groups.
- Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values.
- Ensure opportunities for everyone to use and enjoy Hawaii's recreational resources.
- Assure the availability of sufficient resources to provide for future recreational needs.

The State Plan priority directions regarding Hawaii's land resources are to:

- Preserve and improve shoreline open spaces and scenic resources.
- Seek to utilize Hawaii's limited land resources wisely in order

to insure the protection of the environment and the availability of the shoreline, conservation lands and other limited resources for future generations.

## 2. State Recreation Plan

The State Recreation Plan, prepared by the Department of Land and Natural Resources (DLNR), is one of twelve State functional plans prepared to implement the Hawaii State Plan. This plan summarizes available supplies of recreation facilities as related to public outdoor recreation demands and needs and which is an updated version of the State Comprehensive Outdoor Recreation Plan (prepared under Federal requirements administered by the Department of the Interior, Heritage, Conservation, and Recreation Service).

The purpose of the State Recreation Plan is to implement the goals, objectives and policies of both the Hawaii State Plan and County General Plan through a well coordinated program for acquiring, developing, conserving, and utilizing Hawaii's recreational resources. Under the State Recreation Plan, recreation and open space are viewed as related concerns within a broader framework of sound resource management.

Sand Island is located within State Recreational Planning Area 21, the East Honolulu Primary Urban Center. Planning Area 21 represents the eastern portion of the City and County's Primary Urban Center which stretches from the Kahala-Maunalani Heights neighborhood to the Kalihi Valley neighborhood. Major urban areas included in this planning area are Waikiki, University-Manoa, Ala Moana and Downtown areas of the City. Major existing recreation facilities/areas include Ala Moana Beach Park, Queen Kapiolani Regional Park, Honolulu Zoo, and Iolani Palace State Monument. Proposed recreation facilities/areas include Kahala Beach Park, Fort DeRussy Regional Park, Manoa Stream Greenbelt Park, Ala Moana Park expansion, Kaka'ako Waterfront State Recreation Area, and Nuuanu Stream Greenbelt Park.

According to the State Recreational Plan's technical reference document (DLNR, January 1980), Planning Area 21 is served by community recreation park facilities, but lacks passive parks. Due to the intense concentration of urban development, the number of residents and visitors within the Primary Urban Center and the continued importance of ocean related recreation to residents and visitors, development of more public beach areas and the acquisition of more public beach accessways is an important part of public recreation planning within the Primary Urban Center.

The State's recreation objectives for land use and planning, conservation and resource management, recreation facilities and programs, and access, are as outlined below:

- Land Use and Planning Objective:  
Achieve a pattern of land and water resources usage which is compatible with community values, physical resources, recreational potential, and recreation uses which support comprehensive public land use policies.
- Conservation and Resource Management:  
Establish a system of maintaining natural and cultural resources for present and future generations, and of managing recreation and other uses in accordance with sound conservation principles.
- Recreation Facilities and Programs:  
Provide a comprehensive range of opportunities which fulfill the needs of all recreation groups effectively and efficiently.
- Access:  
Assure the provision of adequate public lands and waters with recreational value; provide adequate access to facilities.

### 3. Honolulu Waterfront Master Plan

The Honolulu Waterfront Master Plan, prepared by the State of Hawaii Office of State Planning, represents a comprehensive, long range vision for the Honolulu waterfront. It recognizes the importance of the Port of Honolulu as the lifeline of statewide commerce and, at the same time, provides for the recreational, cultural and economic needs of a growing population. The plan addresses the major planning issues concerning public access and use of the waterfront, long term integrity of commercial maritime operations, plan implementation, relocation needs and financial feasibility.

The purpose of the Plan is three-fold:

- o To identify and articulate a long range vision for the Honolulu Waterfront that is fiscally responsible but also innovative, challenging and responsive to the current and future needs of Hawaii's residents.
- o To assure a logical, orderly and achievable phasing of improvements in a manner that minimizes social, environmental and economic disruption.
- o To maximize public benefits associated with the improvement of the significant state owned lands located within the waterfront planning area.

The planning area encompasses a total land area of approximately 1,550 acres and stretches along nearly six lineal miles of coastline. Of the total acreage, the State owns nearly 76 percent, while 13 percent is owned privately, 11 percent is owned by the Federal government and one percent by the City and County of Honolulu.

Short and long range plans for Sand Island are an integral part of the Waterfront Master Plan. Short range plans (five to ten years) for Sand Island include development of an industrial park adjacent to the mauka

border of the developed portion of Sand Island State Park and the artificial swimming beach near the southern tip of the island.

The major long range plan (2000 to 2010) for Sand Island is possible construction of the Sand Island Bypass and a tunnel under the entrance to Honolulu Harbor. Although this concept requires further study, the Sand Island Bypass would begin at the H-1 Freeway in the vicinity of the Middle Street interchange and would continue along a viaduct over Sand Island Access Road until it reaches the vicinity of the existing Sand Island Bridge. Once on Sand Island, the Bypass would proceed along the mauka boundary of the Corporation Yard (with a fly-over into the container yard operations) makai of the SIWWTP and along the boundary between the park and industrial area. At this time, the alignment of the Bypass, the right-of-way, and location of the road in relation to the Corporation Yard have not been established.

The Honolulu Corporation Yard and Sand Island Park Extension are sited on the Honolulu Waterfront Short Range Master Plan.

#### 4. Oahu Intraisland Ferry System

The State Department of Transportation proposes to establish an Intraisland Ferry System for the island of Oahu. The system will be privately operated, providing service from seven terminals to be developed along the southern coastline of Oahu by the Department of Transportation. A ferry terminal is planned for Honolulu International Airport in the area known as South Ramp on the banks of Keehi Lagoon. The specific site of the ferry terminal within this general area and its design have yet to be determined. Another ferry terminal site will be located at Pier 8 in Honolulu Harbor in the downtown area. Piers 13 and 14, also near downtown, are proposed as a vessel berthing and maintenance area.

The development of the Honolulu Corporation Yard and Sand Island Park Extension is not expected to negatively impact any of the planned intraisland ferry terminals Downtown or at the Airport.

## 5. City and County of Honolulu General Plan

The City and County of Honolulu General Plan addresses the unique problems and needs of Oahu. The General Plan indicates desired population and physical development patterns for the County and further defines the goals, objectives, policies and priority guidelines in the Hawaii State Plan. The General Plan of the City and County of Honolulu establishes both long range objectives and policies for guiding both the quantity and quality of future growth in Oahu.

The City and County's General Plan recreational objective is to "provide a wide range of recreational facilities and services that are readily available to all residents of Oahu". This objective is to be implemented by the policy to "encourage the State to develop and maintain a system of natural resource based parks, such as beach, shoreline and mountain parks."

The Culture and Recreation objective of the General Plan are to:

- Develop and maintain community-based parks to meet the needs of the different communities on Oahu.
- Develop and maintain a system of regional parks and specialized recreation facilities.
- Develop and maintain urban parks, squares, and beautification areas in high density urban places.
- Encourage the State to develop and maintain a system of natural resource-based parks, such as beach, shoreline, and mountain parks.
- Provide convenient access to all beaches and inland recreation areas.
- Encourage the State and Federal governments to transfer excess and underutilized land to the City and County for public recreation use.

The proposed Honolulu Corporation Yard specifically addresses the Government Operations and Fiscal Management objectives of the General Plan, which are:

- To promote increased efficiency, effectiveness, and responsiveness in the provision of government services by the City and County of Honolulu.
- To ensure fiscal integrity, responsibility and efficiency by the City and County government in carrying out its responsibilities.

The policies of the General Plan to achieve the objectives are to:

- Maintain City and County government services at the level necessary to be effective.
- Promote consolidation of State and City and County functions whenever more efficient and effective delivery of government programs and services can be achieved.
- Ensure that government attitudes, actions, and services are sensitive to community needs and concerns; and
- Allocate fiscal resources of the City and County to efficiently implement the policies of the General Plan and Development Plans.

#### 6. City and County of Honolulu, Long Range Recreation Plan

The City and County's Long Range Recreation Plan provides detailed information concerning recreation oriented goals, objectives, and policies regarding recreation sites and proposals. Recreation sites and proposals are incorporated into the State Recreation Plan inventory. The Long Range Recreation Plan describes the short and long term needs for recreation beautification, and outlines proposals to meet these needs.

Sand Island Park Extension is planned as a passive recreation area with picnic, facilities, jogging trails and informal play areas. While the proposed Park is not included in the Long Range Plan, the proposed park

is programmed in the Plan for development between 1980-1990. It is intended to facilitate the effort to meet the community's need for additional beach or shoreline parks.

## B. LAND USE POLICIES

### 1. State Land Use District

Pursuant to the Hawaii Land Use Law (Chapter 205, HRS) the State Land Use Commission has classified all lands in the State into four land use districts: urban, Agricultural, Conservation and Rural. The proposed Honolulu Corporation Yard and Sand Island Park Extension are in the Urban district, except for lands and submerged lands seaward of the shoreline which are defined as lying in the Conservation District. (See Figure V-1) Inasmuch as the proposed development would be permitted under the Urban designation, no boundary amendment to reclassify the site is necessary.

Development in those portions of the site within the Conservation District will be reviewed under the Conservation District Use application process discussed in the subsection on Shoreline and Environmental Permits.

### 2. City and County of Honolulu Development Plan

Eight Development Plans were established by the City and County of Honolulu to provide detailed schemes for "implementing and accomplishing the objectives and policies of the General Plan." The Development Plans guide the desired sequence, patterns and characteristics of future development. These plans also provide maps that indicate:

- The planned distribution and intensity of land uses and public facilities.
- Statements of standards and principles, with respect to land use.
- Statements of urban design principles and controls.



- Statements indicating the sequence in which future development is to occur.

The proposed project is located in the Primary Urban Center Development Plan which extends from the Waiālae-Kahala area to Pearl City. The General Plan provides for increased urbanization in this area. (See Figure V-2).

The Development Plan Public Facilities Maps designate proposed facilities required to accommodate the growth objectives of the Development Plans by providing adequate public facilities to meet existing and projected needs. Prior to construction, all proposed public facilities must be designated on the appropriate Development Plan Public Facilities Map.

The proposed park is consistent with the Development Plan Land Use Map designations for the site and will help to satisfy the needs of the area for a passive park. The proposed park extension is designated on the Development Plan Public Facilities Map, as required of all proposed public facilities. (See Figure V-3). Ordinance 88-120 amends the Public Facilities Map by adding the symbol for a Park, site determined, within six years from effective date December 7, 1988. The park site is along the western shore of Sand Island, makai of the proposed Honolulu Corporation Yard.

The proposed Corporation Yard is consistent with the Development Plan Land Use Map Public Facility (PF) designation for the site. The public facility designation covers public and quasi-public uses. The land bank mauka of the southwestern shore of Sand Island is designated for use as one of three site undetermined Corporation Yard (CY) for Sand Island on the Public Facilities map. (See Figure V-2). Bill No. 31 (1988) to amend the Development Plan Public Facilities Map to add the symbol for a Corporation Yard, site determined, within six years is needed to allow the project's land acquisition and construction costs to be funded by the City

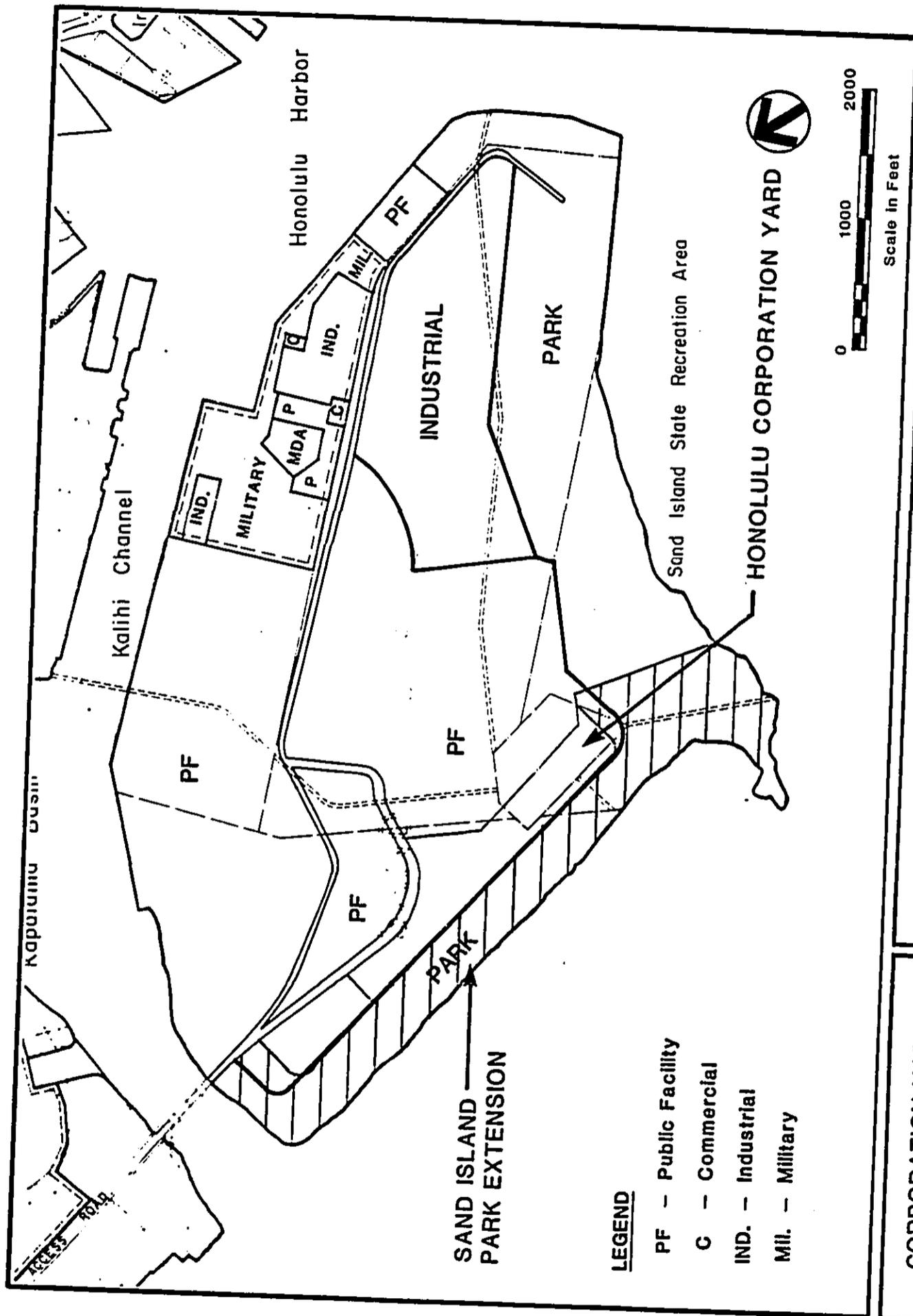


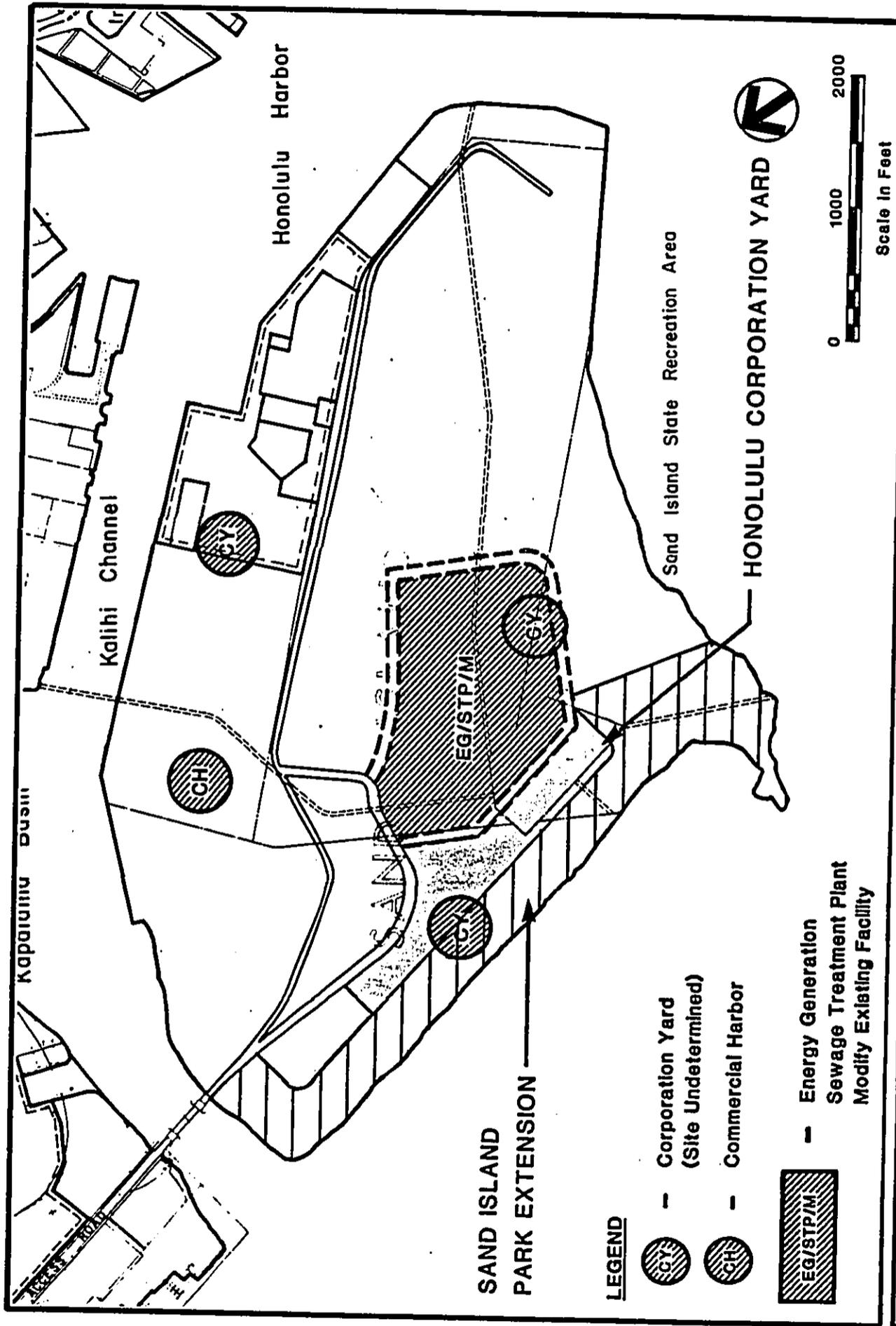
Fig. V-2

DEVELOPMENT PLAN LAND USE MAP

CORPORATION YARD AND SAND ISLAND PARK Environmental Impact Statement

LEGEND

- PF - Public Facility
- C - Commercial
- IND. - Industrial
- Mil. - Military



**Fig. V-3**

**PUBLIC FACILITIES MAP**

**CORPORATION YARD AND SAND ISLAND PARK**  
Environmental Impact Statement

Council. This bill passed the City Council on first reading on February 24, 1988. The bill is currently in the Council's Planning Committee.

### 3. City and County of Honolulu Land Use Ordinance

The City and County of Honolulu Land Use Ordinance (LUO) regulates land use in accordance with adopted land use policies, including the Oahu General Plan and Development Plan. Under the current LUO zoning, the proposed project site is designated P-2 (General Preservation District) which preserves and manages major open spaces and recreation lands and lands of scenic and other natural resource value. (See Figure V-4). The maximum height allowed in the General Preservation District is up to 25 feet, if setbacks are provided. A building height waiver will be required to accommodate higher structures.

The proposed Corporation Yard and Sand Island Park Extension are considered public facilities and are permitted uses in the General Preservation District P-2 designation.

#### C. SHORELINE AND ENVIRONMENTAL PERMITS

##### 1. Department of the Army Permit

The Department of the Army permit is administered by the U.S. Army Corps of Engineers, Honolulu District under Section 10 of the Rivers and Harbors Act (33 USC 403), Section 404 of the Clean Water Act (33 USC 1344) and Section 103 of the Marine Protection, Research and Sanitation Act of 1972 (33 USC 1413). The permit is required for all work within water of the United States, including ocean and coastal waters, inland and tidal waters, tidal ponds, fishponds, rivers, streams, and adjacent wetlands, perched wetlands, and intermittent streams.

Issuance of the permit is based on an evaluation of the probable impact of the proposed activity on the public interest, reflecting national concern for both protection and utilization of important resources.

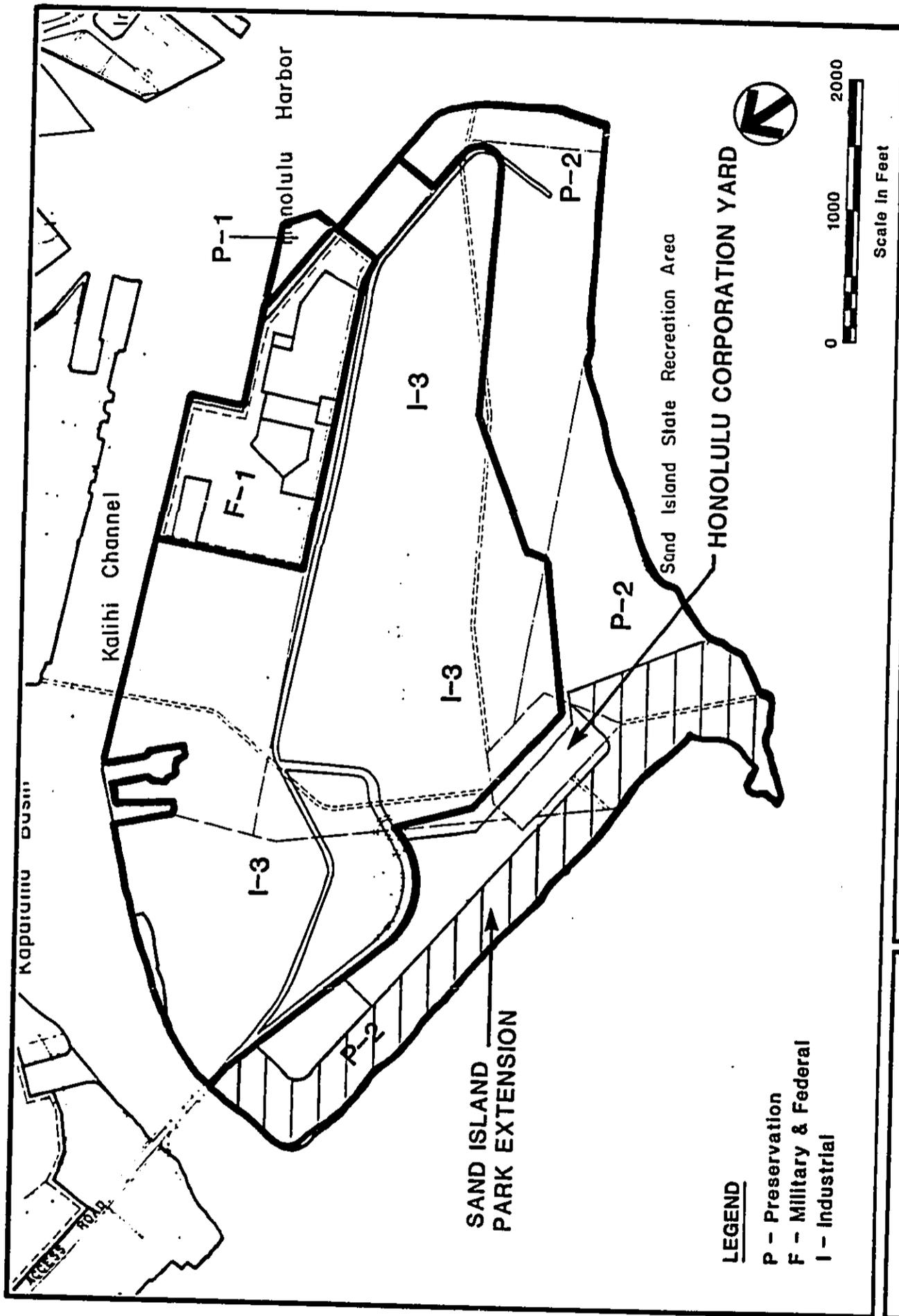


Fig. V-4

LJO ZONING DESIGNATIONS

CORPORATION YARD  
AND SAND ISLAND PARK  
Environmental Impact Statement

Factors considered include those relating to: conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use, navigation, recreation, water supply, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

A Department of the Army Permit will be required for channel improvements to accommodate the drainage system outfall into Keehi Lagoon.

## 2. Conservation District Use Application

Any use of lands, including submerged land within the State's Conservation District, as established by the State Land Use Commission, is subject to review pursuant to Chapter 183, HRS and Title 13, Chapter 2 of the Department of Land and Natural Resources Regulations. The area beyond the shoreline, defined as "the upper reaches of the wash of waves, other than storm and tidal waves, usually evidenced by the edge of vegetation growth, or the upper line of debris left by the wash of waves," is subject to review as a use in the "Resource (R) subzone of the State Conservation District (Section 13-2-13, Administrative Rules of the Department of Land and Natural Resources). The objective of the Resource (R) subzone, in which the Conservation-designated lands of the Sand Island Park Extension fall, is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas. Approval by the State Board of Land and Natural Resources will be required through a Conservation District Use Application for all dredging and construction beyond the shoreline.

Conservation lands to be used by the Sand Island Park Extension include the shoreline which runs along the seaward face of Sand Island along Keehi Lagoon.

The exact delineation of the shoreline will be determined by a shoreline survey to be certified by the State Surveyor.

### 3. Permit for Work in Shores and Shorewaters

The Shorewaters Permit is administered by the State Department of Transportation pursuant to Section 266-16, HRS and Section 19-42-161, Hawaii Administrative Rules, Department of Transportation, Harbors Division.

This permit is required for any construction, dredging, or filling within the shorewaters of the State, as defined by Chapter 266, HRS. Jurisdiction extends to shores, shorewaters, navigable streams and harbors, belonging to or controlled by the State.

The permit is required for improvements to the drainage system outfall into Keehi Lagoon.

### 4. Special Management Area (SMA) Permit

The Hawaii Coastal Zone Management Law (Chapter 205A, HRS) charged the Counties with designating and administering Special Management Areas (SMA) along the State's coasts. Any "development", as defined by law, within the SMA boundary requires an SMA permit, which is administered by the City and County of Honolulu, Department of Land Utilization pursuant to Ordinance No. 84-4, 85-105.

The entire Honolulu Corporation Yard and Sand Island Park Extension are within the SMA boundary and are subject to review under the SMA permit procedures. (See Figure V-5).

### 5. Shoreline Setback Variance

The State's Shoreline Setback Law, (Chapter 205, HRS) prohibits virtually any development or development related activity including the removal of

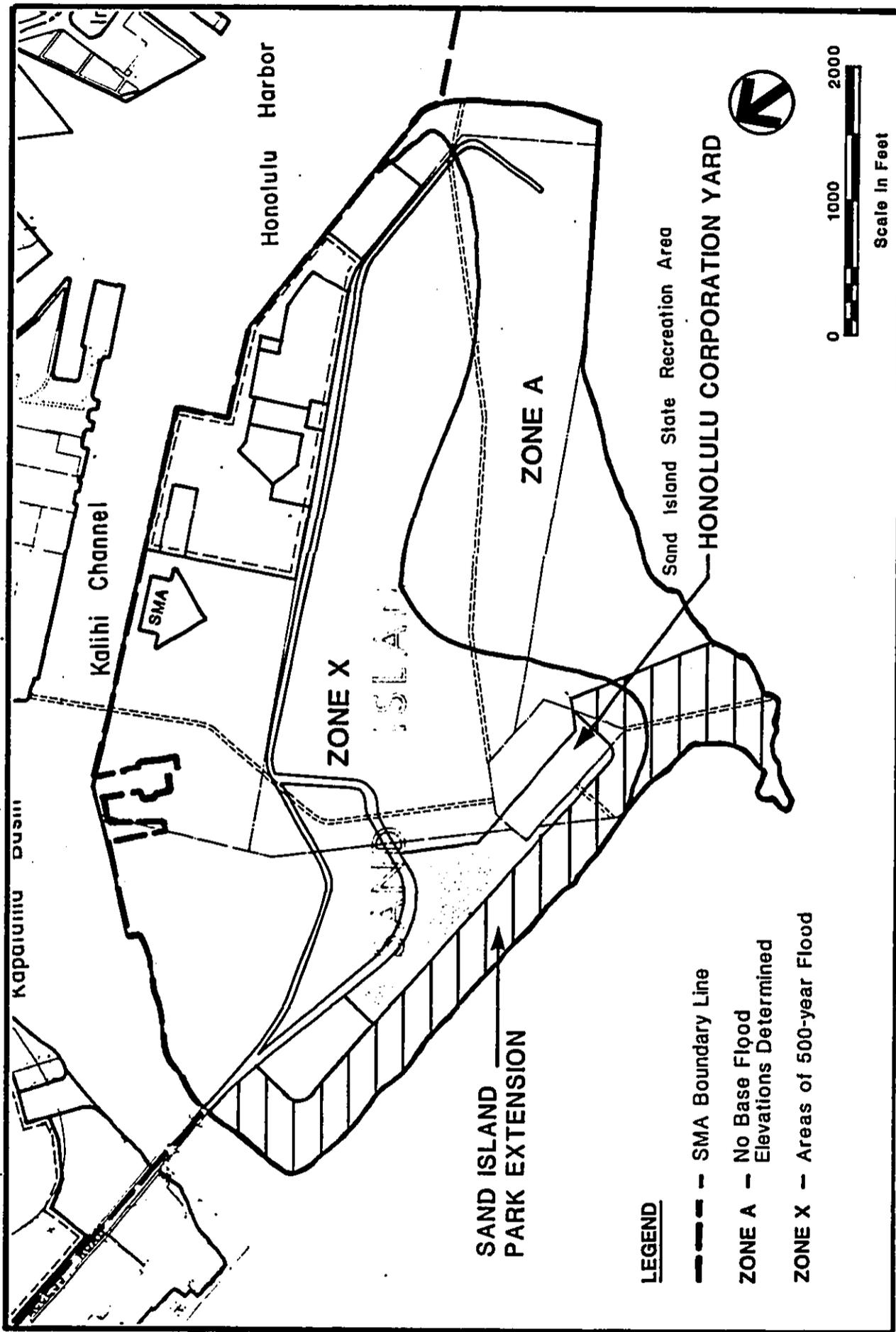


Fig. V-5

**SPECIAL MANAGEMENT AREA AND FLOOD MAP**

**CORPORATION YARD AND SAND ISLAND PARK**  
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sand, rocks, soil, etc. from the shoreline setback area, a 40 foot (20 feet in some areas) strip of land along the shoreline. The counties, however, are authorized to grant variances for construction that would encroach in the setback area. The City and County of Honolulu, Department of Land Utilization administers this variance under its shoreline setback regulations.

Variances may be granted in consideration of a structure, or activity being in the public interest, hardship to the applicant if the proposed structure or activity is not allowed and the effect a structure or activity would have on natural shoreline processes, particularly with regard to shoreline erosion.

The shoreline variance request is normally processed concurrently with the Special Management Area Permit with simultaneous decision making by the City Council.

The Honolulu Corporation Yard site does not fall in the Shoreline Setback area. Sand Island Park Extension site will require a shoreline variance.

#### 6. Hawaii Coastal Zone Management Program Federal Consistency Review

Section 307 of the National Coastal Zone Management Act of 1972 (16 USC 111451 et. seq.) provides for State review of federal action affecting the coastal zone of States with approved Coastal Zone Management Programs. Hawaii's Coastal Zone Management (CZM) Program, established pursuant to Chapter 205A, HRS was federally approved in 1977. It is administered by the Office of State Planning (OSP). The policies of Hawaii CZM Program encompass broad concerns such as impact on recreational resources, historic and archaeological resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards and the management of development.

The review is required as part of the Department of Army Permit process described in Section C-1 of this chapter.

7. Section 401 Water Quality Certification

The State Department of Health is charged with the responsibility of establishing and administering a State certification system pursuant to Section 401 of the National Clean Water Act (33 USC 1344) and Section 342-32(13), HRS. Water quality certification is required of any applicant for a Federal license or permit to conduct any activity that may result in any discharge into navigable water. The Honolulu Corporation Yard drainage system outfall will discharge into Keehi Lagoon.

8. National Pollution Discharge Elimination System (NPDES) Permit/Zone of Mixing Approval

The NPDES is a federal permit established pursuant to the Federal Clean Water Act of 1977. In Hawaii, the State Department of Health has been authorized to administer the permit pursuant to Chapter 342, Hawaii Revised Statutes and Title 11, Chapter 55 of its Administrative Rules. The NPDES permit is required before any effluent discharge can be made from ponds, tanks, or other facilities to surface streams or to coastal waters. The permit is issued on a renewable basis with terms not exceeding five years.

The NPDES would be required for the Honolulu Corporation Yard drainage system outfall into Keehi Lagoon.

The Zone of Mixing Approval, established under the same Federal and State statutes as the NPDES, is also administered by the State Department of Health under Title 11, Chapter 54 of its Administrative Rules. The approval is considered in conjunction with the NPDES permit when an effluent discharge would violate water quality standards of receiving waters.

Applicable water quality standards for coastal waters in Keehi Lagoon are those established under the Class A designation and require Class II

marine bottom ecosystem preservation standards. Studies will be conducted to determine, in consultation with the Department of Health, the need for the Zone of Mixing Approval and to provide required data for the NPDES permit application.

## VI. ENVIRONMENTAL IMPACTS

### A. POTENTIAL SHORT-TERM IMPACTS

The Corporation Yard and Sand Island Park Extension would be concurrently constructed in phases as discussed in Chapter III.

Short-term impacts are those associated with construction activities such as grading, utility installation construction of structures and landscaping. Construction-related impacts are unavoidable but through proper application of mitigative measures, can be minimized in severity and duration. Construction activities will typically be scheduled from 7:00 AM to 3:30 PM, Monday through Friday (excluding holidays).

#### 1. Air Quality

The two types of short term air quality impacts from project construction are fugitive dust and on-site emissions from construction equipment. There will also be a short-term indirect impact from slow moving construction equipment traveling to and from the project area and a temporary increase in local traffic caused by commuting construction workers. An air quality study for the proposed Honolulu Corporation Yard and Sand Island Park Extension can be found in Appendix F.

Ambient air quality at and adjacent to the project area is expected to decline somewhat during construction, particularly during grading operations. Fugitive dust emissions will arise from grading, dirt moving, and landscaping activities within the project area and from any off site dirt hauling. In keeping with State Department of Health and City and County rules and ordinances, the contractor will be required to take necessary measures to minimize airborne particulates. Adherence to approved erosion control plans and use of methods such as water sprinkling will reduce the potential for adverse air quality impacts during site work. Roads at the construction site will frequently watered to minimize

dust. Recreational users onshore and offshore may be temporarily affected by dust generated during construction activities.

Emissions from construction equipment could also degrade ambient air quality. On-site mobile and nonmobile construction equipment will also emit some air pollutants in the form of engine exhausts. With proper equipment maintenance by the contractor, however, the adverse impacts of emissions from equipment can be minimized. Indirectly, slow moving construction vehicles on roadways adjacent to the project area can obstruct the normal free flow of traffic to such an extent that overall vehicular emissions are increased. However, this impact can be mitigated by moving heavy construction equipment during periods of low traffic volume on the roadways affected. Thus most potential short term air quality impacts from project construction should be relatively easy to mitigate.

Trade winds will disperse airborne pollutants and particulate matter in a southwesterly direction. These prevailing trade winds have an average frequency of more than 90% during the summer and 50% during January. The mean monthly velocity of the wind varies between 10 to 15 miles per hour. These winds would disperse airborne pollutants and particulate matter across Keehi Lagoon toward Honolulu International Airport and eventually out over the ocean. This pattern of disposal would minimize impacts to populated areas of Kalihi and downtown Honolulu.

## 2. Water Quality

Clearing and grading operations of the project area may expose soil to rain, which may create the potential for erosion and runoff. Sediment generation due to erosion will not be a major problem on the project area because of its relatively flat terrain. The amount of sediment discharged into Honolulu Harbor will decrease proportionately as the undeveloped portions of the project area are developed, reducing the area of sediment generation.

To minimize potential erosion, grading will be accomplished in compliance with County grading, erosion and sediment control ordinances. This will minimize the potential for adverse effects on water quality in Keehi Lagoon. As deemed necessary other mitigative measures, such as the construction of sediment traps, may also be implemented to control erosion and runoff.

### 3. Flora and Fauna

#### a. Flora

Earthwork operations will displace existing flora in the project area. As the project area is surrounded by industrial and improved parks and is comprised of land created from dredged material, only a small variety of plant life occurs on Sand Island. The existing plant species are characterized as drought resistant, highly salt tolerant, and hardy in dry areas. Most of the species would have been introduced during fill operations. These are no Federal or State listed or candidate threatened or endangered plant species on the project area which would be displaced.

#### b. Fauna

Earthwork operations will displace existing wildlife on the project area. Most of this existing wildlife can be found in the under utilized portions of the project area. Unless these species can adapt to other habitats on Sand Island, for the most part, the species will be lost.

The Corporation Yard or Park will not affect areas seaward of the shoreline or directly along the shoreline as no improvements are contemplated to these areas. This should minimize affect habitats used by migratory shorebirds. There are no Federal or State listed or candidate threatened or endangered bird species on the project area which would be displaced.

The proposed Corporation Yard or Park will not extend seaward of the shoreline. Therefore, no marine environments will be displaced.

#### 4. Archaeological and Historic Resources

Inasmuch as Sand Island was created by fill land in the early 1900's and 1940's when Honolulu Harbor and the seaplane runway were dredged, the uncovering of archaeological features or remains is not anticipated. In the event that any archaeological features or remains are uncovered during construction, work will be halted and the State Historic Preservation Office will be notified to determine and direct the proper course of action. These instructions will be included in the construction contract.

There are no buildings, structures or other man-made features of historical significance on the project area that will be demolished during construction.

#### 5. Noise

The project area is affected by noise from aircraft operations at Honolulu International Airport, (HIA). The latest noise contours for the HIA show the project area is within the 75 Ldn noise contour.

Construction activities will create a temporary increase in noise levels in the project area. Sources of this noise will include heavy vehicles and power equipment operating on the project area. Notwithstanding the noise from construction equipment, aircraft operations will be the primary source of noise in the project area.

It shall be the contractor's responsibility to minimize construction noise impacts through compliance with all applicable regulations. In this regard, the contractor will be responsible for providing and maintaining noise attenuating equipment.

If noise levels are anticipated to exceed allowable levels specified under Title 11, Chapter 43 (Administrative Rules, Department of Health), the contractor is required to obtain a noise permit. Since the project area is generally surrounded by industrial and outdoor recreational use, construction noises are not likely to have an adverse impact.

#### 6. Traffic

Impacts of construction upon traffic are not anticipated to be significant. Construction equipment and vehicles will enter and exit the project area from Nimitz Highway, Sand Island Access Road and Sand Island Parkway Road. Other than during peak traffic hours, this activity should not adversely impair traffic flow along these roadways. To minimize potential traffic impacts, all movement of heavy construction vehicles will be scheduled to avoid peak traffic hours. If necessary, flagmen will be employed to ensure traffic safety.

#### 7. Public Safety

Necessary measures to assure public safety will be implemented throughout all phases of construction. When construction is not on-going (nights, weekends, and holidays), construction areas will be secured by adequate safety signs, signals, and/or other safety devices as required by State and County regulations.

#### 8. Economy

Short-term economic benefits associated with construction include employment opportunities and multiplier effects. Local material suppliers and retail businesses may also benefit from the increased construction.

## B. POTENTIAL LONG-TERM IMPACTS

### 1. Traffic

Traffic impacts of the proposed project to Sand Island Parkway Road, Sand Island Access Road, Nimitz Highway, Auiki Street and Kalihi Kai area streets are expected to be major concerns as most of these streets currently carry heavy vehicle traffic. Traffic analyses were undertaken to determine conditions in 1988 and 2005 with and without the construction of the Corporation Yard and Sand Island Park Extension (The complete traffic analysis is in Appendix B).

Traffic conditions were examined for a total of four time periods during the day. These time periods were chosen to reflect the expected operating conditions of the Corporation Yard. In the morning, City employees would be expected to arrive for work at the Corporation Yard between 6:30 to 7:00 AM, receive work assignments, then depart for work sites on City vehicles between 7:30 to 8:30 AM. In the afternoon, the City vehicles would return to the Corporation Yard between 2:30 to 3:00, then employees would depart for their homes between 3:30 to 4:00 PM.

Based on these conditions, two morning and two afternoon periods were selected for analysis. The two morning periods were 6:30 to 7:30 AM and 7:30 to 8:30 AM, and the two afternoon periods 2:00 to 3:00 PM and 3:00 to 4:00 PM. The analysis was conducted for the following locations:

- o Sand Island Parkway Road and the proposed primary site access;
- o Sand Island Access Road and Nimitz Highway;
- o Sand Island Access Road and Auiki Street;
- o Kalihi Kai segments of Puuhale Road, Mokauea Street, and Kalihi Street;
- o Puuhale Road and Nimitz Highway;
- o Mokauea Street and Nimitz Highway; and
- o Kalihi Street and Nimitz Highway.

It is noted that a second accessway for use by heavy vehicles domiciled at the Corporation Yard will be located at the Diamond Head extent of the Sand Island WWTP. The "worst case" conditions assumed in the traffic analysis analyzed all traffic entering and exiting on Sand Island Parkway at the primary site access.

a. Proposed Site Access Along Sand Island Parkway Road

Widening of Sand Island Parkway Road from two to four lanes at the proposed primary site access, and proposed signalization will significantly improve operation of this intersection by increasing capacity of Sand Island Parkway Road, and providing for safe and efficient operations. Development of the proposed project is not anticipated to result in significant adverse traffic impacts at this intersection.

Most of the employee vehicle and a portion of the City vehicle traffic would use this primary access. The secondary access will be used primarily by large vehicles and equipment assigned to the Corporation Yard. Most visitors to Sand Island Park Extension are expected to also enter and exit through the primary access since it will provide a direct route to the parking lots. Visitors to Sand Island Park Extension would not be expected to use the existing entrance to the State Park since this would be an indirect approach to the parking lots. The new access would also be a more direct approach to the parking lots near the western portion of the existing State Park.

b. Nimitz Highway and Sand Island Access Road

Development of the Corporation Yard and Sand Island Park Extension will result in an increase in traffic at the intersection of Nimitz Highway and Sand Island Access Road, but not to a level considered significantly adverse. A range of mitigative measures could be implemented to improve anticipated conditions at this intersection. These measures include

lengthening the signal cycle, changing the signal phase plan, and changing intersection geometry (number and use of lanes).

Improvements to the intersection of Nimitz Highway and Sand Island Access Road were recommended in the Final Environmental Impact Statement for the Proposed Sand Island Access Road Widening and Improvements FAP Route 64 Project No. 64A-01-79 (U.S. Department of Transportation, Federal Highway Administration and State of Hawaii, Department of Transportation, Highways Division, February 11, 1982). As indicated in the report, improvements would be required to accommodate increased traffic projected in the year 2000. These improvements include an interchange scheme which would elevate the eastbound lanes of Nimitz Highway. Preliminary consultation with the State of Hawaii, Department of Transportation, Highways Division indicates implementation of these intersection improvements has not been determined at the present time.

The traffic analysis of future conditions at this intersection did not consider implementation of these improvements which would improve future operation of the intersection. In this respect, coordination between the State of Hawaii, Department of Transportation, Highways Division and the City and County of Honolulu should be considered regarding scheduling construction of this interchange.

c. Sand Island Access Road/Auiki Street Intersection

Addition of vehicles from the Corporation Yard and Park would increase traffic at the intersection of Sand Island Access Road and Auiki Street and would likely result in worsening of operations during the peak hour.

The impact of project traffic could be mitigated by the following actions:

- o Provide a right-turn lane on the makai leg of the intersection for the heavy right-turn movement from Sand Island to Auiki Street.

- o Prohibit parking and restripe the Auiki Street and Pahounui Drive approaches to provide left-turn storage lanes.

Potential actions for the year 2005 condition with the project are:

- o Add second left-turn lane for Auiki Street approach.
- o Add second left-turn lane to makai direction Sand Island Access Road.
- o Widen Sand Island Access Road to six lanes.

d. Nimitz Highway Intersections

The analysis of the project's potential impact on conditions at the Nimitz Highway intersections at Puuhale Road, Mokauea Street, and Kalihi Street indicates the following:

- o The Puuhale Road intersection is presently operating at or above its theoretical capacity in each of the four hourly periods. Addition of project traffic should have minimal impact on the currently congested conditions.
- o The Mokauea Street intersection is operating with volume above its theoretical capacity. The project traffic would have minimal impact upon the current conditions.
- o The Kalihi Street intersection is operating with volumes above its theoretical capacity during the morning hourly periods, and with volumes approaching its capacity during the afternoon hourly periods. The arriving day shift employee traffic during the 6:30 - 7:30 AM could affect intersection operations.

The analysis of year 2005 conditions assumes that several intersection projects planned by the State Department of Transportation have been implemented. These include the widening of the mauka-side approach of Mokauea Street to provide a left-turn lane, and the widening of the makai-

side approach of Kalihi Street to four lanes, with two through lanes and separate right and left-turn lanes.

The analyses of year 2005 conditions with and without the project indicates the following:

- o The Puuhale Road and Mokauea Street intersections would have critical lane volumes substantially in excess of theoretical capacity, both with and without the project. Project traffic would likely have minimal impact on conditions at these intersections.
  
- o The Kalihi Street intersection would have critical lane volumes in excess of theoretical capacity. Project traffic could significantly affect intersection conditions during the 6:30 - 7:30 AM period when day shift employees are arriving for work. This impact is largely due to the project traffic on Kalihi Street rather than on Nimitz Highway.

Mitigation of overall traffic problems along Nimitz Highway would require major corridor improvements. The most significant traffic improvement is the Makai Boulevard Viaduct which has been proposed by the State of Hawaii Department of Transportation (DOT). This proposed project would construct a two-lane viaduct over the center median on Nimitz Highway between the Keehi Interchange on the H-1 Freeway and Pacific Avenue. No at-grade intersections would be included along the Viaduct. The Viaduct would be exclusively for high occupancy vehicles and buses. Current plans are for reversible traffic flow on the viaduct. Both lanes would be inbound toward downtown Honolulu in the morning and both lanes outbound in the afternoon. The Viaduct would effectively add two more lanes to Nimitz Highway on this segment.

The State DOT is seeking to implement this project by 1998 to relieve the already congested traffic conditions along Nimitz Highway, and to provide

additional capacity in the Middle Street Interchange. Although the State Legislature and Federal agencies have not yet approved funding for the Viaduct project, it has been included in the 1998 roadway network given the high priority placed upon this project by the State DOT in meeting the critical need for additional capacity in this corridor.

Impacts of the project traffic on the Kalihi Street intersection could be minimized by widening the mauka-side approach to provide a second through lane. The City should also consider measures to encourage employee ridesharing, including the possible provision of all day or peak period bus service to Sand Island.

Use of a shuttle bus service was evaluated as a mitigation measure for traffic impacts. However, analysis of the current City employees that would be assigned to the Sand Island Yard indicates relatively low bus ridership. Thus, off-site parking facilities would have to be provided to make a shuttle bus system practical. In addition, analysis of the workers shows no concentration on employees in one area of the City. Thus, a number of bus routes would be necessary to make a significant decrease to the projected traffic volumes. Lastly, the City's Department of Transportation Services did provide regular bus service to Sand Island at one time. However, this service was discontinued because of low ridership. Based on these considerations, at this time, the use of a shuttle bus was not considered a feasible measure to mitigate traffic impacts.

## 2. Air Quality

The proposed Corporation Yard and Sand Island Park Extension will result in an increase in the volume of vehicular traffic associated with the operations of the maintenance facilities and public use of the park. It is not anticipated, however, that the concentration of traffic in any time period within and around the project area will be so great as to significantly degrade air quality. Prevailing tradewinds will carry most



by the California Department of Transportation to evaluate mobile source impacts on air quality, including CO concentrations.

Calculations were done for Stability category 4, the most stable (least favorable or worst case) atmospheric condition that would likely occur in the Sand Island area. To simulate worst case wind conditions a uniform wind speed of one meter per second was assumed with the worst case wind direction determined by which wind direction produced the highest concentration of CO. The concentrations were computed at a distance of 4 meters from the edge of the roadway and at a height of 1.5 meters above ground to estimate levels that would exist within the normal human breathing zone.

The results of the worst case condition show, that under existing traffic conditions without the Corporation Yard and Park projects, the State one-hour standard for CO (10 milligrams per cubic meter) would be exceeded at all three intersection locations. However, the CO concentrations at all three intersections locations are well below the one-hour Federal standard (40 milligrams per cubic meter). The same results occur for future conditions with and without the Corporation Yard and Park projects. See Appendix F.

The results for the worst case condition also show that with existing traffic the State eight-hour standard for CO (5 milligrams per cubic meter) would be exceeded at all three intersection locations without the Corporation Yard and Park projects. Under existing traffic without the Corporation Yard and Park projects, the Federal eight-hour standard (10 milligrams per cubic meter) would be exceeded at two intersections, Sand Island Access Road and Nimitz Highway and Kalihi Street and Nimitz Highway. For future conditions, the State standard would be exceeded with and without the projects at all three intersection locations. The Federal eight-hour standard would not be exceeded at any of the locations. This would occur because of the reduction in traffic from construction of the Makai Viaduct. See Appendix F.

It should be noted that the wind direction required to yield the worst case levels shown for the Sand Island Access Road and Nimitz Highway and Kalihi Street and Nimitz Highway intersections is from the northwest. This is a very rare wind direction for Honolulu, occurring less than once per year in conjunction with afternoon wind speeds as low as one meter per second as assumed in the model. Similarly, the worst case morning wind direction is south-southwest, an even more rare condition in conjunction with light winds. When the wind does blow from these directions, it is usually much stronger than the one meter per second used in the model. For example, with wind speeds of two meters per second, the computer levels of CO would only be about 50 percent of those shown in the worst case analysis. See Appendix F.

There will be no incineration occurring within the project area which would adversely affect air quality.

### 3. Topography

Except for intermittent small land forms and depressions in the undeveloped areas, the project area is relatively flat with an average gradient of less than minus one percent towards the shoreline. Development of the Corporation Yard will require the site be graded to accommodate construction of the buildings and structures. In addition, development of Sand Island Park Extension will require grading and the creation of berms and other land forms to provide a pleasing park environment.

These activities will permanently alter the topographic features of the project area. However, since almost all of the topographic features of the project area are man-made, development of the Corporation Yard and Sand Island Park Extension should not be a significant adverse effect to the topographic features of the project area.

4. Geology and Soils

a. Geology

Prior to the dredging and filling of Honolulu Harbor, the area encompassing Sand Island consisted of lands of a marginal nature, mainly submerged coral reefs, mudflats, and islands of varying sizes, shapes, and elevations. Development of the Corporation Yard and Sand Island Park Extension will require subsurface excavation for building footing and utilities. These excavations would normally be only 6 to 8 feet below the surface and would not have a significant adverse effect on the geologic features of the project area.

b. Soils

The surface and substrata soils of the project area consist mostly of fill material from past dredging operations. The fill material is characterized by silty sand and coral gravel which has high porosity and permeability. Development of the Corporation Yard and Sand Island Park Extension will require grading the surface soil prior to construction. At this time, additional fill material is not expected to be necessary. Since the project area consists of fill material and no additional material is anticipated, development of the project area will not create a significant adverse effect to local soil conditions.

5. Hydrology

a. Groundwater

The project area is characterized by a thick layer of caprock which prevents the downward flow of nonpotable brackish water. The basalt aquifers below the caprock contains the potable water supply for Oahu.

The width and thickness of the caprock and the minor amount of subsurface disturbance required in the project area means that the groundwater resources of Oahu will be unaffected.

The groundwater resource of the Oahu will further be protected by operating procedure of the Corporation Yard maintenance activities. No hazardous or toxic material will be disposed by dumping on the surfaces of the Corporation Yard. Hazardous and toxic wastes generated by maintenance or trade shop functions will be disposed according to procedures established for disposal of these types of materials. Approved waste material containers will be designed into the Corporation Yard to contain these materials until they can disposed according applicable Federal and State requirements.

Underground fuel tanks will be necessary to contain diesel fuel, regular and unleaded gasoline. These underground fuel tanks will meet current Environmental Protection Agency and Department of Health specifications for underground fuel storage. Necessary pressure and fuel measuring devices will be incorporated into the design and specifications of the tanks to detect underground leaks. These measures will ensure that leaks are discovered early to prevent contamination of groundwater resources.

b. Surface Water

There are no surface water features on Sand Island. The proposed Corporation Yard, parking lots, jogging paths, and roadways in Sand Island Park Extension will create impervious surface areas. This will increase the anticipated runoff from these surfaces onto nearby areas. The soil conditions of the project area are characterized by high porosity and permeability, which will minimize problems of flooding and ponding on adjacent areas.

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Since most of the surface area of the Corporation Yard will be paved to accommodate necessary functions, the drainage system for the Yard and paved portion of the Sand Island Park Extension will be designed to collect surface runoff prior to eventual discharge into Keehi Lagoon. The drainage system will be designed to handle peak flow during periods of heavy rainfall. This aspect of the drainage system is still subject to final engineering design. The drainage system within the Corporation Yard will include installation of oil water separators in selected locations for collection of petroleum and other wastes associated with vehicle maintenance functions. Surface runoff from vehicle maintenance areas will be first routed to the oil water separators so that petroleum wastes can be collected prior to discharge. The oil water separators will be designed so that the discharge will comply with applicable Federal and State standards. The oil/water separator specifications will be included in the final engineering design.

Installation of the discharge outlet into Keehi Lagoon will be reviewed through the National Pollution Discharge Elimination System permit administered by the State of Hawaii Department of Health and the Department of the Army permit for discharges into ocean waters. Review by these agencies will ensure that the discharges meet applicable standards to prevent pollution of nearby waters.

6. Flora and Fauna

a. Flora

The existing flora on the project area will be removed during grading. Selected areas along the perimeter concrete wall between the Corporation Yard and Sand Island Park Extension will be landscaped. Within the Sand Island Park Extension, landscaping will restore vegetative cover and provide trees for park users. As discussed under short-term impacts, there are no Federal or State listed or candidate threatened endangered plant species on the project area.

b. Fauna

Any existing wildlife on the project area will be displaced by the Corporation Yard and Sand Island Park Extension. Any species found on the project area are most likely introduced species found in open lots near developed areas. With loss of habitat, these species will likely be permanently lost. There are no Federal or State listed or candidate threatened or endangered wildlife species on the project area.

Shorebirds found along shoreline areas may be displaced during construction activities. However, once construction is complete, these birds can be expected to be seen on the shoreline of the new park area.

7. Noise

As previously discussed, the project area is affected by aircraft operations at Honolulu International Airport (HIA). Most approach or departure flight paths route aircraft over or near Sand Island and consequently dominate the noise environment of the project area. In addition, the truck traffic to the Matson Container Yard also creates noise in the project area. These noise sources create a relatively high ambient noise environment, between 70 to 75 Ldn, in the project area.

Noise from the proposed Corporation Yard will be generated by the vehicle and equipment traffic associated with the facility, various power equipment to be used by the shops and the activities related to fleet maintenance functions. However, based on the high ambient noise conditions generated by aircraft operations, noise created by the Corporation Yard activities is not anticipated to be significant.

8. Recreation

Sand Island Park Extension will serve the heavily-urbanized neighborhoods of Downtown, Liliha, Kapalama, Kalihi, Palama and Kalihi Valley. Based on latest data, these neighborhoods have a combined estimated population in 1985 of about 90,500 persons. The intense urban development of these areas has limited the land available for recreation uses. The existing developed portion of Sand Island Park is the only large-scale recreation area to service this population. Most of the developed recreation facilities in these areas are active parks, playgrounds, and recreation centers.

Sand Island Park Extension will be developed primarily for day uses such as picnicking, informal recreation activities, jogging and walking. The new 50-acre Park will be extensively landscaped with trees and planted with grass to provide large open areas for passive recreation activities such as family picnics and informal games. A looped jogging and walking trail running parallel to the shoreline will be connected to the existing jogging path on the State park. Although no improvements are proposed for off-shore areas, the improved park areas will provide additional recreational opportunities along the almost one-mile long shoreline. No overnight camping facilities, playing courts or formal playing fields are proposed for the new Park.

According to the State Recreation Functional Plan the Kalihi-Palama area lacks adequate passive parks and coastal recreation opportunities. There is an urgent need for beach picnicking areas, walking and jogging areas. The Plan calls for implementing proposed improvements at Sand Island State Recreation Area.

The Sand Island Park Extension will fulfill a need in the Downtown, Liliha, Kapalama, Kalihi, Palama, and Kalihi Valley neighborhoods for passive recreational activities. The large open areas can be used by a large number of small groups or a small number large groups for gathering

such as picnics and group activities. The nearby accessibility of the proposed parking lots will make it relatively easy for park users to unload supplies from cars and carry them to desired areas.

The jogging and walking paths within Sand Island Park Extension will be connected to the existing ones in the State park. The configuration will provide a long path so that park users can enjoy a variety of park conditions, including the shoreline in the proposed park.

The number of available parking spaces and the location of the east parking lot will permit park users to visit either the new park areas or the existing State park for recreational purposes. In the long run, the proposed park should increase visitor use of the existing State park, especially along adjacent areas.

#### 9. Scenic and Visual Resources

Most of the proposed Corporation Yard buildings will be limited to one story in height, while some will include mezzanines to accommodate material storage and office spaces. (See Figure VI-1) This height limitation will minimize their intrusion into views to and along the shoreline and minimize loads on the building footings. (The subsurface soil conditions limit the height and type and building without extensive subsurface support).

An 8-foot high concrete-masonry wall will surround the Corporation Yard for security purposes. The wall will also obscure public views of facilities and operations within the Corporation Yard. The concrete masonry wall would extend to include the fueling facilities. Thus, in most cases, visitors to Sand Island Park Extension should not be aware of fueling operations in the Corporation Yard. To further screen the Corporation Yard from recreational activities in the proposed park area landscaped, a berm will also provide aesthetic relief for the otherwise relatively flat terrain of the proposed park. In addition, park visitors

can use the berm area to view activities along the shoreline or the immediate off-shore areas.

The proposed park development will be designed to harmonize with the existing park areas to the east. Landscaping, including lawns, jogging paths and trees will significantly improve the visual appeal of the shoreline area.

#### 10. Utilities

Various utilities, including water, electricity, telephone and sewage service will be obtained from connections adjacent to the site. No off-site improvements will be required to provide these services. The proposed developments will not adversely affect the existing utility systems. Utility services will be coordinated with the respective public and private utility companies.

#### 11. Economy and Employment

Inasmuch as the proposed Corporation Yard is intended to consolidate existing facilities into one location, no immediate expansion of job opportunities is anticipated. On the other hand, no reduction job opportunities will result. To the extent that the consolidation of facilities will increase efficiency of city functions, more cost effective allocation of future manpower requirements can be achieved. This may have the effect of slightly decelerating the creation of new job opportunities but will assure more efficient expenditure of public funds and enhance the City's financial situation.

#### 12. Public Safety

All facilities and operations at the proposed Corporation Yard will comply with Federal and State standards for occupational and public safety. An

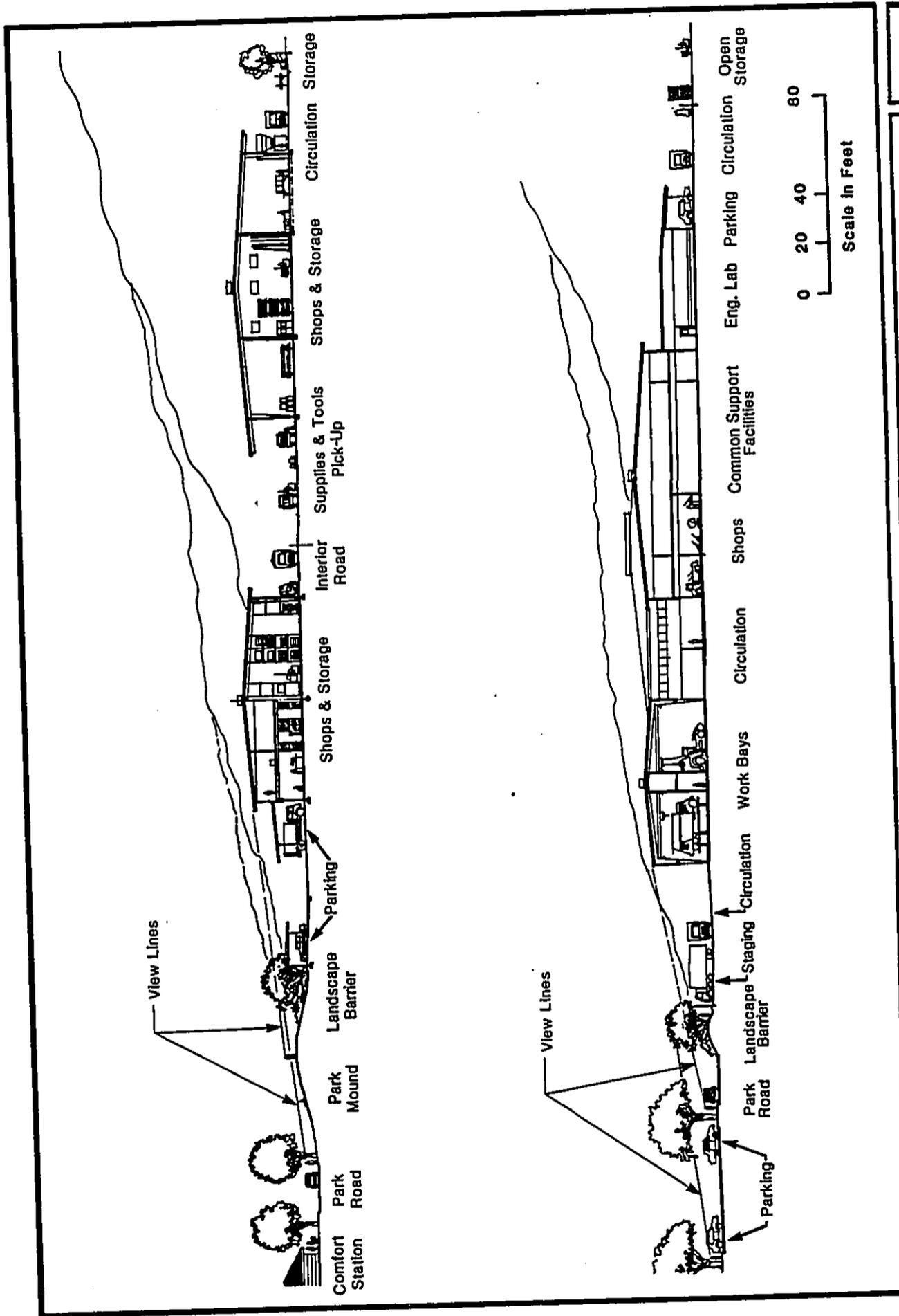


Fig.  
VI-1

**SECTION THROUGH SITE**

**CORPORATION YARD  
AND SAND ISLAND PARK**  
Environmental Impact Statement



eight foot high perimeter wall will provide security and keep the public from potentially hazardous areas within the facility.

As previously discussed, one of the proposed uses at the Corporation Yard is a vehicle fueling facility. The fuel storage and dispensing operation will be similar in scale and configuration to commercial service stations found throughout Oahu. Unlike commercial service stations, however, the facility will be secured by an 8-foot tall concrete-masonry wall and will operate primarily during the morning hours on weekdays. All fueling operations will be performed by persons instructed on safety requirements and supervised by personnel at the fueling facility. Above-ground propane storage tanks and the fueling facility will comply with all Federal, State and City and County requirements for facilities of this type.

### 13. Community Character

The proposed Corporation Yard and Park Extension will be fully consistent with the land uses in the Sand Island area, which consists of industrial uses bordered on the seaward perimeter by public beach park development. Development of both the Corporation Yard and the park concurrently will continue the established pattern for these two major uses. Thus, neither of the uses will conflict with previously established uses on Sand Island.

## VII. UNRESOLVED ISSUES

The proposed project will involve concurrent development of the Corporation Yard and Sand Island Park Extension by the City and County of Honolulu. Two issues related to the this project must still be resolved prior to development of the Corporation Yard and Sand Island Park Extension is discussed in this section.

The proposed site for the Corporation Yard is State-owned land. Prior to construction of facilities, the land must be transferred to the City from the State. This transfer will require the following actions:

- o Approval of the transfer of the land, by the State of Hawaii Board of Land and Natural Resources;
- o Preparation of Executive Order documents, including a subdivision map and property description by the State of Hawaii Department of Accounting and General Services Survey Division for the Department of Land and Natural Resources;
- o Approval of the subdivision by the City and County of Honolulu Department of Land Utilization;
- o Preparation of the Executive Order by the Attorney General; and
- o Execution of an Executive Order by the Governor.  
[The Executive Order is subject to disapproval by the State legislature in any regular or special session for a period of one year following the date of execution.]

To date, none of the actions regarding the land transfer for the Corporation Yard have occurred. The City and State are presently negotiating the terms of the land transfer.

Sand Island Park Extension will be developed by the City and County of Honolulu. Transfer of land for the Park to the City and County of Honolulu will also be required, if the City is to operate and maintain the

Park and use the parking lots on a dual use basis. However, once constructed, operation and maintenance of the Park may be done by the State of Hawaii. To date, none of these issues have been resolved.

VIII. SHORT TERM USES AND LONG TERM PRODUCTIVITY

Implementation of the proposed project will involve short-term tradeoffs associated with environmental impacts during construction phases. While such temporary effects as noise and dust generation, soil runoff and construction traffic will be minimized through appropriate mitigation measures, they may create minor disruptions in the vicinity of the project site. Also in conjunction with construction phases, temporary economic benefits will result from construction expenditure and employment opportunities.

In the long-term, the Corporation Yard will enhance the provision of public services provided by the City and County of Honolulu. The Sand Island Park Extension will increase recreational resources in the Primary Urban Center by providing needed passive and shoreline recreational opportunities in the Kalihi-Palama-Downtown neighborhoods.

**IX. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

Implementation of the proposed action would involve the commitment of fuel, labor and materials for the construction of the proposed Honolulu Corporation Yard and Sand Island Park Extension. Labor, materials, utilities would also be required for operation and maintenance of the proposed project.

The natural resources of the site are not pristine. The man-made island, introduced vegetation, as well as surrounding industrial and urban facility development have long ago altered natural systems. Development of a park at this site is not intended to restore the natural systems although landscaping will attempt to create a scenic natural setting. The park is intended to invite greater human presence in the area. In view of the present condition of the surrounding areas, however, such presence is not likely to have a significant impact.

Development of the proposed project will involve the commitment of land for park use. While this would not preclude options for other urban or industrial uses, future conversion of the park to such uses would probably not be viewed as being in the public interest. Therefore, use of this site for a park is ostensibly an irreversible and irretrievable commitment.

**X. ALTERNATIVES TO THE PROPOSED PROJECT**

**A. ALTERNATIVE SITES CONSIDERED**

**1. Selection Criteria**

The proposed Sand Island site for the Corporation Yard was chosen after a number of alternative sites were considered by the City. The site selection process involved an ad-hoc committee composed of representatives from: the Managing Directors office; Department of Public Works; Building Department; Honolulu Police Department; Department of Parks and Recreation; Department of Transportation Services; and Department of General Planning. Initially, a preliminary search was conducted to identify potentially available industrial-type sites which were privately or publicly (City and County, State of Hawaii, or Federal government) owned. The only sites considered were those with sufficient land area (20 or more acres) to accommodate a major portion of the agencies to be relocated.

After the potential sites were determined, criteria were applied to each to narrow the range of choices for further analysis. The narrowing criteria used were as follows:

- o location
- o access to major road network
- o land area available
- o soil conditions
- o land ownership/ease of acquisition
- o conflict with land use plans
- o present zoning
- o projected cost of acquisition
- o character of surrounding neighborhood
- o visibility to the public
- o environmental impacts

## 2. Potential Sites

A total of 19 sites were originally considered for the project. However, six of the sites were eliminated from further study because of one or more of the following conditions: poor soil condition of the site; limited accessibility; limited land area available; adverse environmental impact; and expected high cost of the site.

After this analysis, the following 13 sites were further considered for the Corporation Yard:

- o Fort Armstrong
- o Keehi Lagoon (submerged lands)
- o Kapalama Military Reservation
- o Sand Island Sewage Treatment Plant
- o Waiawa Corporation Yard site
- o Pearl City Viaduct
- o Makalapa Crater
- o Nuuanu Reservoir
- o Kewalo Site
- o Halawa Site
- o Middle Street (Ameron Property)
- o Sand Island Site
- o Diamond Head

Application of the evaluation criteria indicated the following eight sites were not acceptable and rejected for the reasons shown below:

<u>Site</u>	<u>Reason for Rejection</u>
o Fort Armstrong	Proposed for convention center
o Keehi Lagoon (submerged lands)	Complete fill of site required

<u>Site</u>	<u>Reason for Rejection</u>
o Kewalo Site	Planned for State Waterfront Development
o Pearl City Viaduct	Used by State Department of Transportation
o Makalapa Crater	Navy owned, access difficult
o Nuuanu Reservoir	Site for plant nursery
o Diamond Head	Lack of infrastructure
o Halawa Site	Site was subdivided into industrial lots; high acquisition cost

**B. SITES CONSIDERED**

Since the above eight sites were rejected, the following five sites were evaluated by the ad-hoc committee for relocation of the Corporation Yard:

- o Sand Island (Selected Site)
- o Kapalama Military Reservation
- o Sand Island Wastewater Treatment Plant
- o Waiawa Corporation Yard
- o Middle Street (Ameron Property)

**1. Kapalama Military Reservation**

The Kapalama Military Reservation was an excellent site with up to 90 acres of land available for use. Accessibility was good with access from either Sand Island Access Road or from Nimitz Highway. The soil conditions are stable and the infrastructure adequate.

However, there was one significant drawback to use of Kapalama Military Reservation. The State of Hawaii is not the owner of the property. The site would have to be acquired from a private landowner. The potential acquisition problems made use of the Kapalama Military Reservation infeasible.

The Kapalama Military Reservation also requires a corporation yard (CY) designation would be required for the Development Plan Public Facilities Map.

## 2. Sand Island Wastewater Treatment Plant

Approximately 20 acres of the Sand Island Wastewater Treatment Plant site is undeveloped and could be used for a corporation yard. The location is good, although somewhat distant from Nimitz Highway. Construction would be on fill land which could increase the cost over other potential sites. However, this was not considered to be a major obstacle for development. Infrastructure at the site was considered adequate.

However, similar to the Kapalama Military Reservation site, land acquisition was a significant drawback. The City presently retains the rights to the potential site from the State for construction of secondary or tertiary treatment facilities. The land cannot be made available as long as a permanent waiver from secondary or tertiary treatment of sewage is not granted by the Federal government. In addition, the agreement with the State may not allow the City to use the site for a corporation yard even if a higher degree of treatment of wastewater is not required. Thus, these land accessibility problems made use of the Sand Island Wastewater Treatment Plant infeasible.

## 3. Waiawa Corporation Yard

This property, located on Waiawa Peninsula, was the site of the Pearl City Wastewater Treatment Plant which was phased out in January 1983 with the operation of newly constructed Honouliuli Wastewater Treatment Plant. The

28.3-acre site on Waiawa Peninsula is presently unused except for a small portion presently used by the Department of Public Works' Wastewater Management Division Cesspool Crew.

This site would not be a good location for a corporation yard to service the central Honolulu area. It is located on the far western end of the service area and excessive commuting time would be required. The commuting time would decrease the productive time normally spent at project sites, especially for projects located in eastern Honolulu.

Accessibility to the site would also be a problem since Navy-owned land would have to be used for ingress and egress. The Navy has recently made it difficult for civilians to gain access to its properties for security reasons. Further, the portion of the existing access road between the freeway and the site is a substandard two lane road and across a wooden bridge. Improving the road and replacing the bridge would add substantially to the cost of a corporation yard.

The soil condition of this former landfill is poor, which would increase the development cost.

The site is designated for a Corporation Yard on the Development Plan Public Facilities Map.

#### 4. Middle Street Site

This site is located in an industrial area of the Kalihi-Palama neighborhood at 811 Middle Street, between North King Street and Dillingham Boulevard. It is identified as tax map keys: 1-2-15, parcel 6, and 1-2-16, parcels 2, 6, and 28. The 14.257 acre site was formerly the Ameron HC&D concrete batching plant. [Although the site contained less than 20 acres, it was considered due to its centralized location.]

The property is near the H-1 Freeway on the north, Fort Shafter Military Reservation on the west across Middle Street, Hawaii Meat Company's

slaughterhouse on the south, Kalihi Stream and J.C. Penney's warehouses on the east, and industrial/commercial establishments on the north fronting King Street.

The Middle Street site is centrally located with close access to many of the major transportation routes on Oahu: King Street, Dillingham Boulevard, H-1, Likelike Highway, Kamehameha Highway, Nimitz Highway and School Street.

The Development Plan Public Facility map indicates that the site is designated for a Corporation Yard. The City Council designated the site as a City Corporation Yard (bus facility) by Resolution No. 86-173 and renamed it to the Kalihi-Palama Bus Facility. The site will be used for the Kalihi - Palama (Middle Street) Bus Facility.

**XI. CONSULTED AGENCIES AND INDIVIDUALS**

**A. DRAFT EIS**

FEDERAL AGENCIES

- \* Department of the Army, Pacific Ocean Division
- \* Federal Aviation Administration
- \* Department of the Interior, Fish and Wildlife Service
- \* Department of Interior, Geological Survey, Water Resources Division
- \* U.S. Department of Transportation, United States Coast Guard
- \* U.S. National Marine Fisheries

STATE AGENCIES

- \* Department of Accounting & General Services, Division of Public Works
- \* Board of Land and Natural Resources
- \* Department of Business and Economic Development
- \* Department of Health
- \* Office of State Planning
- \* Department of Transportation

PUBLIC UTILITIES

- \* Hawaiian Electric
- \* Hawaiian Telephone

CITY AND COUNTY OF HONOLULU

- \* Board of Water Supply
- \* Honolulu Fire Department
- \* Department of General Planning
- \* Department of Land Utilization
- \* Department of Parks & Recreation
- \* Honolulu Police Department
- \* Department of Transportation Services

NEIGHBORHOOD BOARDS, COMMUNITY ASSOCIATIONS, ISLANDWIDE ORGANIZATIONS

Outdoor Circle  
Downtown Neighborhood Board No. 13  
Liliha - Kapalama Board No. 14  
Kalihi - Palama Board No. 15  
Kalihi Valley Neighborhood Board No. 16  
Kalihi Valley Neighborhood Board  
Kalihi Palama Community Council  
American Lung Association of Hawaii  
Sierra Club, Hawaii Chapter  
Hawaii's Thousand Friends

\*Comment to EIS Preparation Notice. See Appendix C.

B. FINAL EIS<sup>(a)</sup>

FEDERAL AGENCIES

Department of Agriculture, Soil Conservation Service  
Department of the Army, Pacific Ocean Division Planning Branch  
Department of the Interior, Fish and Wildlife Service  
Department of the Navy, Commander Naval Base Pearl Harbor  
U.S. Department of Transportation, United States Coast Guard

STATE AGENCIES

Department of Accounting and General Services,  
State Public Works Engineer, Public Works Division  
Department of Agriculture  
Department of Business and Economic Development (DBED)  
DBED Energy Division  
DBED Housing Finance and Development Corporation  
Department of Defense Office of the Adjutant General  
Department of Health  
Department of Land and Natural Resources, Board Chairman  
Department of Transportation  
Office of Hawaiian Affairs  
Office of State Planning  
University of Hawaii Environmental Center

CITY AND COUNTY OF HONOLULU

Board of Water Supply  
Department of General Planning  
Department of Housing and Community Development  
Department of Land Utilization  
Department of Parks & Recreation  
Department of Public Works  
Department of Transportation Services  
Fire Department  
Police Department

PUBLIC UTILITIES

Hawaiian Electric

<sup>(a)</sup>Comment to Draft EIS. See Appendix E.

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APPENDIX A

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LAND SURVEY  
ACQUISITION

DEP 86-257

December 23, 1986

The Honorable John Waihee  
Governor  
State of Hawaii  
State Capitol, Fifth Floor  
Honolulu, Hawaii 96813

Dear Governor Waihee:

The City currently uses approximately 17.6 acres of State property near Kewalo Basin for corporation yards (Figure 1). Existing City facilities in this area are inadequate and need to be replaced. However, to provide adequate facilities with sufficient storage and parking, we would need to build multi-story structures. We are reluctant to commence such an expensive project without State assurances that we will not need to relocate for at least 40 years.

At the same time, we question whether the use of prime lands in the heart of the City (present value approximately \$32 million) for corporation yards best serves the public interest. We have investigated purchasing appropriate real estate, but the exorbitant cost of industrially zoned property makes this option infeasible. Accordingly, I would like to explore with you the possibility of permanently relocating City corporation yards to State property adjacent to the Sand Island Wastewater Treatment Plant and the Sand Island State Park (Figure 2). The City would need to use about 30 acres of the 45 acres shown in the figure.

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(102-11)

The Honorable John Waihee  
Page 2  
December 23, 1986

I am aware that the 2010 Master Plan for Honolulu Harbor proposes other uses for this land. However, given historical trends, it seems unlikely that all the available real estate on Sand Island will be needed for Foreign Trade Zone or maritime purposes, particularly after the development of Barbers Point Deep Draft Harbor.

There is a pressing need to upgrade City corporation yards. They must be located in urban Honolulu. City and State interests would best be served by allocating 30 acres of Sand Island for these facilities rather than holding this area as an unimproved reserve for uses which may or may not develop in the long-term future. If we can reach agreement, City corporation yards could be completely relocated to Sand Island in four to five years, and State property at Kewalo Basin would thereby be freed for development to more appropriate uses.

I suggest that you and I, along with appropriate Department Heads, meet to discuss how to proceed from here.

Warm personal regards.

Sincerely,

FRANK F. FASI

FFF:gc

Encl.

bcc: Mayor's Office  
Managing Director  
Building Department  
Department of General Planning  
Honolulu Police Department  
Department of Land Utilization  
Department of Transportation Services  
✓Department of Public Works



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EXECUTIVE CHAMBERS

1337 NO. J. J. PM 4.15.1987

JOHN WAINEC  
SECRETARY

NOV 30 1987

November 17, 1987

Honorable Frank P. Fasi  
Mayor  
City and County of Honolulu  
City Hall  
Honolulu, Hawaii 96813

Dear Mayor:

This is in follow-up to Chief Public Works Engineer Thiede's meeting with my staff, and to your letter of December 23, 1986, proposing relocation of the City corporation baseyard from Kewalo to Sand Island.

We have discussed your proposal with Mr. Thiede and his staff and, based on the revised acreage to be made available to the City of approximately 26 acres on Sand Island, agree to the relocation provided certain conditions are met. In addition, we have, along with your managing director, discussed the matter with the Kalihi Palama Community Council, the organization most responsible for the Sand Island park which will be impacted by your proposal. They have also indicated support for the relocation provided their conditions are met.

Accordingly, the conditions under which the proposed relocation will be agreed to are as follows:

1. Development by the City and County at its expense of the remaining underdeveloped area on the Island planned for park use in accordance with the Sand Island State Park Master Plan (dated June 30, 1973), concurrent with the development of the baseyard.
2. Consultation with the community, especially the Kalihi Palama Community Council, in the planning and development of the remaining areas of the park.
3. Demolition and clearing of the buildings and other facilities at Kewalo at City expense, unless a request is made by a State agency, for their retention.

EXHIBIT A

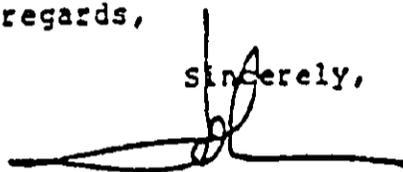
Honorable Frank F. Fasi  
November 17, 1987  
Page Two

4. Demolition and clearing at City expense of the incinerator facility (on Kokea Street) now occupied by the City and County Parks Department.
5. Revocation of all executive orders making available land to the City and County for the baseyard facilities at Kewalo, and on Kokea Street.

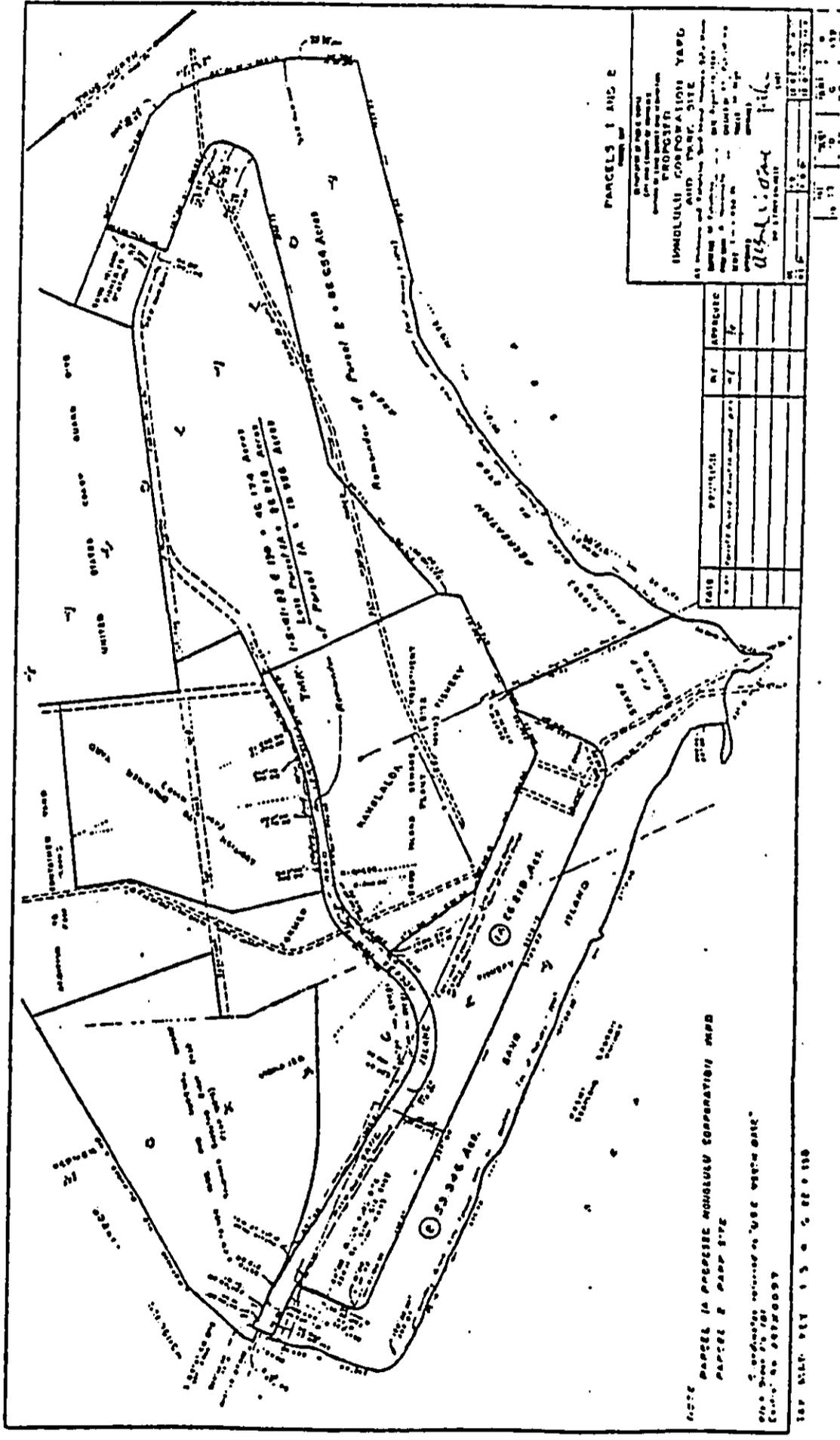
Should you agree with the conditions proposed for the relocation of the baseyards, I would appreciate your working with Chairman William Paty of the Board of Land and Natural Resources to consummate the transfer.

With kindest regards,

Sincerely,



JOHN WAIHEE



**PARCELS 1 AND 2**

REMAINDER OF Parcel 2 - 88,634 SQ. FT.

Parcel 1 - 46,174 SQ. FT.

Parcel 2 - 88,634 SQ. FT.

**HONOLULU CORPORATION YARD**

PROPOSED

AS SHOWN ON THE ATTACHED MAP

DATE: 10/15/51

BY: [Signature]

FOR: [Signature]

DATE	REVISION	BY	REASON

**NOTE: PARCELS 1 & 2 PROPOSED HONOLULU CORPORATION YARD**

**PARCEL 1 - 46,174 SQ. FT.**

**PARCEL 2 - 88,634 SQ. FT.**

ALL DIMENSIONS SHOWN ON THIS MAP ARE APPROXIMATE

SEE MAP FILE 15-0-0-000-110

FILE NO. 15-0-0-000-110

APPENDIX B

TRAFFIC IMPACT STUDY FOR THE  
HONOLULU CORPORATION YARD AND SAND ISLAND PARK EXTENSION  
ENVIRONMENTAL IMPACT STATEMENT

Prepared for:

City and County of Honolulu  
Building Department

February 1989

Prepared by:  
Wilson Okamoto & Associates, Inc.  
Engineers, Architects, Planners

PREFACE

This study provides an identification and assessment of existing and projected traffic conditions, and the traffic impacts of development of a corporation yard at Sand Island, and expansion of Sand Island Beach Park. Analyses were conducted at the intersection of Nimitz Highway and Sand Island Access Road, and at the proposed site access along Sand Island Parkway.

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I. INTRODUCTION

A. PROJECT DESCRIPTION

The Building Department of the City and County of Honolulu proposes to construct a corporation yard on Sand Island, and extend Sand Island Park (see Figure 1). Nimitz Highway and Sand Island Access Road (referred to as Sand Island Parkway on Sand Island) would be the major roadways servicing the proposed developments.

B. PURPOSE AND METHODOLOGY

The purpose of this study is to identify and assess existing and projected traffic conditions, and traffic impacts resulting from the proposed project in the year 2005 at the intersection of Nimitz Highway and Sand Island Access Road, and at the proposed primary site access along Sand Island Parkway.

To determine the nature of existing and future traffic conditions, the scope of this study includes the following:

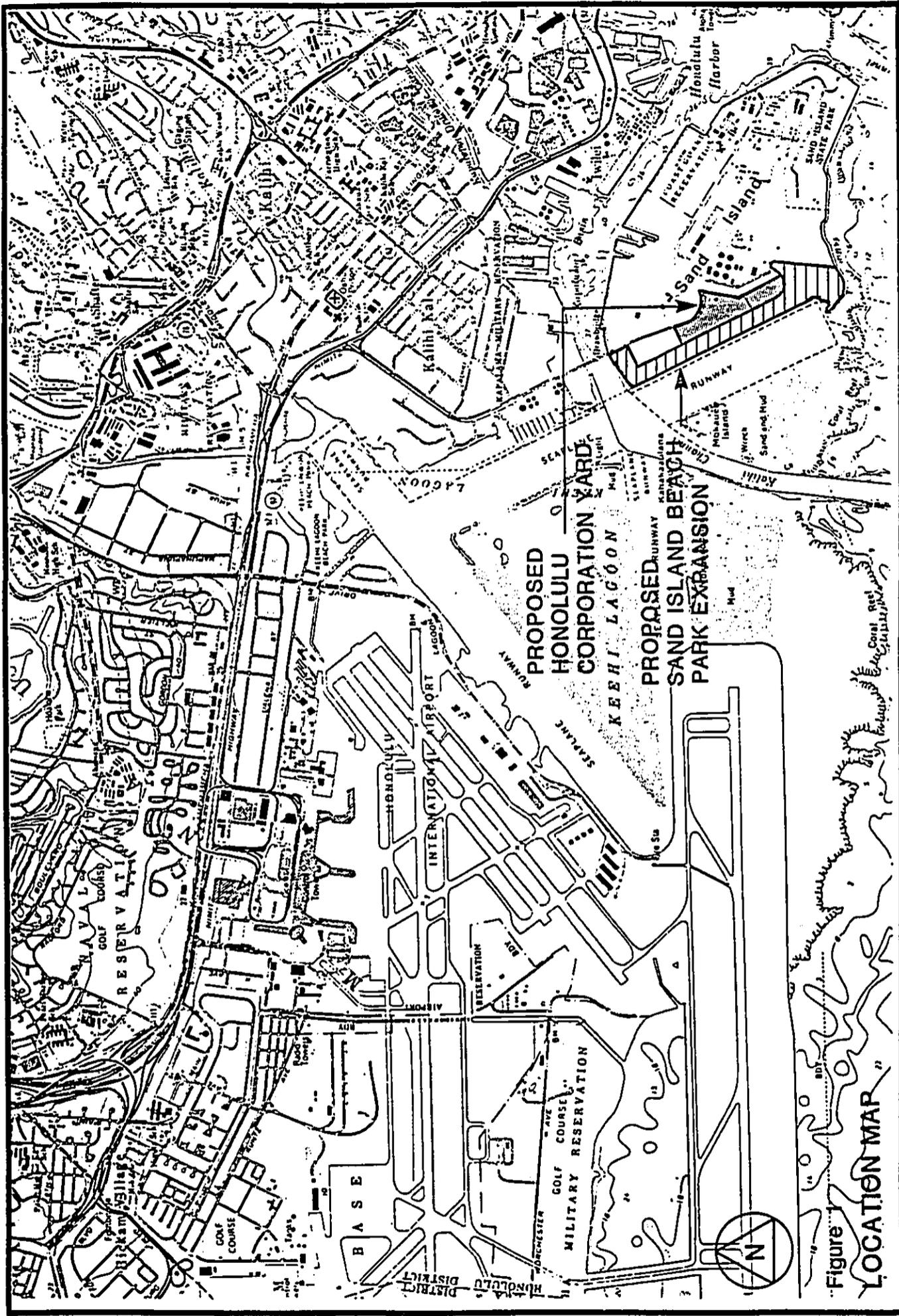


Figure 1  
LOCATION MAP

Prepared for:  
**City and County of Honolulu**  
 Building Department

Prepared by:  
**Wilson Okamoto & Associates, Inc.**

Traffic Impact Study for  
 Honolulu Corporation Yard and Sand Island Beach Park  
 Environmental Impact Statement

- o Obtaining a data base for identification and analyses of existing and future traffic conditions through background research.
- o Analyzing existing conditions at the intersection of Nimitz Highway and Sand Island Access Road, and at the proposed primary site access along Sand Island Parkway.
- o Projecting traffic volumes to the year 2005, including traffic generated by the proposed project.
- o Assessing and analyzing future conditions at the intersection of Nimitz Highway and Sand Island Access Road, and at the proposed primary site access along Sand Island Parkway.
- o Addressing traffic impacts of the proposed project based on the assessment and analyses.

All analyses were conducted according to the Highway Capacity Manual (National Research Council, Transportation Research Board, 1985).

## II. EXISTING CONDITIONS AND PROPOSED ROADWAY IMPROVEMENTS

### A. EXISTING ROADWAYS

Nimitz Highway (FAP Route 92), a connector to Interstate Route H-1, is a major transportation arterial which links Pearl Harbor and downtown Honolulu. This highway provides a primary route between the Honolulu International Airport and the industrial developments around the airport to the rest of the Island of Oahu.

Sand Island Access Road (FAP Route 64) provides access to Sand Island from Nimitz Highway via the John H. Slattery Bridge which spans the Kalihi Channel. Sand Island Parkway extends from the bridge to the entrance of the Sand Island State Park.

### B. EXISTING TRAFFIC CONDITIONS AND PROPOSED ROADWAY IMPROVEMENTS

#### 1. Nimitz Highway and Sand Island Access Road

An operational analysis was conducted for peak traffic hours of the proposed project, the hours during which the most traffic would be entering and exiting the

project site, for 1988 (existing) conditions at the intersection of Nimitz Highway and Sand Island Access Road. Portions of the peak traffic hours of the proposed project are anticipated to coincide with the peak hours of adjacent street traffic.

a. Operational Analysis Description

Operational analysis methodology provides an analysis of both capacity and level of service. The methodology considers demand/service flow rates, signalization, design characteristics of the intersection, and the resulting delay or level of service.

Approach capacity is defined as the maximum rate of flow (for the subject approach) which may pass through the intersection under prevailing traffic, roadway and signalization conditions. The ratio of the actual flow rate (volume) to capacity is referred to as the v/c ratio.

Calculation of the level of service of a given roadway permits evaluation of prevailing and proposed roadway and traffic conditions. The

level of service for signalized intersections is defined in terms of delay which is considered to be a measure of driver discomfort, frustration, fuel consumption and lost travel time. Six levels of service, levels A through F, define the full range of driving conditions from best to worst, respectively. Level of service criteria are indicated in terms of the average stopped delay per vehicle for a 15-minute analysis period in Table 1. Use of delay as a measure of the level of service is dependent on a number of variables including the quality of traffic progression, traffic signal cycle length, ratio of the "green" indication for a traffic signal, and v/c ratio for a lane group or approach to an intersection (see Table 2).

It is important to note that a level of service F designation does not automatically imply that an intersection, approach, or lane group is overloaded, nor does a level of service designation in the A to E range automatically imply that there is unused capacity available.

b. Operational Analysis

Nimitz Highway has three lanes in both the westbound and eastbound directions at its intersection with Sand Island Access Road (see Figure 2). Two lanes are provided for traffic turning left from Nimitz Highway to Sand Island Access Road. An exclusive right turn lane is provided for traffic proceeding east along Nimitz Highway to Sand Island Access Road.

TABLE 1  
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

<u>Level of Service</u>	<u>Stopped Delay per Vehicle (in seconds)</u>
A	≤ 5.0
B	5.1 to 15.0
C	15.1 to 25.0
D	25.1 to 40.0
E	40.1 to 60.0
F	≥ 60.0

Source: National Research Council, Transportation Research Board, Highway Capacity Manual, 1985.

TABLE 2  
LEVELS OF SERVICE DESCRIPTION

<u>Level of Service</u>	<u>Description</u>
A	Operations with very low delay, occurring when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short traffic signal cycle lengths may contribute to low delay.
B	More vehicles stop than for level of service A, causing higher levels of average delay. Generally occurs with good progression and/or short traffic signal cycle lengths.
C	Higher delays are present which may result from fair progression and/or longer traffic signal cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant although many still pass through the intersection without stopping.
D	Influence of congestion becomes more noticeable. Longer delays may result from a combination of unfavorable progression, long traffic signal cycle lengths or high v/c ratios. Many vehicles stop at the intersection. Individual cycle failures become noticeable.
E	This level is considered to represent the limit of acceptable delay. High delay values present generally indicate poor progression, long traffic signal cycle lengths, and high v/c ratios. Individual cycle failures occur frequently.
F	Delay is considered to be unacceptable to most drivers. This condition often occurs with oversaturation when arrival flow rates exceed the capacity of the intersection. This condition may also be indicative of high v/c ratios with many cycle failures. Other major causes contributing to delay may be poor progression and long traffic signal cycle lengths.

Adapted from:

National Research Council, Transportation Research Board, Highway Capacity Manual, 1985.

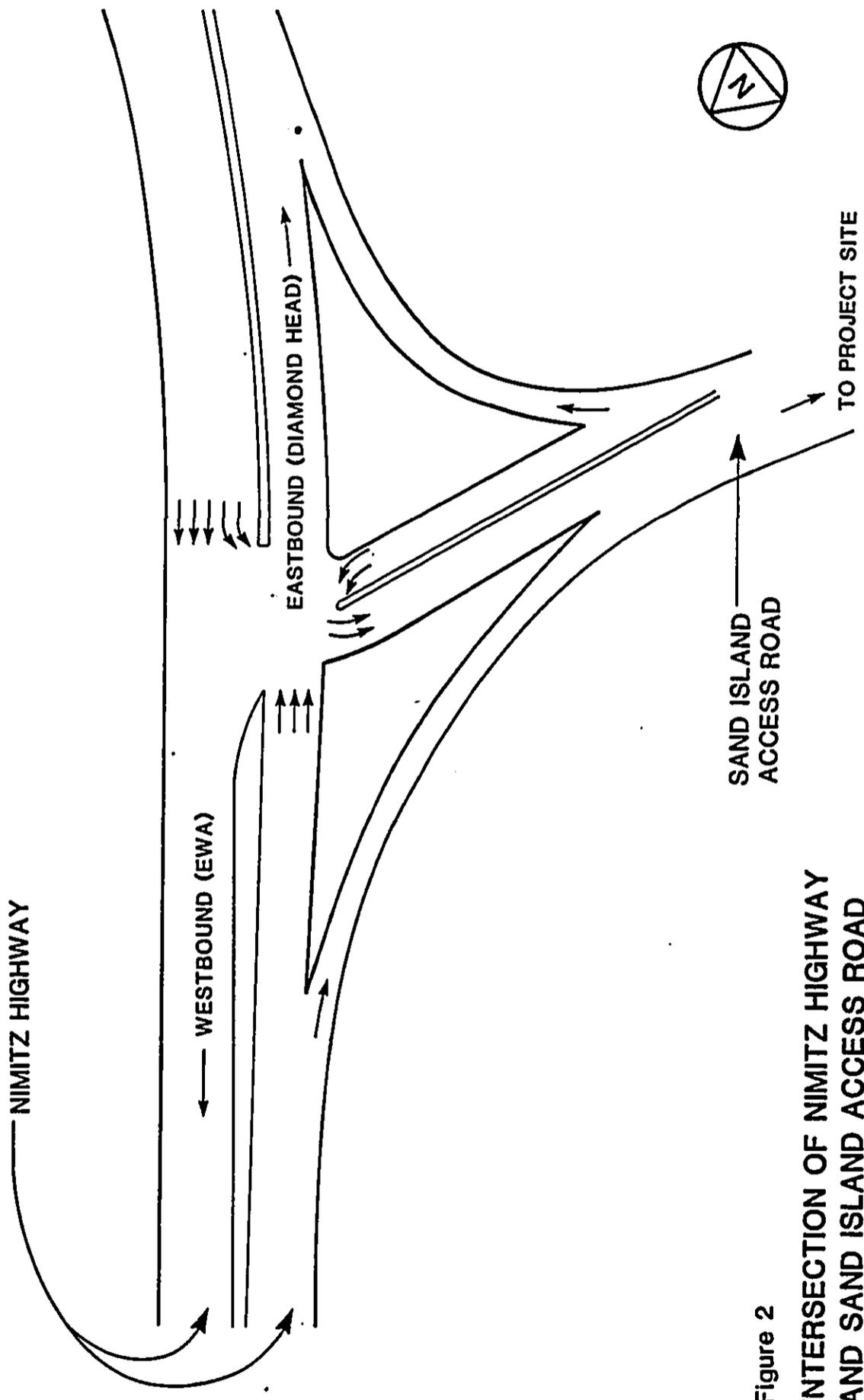


Figure 2  
**INTERSECTION OF NIMITZ HIGHWAY  
 AND SAND ISLAND ACCESS ROAD**

Traffic Impact Study for  
 Honolulu Corporation Yard and Sand Island Beach Park  
 Environmental Impact Statement

Prepared for:  
 City and County of Honolulu  
 Building Department

Prepared by:  
 Wilson Okamoto  
 & Associates, Inc.

An exclusive right turn lane is provided for eastbound traffic entering Nimitz Highway from Sand Island Access Road (see Figure 2). Two left turn lanes from Sand Island Access Road to Nimitz Highway are provided for westbound traffic.

Traffic counts and construction drawings for the intersection of Nimitz Highway and Sand Island Access Road were obtained from the State of Hawaii, Department of Transportation, Highways Division. A field study, and traffic count of northbound traffic on Sand Island Access Road were conducted in May 1988 to verify traffic characteristics, geometrics and control at the intersection.

As the most recent traffic counts were conducted in 1986, the annual growth rate of traffic was estimated. To determine the annual growth rate of traffic, historical traffic data for the intersection of Nimitz Highway and Sand Island Access Road, and other intersections in the area were obtained from the State of Hawaii,

Department of Transportation, Highways Division,  
and evaluated.

The historical annual growth rate of traffic volume at the intersection of Nimitz Highway and Sand Island Access Road has fluctuated considerably. Therefore, a conservative approach was taken by using an average of the annual growth rate for the subject intersection and other intersections in the area for the most recent time period for which data is available. Based on this approach, the average annual growth rate was determined to be 2 percent. The 1986 traffic volumes were projected to the year 1988 based on this 2 percent annual growth rate.

Operational analysis for the intersection was conducted for 1988 (existing) conditions for the following time periods which are anticipated to represent peak hours of ingress and egress along Nimitz Highway and Sand Island Access Road for the proposed project:

- o 6:30 A.M. to 7:30 A.M. - Employee traffic (personal vehicles) inbound to proposed corporation yard
- o 7:30 A.M. to 8:30 A.M. - Employee traffic (maintenance vehicles) outbound from proposed corporation yard
- o 2:00 P.M. to 3:00 P.M. - Employee traffic (maintenance vehicles) inbound to proposed corporation yard
- o 3:00 P.M. to 4:00 P.M. - Employee traffic (personal vehicles) outbound from proposed corporation yard

Levels of service calculated for the morning and afternoon peak traffic hours of the proposed project are shown in Tables 3 and 4, respectively.

c. Proposed Roadway Improvements

Improvements to the intersection of Nimitz Highway and Sand Island Access Road were

TABLE 3

NIMITZ HIGHWAY AND SAND ISLAND ACCESS ROAD INTERSECTION -  
 1988 (WITHOUT PROPOSED PROJECT) LEVELS OF SERVICE FOR  
 MORNING PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

6:30 TO 7:30 A.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Nimitz Highway	Eastbound Through	E
Nimitz Highway	Eastbound Right Turn	B
Nimitz Highway	Westbound Through	B
Nimitz Highway	Westbound Left Turn	D
Sand Island Access Road	Northbound Left Turn	D
Sand Island Access Road	Northbound Right Turn	D

7:30 TO 8:30 A.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Nimitz Highway	Eastbound Through	D
Nimitz Highway	Eastbound Right Turn	B
Nimitz Highway	Westbound Through	B
Nimitz Highway	Westbound Left Turn	D
Sand Island Access Road	Northbound Left Turn	D
Sand Island Access Road	Northbound Right Turn	D

TABLE 4

NIMITZ HIGHWAY AND SAND ISLAND ACCESS ROAD INTERSECTION -  
 1988 (WITHOUT PROPOSED PROJECT) LEVELS OF SERVICE FOR  
 AFTERNOON PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

2:00 TO 3:00 P.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Nimitz Highway	Eastbound Through	D
Nimitz Highway	Eastbound Right Turn	B
Nimitz Highway	Westbound Through	B
Nimitz Highway	Westbound Left Turn	D
Sand Island Access Road	Northbound Left Turn	E
Sand Island Access Road	Northbound Right Turn	D

3:00 TO 4:00 P.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Nimitz Highway	Eastbound Through	D
Nimitz Highway	Eastbound Right Turn	B
Nimitz Highway	Westbound Through	B
Nimitz Highway	Westbound Left Turn	D
Sand Island Access Road	Northbound Left Turn	*F
Sand Island Access Road	Northbound Right Turn	F

\* Level of service assumed to be F as v/c ratio exceeds 1.2.

recommended in the Final Environmental Impact Statement for the Proposed Sand Island Access Road Widening and Improvements FAP Route 64 Project No. 64A-01-79 (U.S. Department of Transportation, Federal Highway Administration and State of Hawaii, Department of Transportation, Highways Division, February 11, 1982). As indicated in the report, improvements would be required to accommodate increased traffic projected in the year 2000 at a minimum of a level of service D. Without improvements, the level of service was projected to be below E. These improvements include an interchange scheme which would elevate the eastbound lanes of Nimitz Highway. Cost of this interchange, including preliminary engineering, construction and right-of-way costs, was estimated on the order of \$13.65 million in the report. Preliminary consultation with the State of Hawaii, Department of Transportation, Highways Division indicates implementation of these intersection improvements has not been determined at the present time.

Implementation of these improvements at the subject intersection would improve future operation of the intersection. In this respect, coordination between the State of Hawaii, Department of Transportation, Highways Division and the City and County of Honolulu should be considered.

Operational analyses of future traffic conditions contained herein do not consider implementation of these improvements and are, therefore, considered conservative.

2. Proposed Site Access Along Sand Island Parkway

Primary access to the proposed corporation yard and the Sand Island Park extension is proposed along Sand Island Parkway across its intersection with Road "A" which provides access to Pier 51A. Sand Island Parkway is currently a two-lane facility at this intersection. It is noted that while a second accessway to the corporation yard is proposed at the Diamond Head extent of the Sand Island WWTP secondary treatment facility for use by City heavy vehicles, "worst-case" conditions were assumed in the traffic

analysis which analyzed all traffic entering and exiting on Sand Island Parkway at the primary site access.

A field study of this intersection was conducted in May 1988. Existing traffic counts for this intersection were obtained from the State of Hawaii, Department of Transportation, Highways Division.

Realignment of the existing Road "A" south of its existing location is proposed by the State of Hawaii, Department of Transportation, Highways Division as a part of Federal Aid Project BR-F-064-1(2). Limits of the project (which is presently under construction) extend along Sand Island Access Road about 700 feet south of its intersection with Auiki Street to the vicinity of the Sand Island Sewage Treatment Plant. This project encompasses the widening of Sand Island Access Road and Sand Island Parkway and construction of a second two-lane bridge to Sand Island.

Improvements to the subject intersection include the addition of two more lanes along Sand Island Parkway (see Figure 3). In addition, a left turn storage lane is proposed for southbound traffic along Sand Island

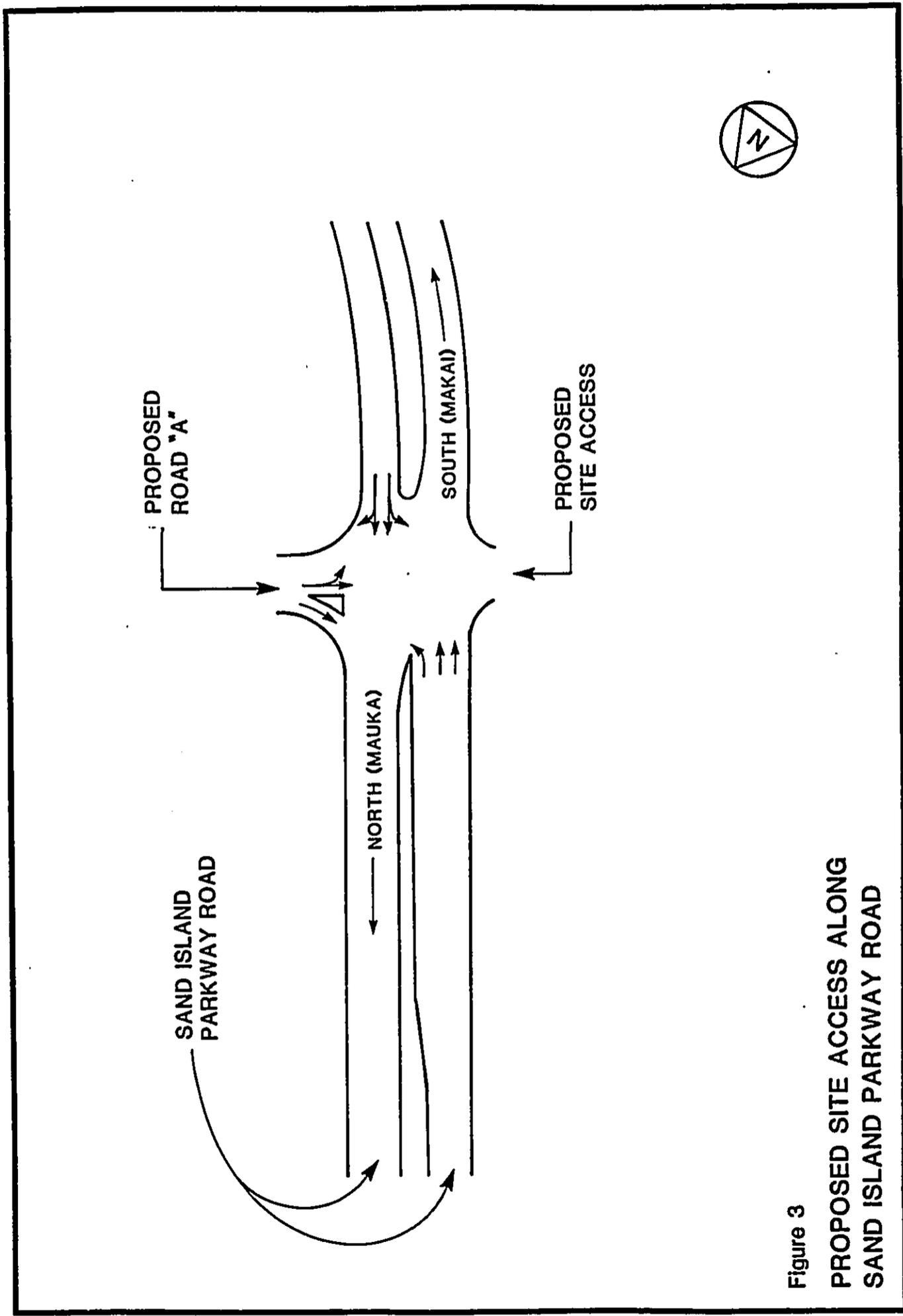


Figure 3

**PROPOSED SITE ACCESS ALONG SAND ISLAND PARKWAY ROAD**

Traffic Impact Study for  
 Honolulu Corporation Yard and Sand Island Beach Park  
 Environmental Impact Statement

Prepared for:  
 City and County of Honolulu  
 Building Department

Prepared by:  
 Wilson Okamoto  
 & Associates, Inc.



Parkway to the proposed Road "A". A separate lane is also proposed for right turns from Road "A" to Sand Island Parkway for traffic proceeding north and for access to a weigh station. Installation of traffic signals is proposed at this intersection.

Construction of improvements to this intersection is planned during 1989. Implementation of improvements can be anticipated to significantly improve operating conditions at the intersection, therefore, an analysis of existing and future conditions without the proposed project at the proposed primary site access was not conducted.

III. EXISTING CONDITIONS WITH PROPOSED PROJECT

A. TRAFFIC VOLUME GENERATED BY THE PROPOSED PROJECT

Traffic volume generated by the proposed corporation yard was quantified based on existing staff requirements determined by preliminary consultations with the City and County of Honolulu agencies that will be based at the corporation yard. The agencies consulted were the Department of Parks and Recreation, Department of Public Works, Department of Transportation Services, Honolulu Fire Department and Honolulu Police Department. Directional distribution of morning inbound (6:30 to 7:30 A.M.) and afternoon outbound (3:00 to 4:00 P.M.) employee traffic (personal vehicles) was based on anticipated location of employee's residences. Directional distribution of morning outbound (7:30 to 8:30 A.M.) and afternoon inbound (2:00 to 3:00 P.M.) employee traffic (maintenance vehicles) was assumed to be 50 percent western in origin/destination and 50 percent eastern in origin/destination.

Based on consultation with the City and County of Honolulu, Department of Public Works, morning inbound (6:30 to 7:30 A.M.) and afternoon outbound (3:00 to 4:00 P.M.) employee traffic volumes were adjusted by an absentee and vehicle

occupancy rate to approximate anticipated conditions. An employee absentee rate of 12 percent, which reflects both vacation and sick leave, and a vehicle occupancy rate of 1.06 persons per car were used to adjust traffic volumes.

Traffic volumes anticipated to be generated by the proposed corporation yard during the morning and afternoon peak traffic hours of the proposed project are shown in Tables 5 and 6, respectively.

Traffic volume generated by the proposed Sand Island Park extension was quantified based on a trip generation rate contained in Trip Generation (Third Edition), An Informational Report (Institute of Transportation Engineers, 1982) and traffic counts at the accessway to the existing Sand Island State Park which were obtained from the State of Hawaii, Department of Transportation, Highways Division. Directional distribution of Sand Island Park traffic for all time periods is anticipated to be similar to that based on corporation yard employee's residences. Traffic volumes anticipated to be generated by the proposed Sand Island Park extension during the morning and afternoon peak traffic hours of the proposed project are shown in Tables 7 and 8, respectively.

TABLE 5

1988 TRAFFIC VOLUME GENERATED BY THE CORPORATION YARD  
DURING MORNING PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

6:30 TO 7:30 A.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Traffic Volume</u>
Nimitz Highway	Eastbound Right Turn	227 cars
Nimitz Highway	Westbound Left Turn	287 cars

7:30 TO 8:30 A.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Traffic Volume</u>
Sand Island Access Road	Northbound Left Turn	70 cars, 68 heavy vehicles
Sand Island Access Road	Northbound Right Turn	70 cars, 68 heavy vehicles

TABLE 6

1988 TRAFFIC VOLUME GENERATED BY THE CORPORATION YARD  
DURING AFTERNOON PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

2:00 TO 3:00 P.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Traffic Volume</u>
Nimitz Highway	Eastbound Right Turn	70 cars, 68 heavy vehicles
Nimitz Highway	Westbound Left Turn	70 cars, 68 heavy vehicles

3:00 TO 4:00 P.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Traffic Volume</u>
Sand Island Access Road	Northbound Left Turn	227 cars
Sand Island Access Road	Northbound Right Turn	287 cars

TABLE 7

TRAFFIC VOLUME GENERATED BY THE  
SAND ISLAND PARK EXTENSION DURING  
MORNING PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

6:30 TO 7:30 A.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Traffic Volume</u>
Nimitz Highway	Eastbound Right Turn	1 car
Nimitz Highway	Westbound Left Turn	2 cars
Sand Island Access Road	Northbound Left Turn	1 car
Sand Island Access Road	Northbound Right Turn	1 car

7:30 TO 8:30 A.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Traffic Volume</u>
Nimitz Highway	Eastbound Right Turn	3 cars
Nimitz Highway	Westbound Left Turn	4 cars
Sand Island Access Road	Northbound Left Turn	2 cars
Sand Island Access Road	Northbound Right Turn	2 cars

TABLE 8  
 TRAFFIC VOLUME GENERATED BY THE  
 SAND ISLAND PARK EXTENSION DURING  
 AFTERNOON PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

2:00 TO 3:00 P.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Traffic Volume</u>
Nimitz Highway	Eastbound Right Turn	4 cars
Nimitz Highway	Westbound Left Turn	5 cars
Sand Island Access Road	Northbound Left Turn	6 cars
Sand Island Access Road	Northbound Right Turn	7 cars

3:00 TO 4:00 P.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Traffic Volume</u>
Nimitz Highway	Eastbound Right Turn	5 cars
Nimitz Highway	Westbound Left Turn	7 cars
Sand Island Access Road	Northbound Left Turn	5 cars
Sand Island Access Road	Northbound Right Turn	6 cars

B. OPERATIONAL ANALYSIS AT NIMITZ HIGHWAY AND SAND ISLAND ACCESS ROAD

An operational analysis was conducted for peak traffic hours of the proposed project for 1988 conditions with the proposed project at the intersection of Nimitz Highway and Sand Island Access Road. Traffic volume generated by the proposed corporation yard and Sand Island Park extension discussed in

Section III.A. was added to 1988 traffic volumes. The analysis was conducted for the same time periods as the analyses of 1988 (without proposed project) conditions but only for those lane group movements which would be affected by traffic generated by both the proposed corporation yard and Sand Island Park extension. Lanes which would be affected only by the Sand Island Park extension were not analyzed as the additional traffic volume is considered insignificant in comparison to existing volumes.

It is noted that for analysis purposes, 75 percent of corporation yard employee traffic and traffic generated by the extended Sand Island Park which is anticipated to be eastern in origin/destination is assumed to enter the intersection of Nimitz Highway and Sand Island Access Road. (The remaining 25 percent of this traffic is assumed to be distributed to intersections east of the subject intersection.)

Levels of service anticipated for the morning and afternoon peak traffic hours of the proposed project are shown in Tables 9 and 10, respectively.

TABLE 9

NIMITZ HIGHWAY AND SAND ISLAND ACCESS ROAD INTERSECTION -  
 1988 (WITH PROPOSED PROJECT) LEVELS OF SERVICE FOR  
 MORNING PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

6:30 TO 7:30 A.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Nimitz Highway	Eastbound Right Turn	D
Nimitz Highway	Westbound Left Turn	E

7:30 TO 8:30 A.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Sand Island Access Road	Northbound Left Turn	E
Sand Island Access Road	Northbound Right Turn	E

TABLE 10

NIMITZ HIGHWAY AND SAND ISLAND ACCESS ROAD INTERSECTION -  
 1988 (WITH PROPOSED PROJECT) LEVELS OF SERVICE FOR  
 AFTERNOON PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

2:00 TO 3:00 P.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Nimitz Highway	Eastbound Right Turn	B
Nimitz Highway	Westbound Left Turn	D

3:00 TO 4:00 P.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Sand Island Access Road	Northbound Left Turn	*F
Sand Island Access Road	Northbound Right Turn	*F

\* The 1988 (without project) level of service is F or is assumed to be F, therefore, the 1988 (with project) level of service is assumed to be F.

C. PLANNING ANALYSIS AT PROPOSED SITE ACCESS ALONG SAND ISLAND  
PARKWAY

1. Planning Analysis Description

Planning analysis of intersections provides a broad evaluation of intersection capacity without considering the details of signalization, so delays or levels of service are not considered. This type of analysis basically assesses whether or not the capacity at an intersection is likely to be exceeded for anticipated demand volumes and geometrics.

Critical movements by individual lanes are identified in the planning analysis. As signal design is not determined, combinations of critical lane volumes in vehicles per hour (vph) are identified by considering conflicting movements. The total critical volume for the intersection is determined and compared to capacity criteria as shown in Table 11. These criteria provide a general evaluation of whether the intersection may operate under, near or over capacity.

TABLE 11  
CAPACITY CRITERIA FOR PLANNING ANALYSIS  
OF SIGNALIZED INTERSECTIONS

<u>Critical Volume for Intersection (vph)</u>	<u>Relationship to Probable Capacity</u>
0 to 1,200	Under Capacity
1,201 to 1,400	Near Capacity
Equal to or greater than 1,401	Over Capacity

Adapted from: National Research Council, Transportation Research Board, Highway Capacity Manual, 1985.

Planning analysis methodology provides for broad results that allow a projection of whether an intersection is likely to be oversaturated. In this respect, planning analyses are used to evaluate the overall adequacy of proposed intersection designs or alternatives, and are considered preliminary and general. As more detailed information becomes available, operational analysis should be conducted to provide a more definitive analysis of capacity and delay.

2. Planning Analysis

As details of signalization have not been determined, a planning analysis was conducted at the proposed primary site access along Sand Island Parkway. This analysis was

conducted for the morning and afternoon peak hours of the proposed project for which volumes at the proposed site access are anticipated to be highest and, therefore, represent "worst case" conditions. Traffic volume generated by the proposed corporation yard and Sand Island Park extension discussed in Section III.A. was added to 1988 traffic volumes. Volumes at the proposed site access were determined to be highest during the 6:30 to 7:30 A.M. inbound and 3:00 to 4:00 P.M. outbound periods.

*Results of the planning analysis indicate that critical volumes will be below capacity of the intersection during the 6:30 to 7:30 A.M. period. The volume of the right turn from Sand Island Parkway to the site is, however, anticipated to be high.*

The intersection is anticipated to operate below capacity during the 3:00 to 4:00 P.M. period. Left turns from the proposed site access to Sand Island Parkway are, however, anticipated to be high.

#### IV. FUTURE CONDITIONS

Operational analyses of future traffic conditions contained herein do not consider implementation of improvements at the intersection of Nimitz Highway and Sand Island Access Road and are, therefore, considered conservative.

##### A. FUTURE TRAFFIC CONDITIONS WITHOUT PROPOSED PROJECT

###### 1. Projected Traffic Volumes

Traffic volumes were projected to the year 2005 based on the 2 percent annual growth rate discussed in Section II.B.1.b.

###### 2. Operational Analysis at Nimitz Highway and Sand Island Access Road

An operational analysis was conducted for peak traffic hours of the proposed project for conditions in the year 2005 (without the proposed project) at the intersection of Nimitz Highway and Sand Island Access Road. The operational analysis was conducted for the same time periods as the 1988 analysis, and only for those lane group

movements which would be affected by both the proposed corporation yard and Sand Island Park extension traffic.

Levels of service anticipated for the morning and afternoon peak traffic hours of the proposed project are shown in Tables 12 and 13, respectively.

B. FUTURE TRAFFIC CONDITIONS WITH PROPOSED PROJECT

1. Traffic Volume Generated by the Proposed Project

Quantification of traffic volume generated in the year 2005 by the proposed corporation yard was based on preliminary consultations with the same City and County of Honolulu agencies mentioned in Section III.A. The agencies provided estimates of the number of employees who will be based at the corporation yard in the year 2020. Based on these estimates and 1988 quantities, the 2005 anticipated employee traffic was quantified.

Directional distribution of employee traffic was assumed to be the same as that for the 1988 traffic volumes. Similar to the 1988 employee volumes, morning inbound (6:30 to 7:30 A.M.) and afternoon outbound (3:00 to 4:00 P.M.) volumes were adjusted by an employee absentee rate of 12 percent

TABLE 12

NIMITZ HIGHWAY AND SAND ISLAND ACCESS ROAD INTERSECTION -  
 2005 (WITHOUT PROPOSED PROJECT) LEVELS OF SERVICE FOR  
 MORNING PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

6:30 TO 7:30 A.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Nimitz Highway	Eastbound Right Turn	D
Nimitz Highway	Westbound Left Turn	E

7:30 TO 8:30 A.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Sand Island Access Road	Northbound Left Turn	F
Sand Island Access Road	Northbound Right Turn	E

TABLE 13

NIMITZ HIGHWAY AND SAND ISLAND ACCESS ROAD INTERSECTION -  
 2005 (WITHOUT PROPOSED PROJECT) LEVELS OF SERVICE FOR  
 AFTERNOON PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

2:00 TO 3:00 P.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Nimitz Highway	Eastbound Right Turn	B
Nimitz Highway	Westbound Left Turn	D

3:00 TO 4:00 P.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Sand Island Access Road	Northbound Left Turn	*F
Sand Island Access Road	Northbound Right Turn	*F

\* The 1988 (without project) level of service is F or is assumed to be F, therefore, the levels of service for all subsequent analyses are assumed to be F.

and a vehicle occupancy rate of 1.06 persons per car (see Section III.B.). The 2005 traffic volumes anticipated to be generated by the proposed corporation yard during the morning and afternoon peak traffic hours of the proposed project are shown in Tables 14 and 15, respectively.

Traffic volume generated in the year 2005 by the proposed Sand Island Park extension during the morning and afternoon

TABLE 14

2005 TRAFFIC VOLUME GENERATED BY THE CORPORATION YARD  
DURING MORNING PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

6:30 TO 7:30 A.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Traffic Volume</u>
Nimitz Highway	Eastbound Right Turn	302 cars
Nimitz Highway	Westbound Left Turn	376 cars

7:30 TO 8:30 A.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Traffic Volume</u>
Sand Island Access Road	Northbound Left Turn	81 cars, 86 heavy vehicles
Sand Island Access Road	Northbound Right Turn	81 cars, 86 heavy vehicles

TABLE 15

2005 TRAFFIC VOLUME GENERATED BY THE CORPORATION YARD  
DURING AFTERNOON PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

2:00 TO 3:00 P.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Traffic Volume</u>
Nimitz Highway	Eastbound Right Turn	81 cars, 86 heavy vehicles
Nimitz Highway	Westbound Left Turn	81 cars, 86 heavy vehicles

3:00 TO 4:00 P.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Traffic Volume</u>
Sand Island Access Road	Northbound Left Turn	302 cars
Sand Island Access Road	Northbound Right Turn	376 cars

peak traffic hours of the proposed project would be the same as the 1988 traffic volumes as trip generation is based on park acreage.

2. Operational Analysis at Nimitz Highway and Sand Island Access Road

An operational analysis was conducted for peak traffic hours of the proposed project for 2005 conditions at the intersection of Nimitz Highway and Sand Island Access Road. This analysis was conducted for the same time periods as the previous operational analyses. Like the analyses for the year 1988 (with the proposed project) and 2005 (without the proposed project), this analysis was conducted only for those lane group movements which would be affected by the proposed project.

Traffic volume generated by the proposed corporation yard and Sand Island Park extension discussed in Section IV.B.1. was added to projected traffic volumes for the year 2005 which were discussed in Section IV.A.1. Directional distribution of traffic is assumed to be the same as that for the analysis of 1988 conditions with the proposed project.

Levels of service anticipated for the morning and afternoon peak traffic hours of the proposed project are shown in Tables 16 and 17, respectively.

3. Planning Analysis at Proposed Site Access Along Sand Island Parkway

A planning analysis was conducted at the proposed primary site access along Sand Island Parkway for 2005 conditions with the proposed project. Similar to the planning analysis of 1988 conditions with the proposed project, this analysis was conducted for the 6:30 to 7:30 A.M. inbound and 3:00 to 4:00 P.M. outbound periods, the morning and afternoon peak hours of the proposed project for which volumes at the proposed site access are anticipated to be highest. Traffic volume generated by the proposed corporation yard and Sand Island Park extension discussed in Section IV.B.1. was added to projected traffic volumes for the year 2005 which were discussed in Section IV.A.1.

Results of the planning analysis indicate that critical volumes will be below capacity of the intersection during the 6:30 to 7:30 A.M. period. The volume of the right turn from Sand Island Parkway to the site is, however, anticipated to be high.

TABLE 16

NIMITZ HIGHWAY AND SAND ISLAND ACCESS ROAD INTERSECTION -  
 2005 (WITH PROPOSED PROJECT) LEVELS OF SERVICE FOR  
 MORNING PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

6:30 TO 7:30 A.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Nimitz Highway	Eastbound Right Turn	*F
Nimitz Highway	Westbound Left Turn	*F

7:30 TO 8:30 A.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Sand Island Access Road	Northbound Left Turn	**F
Sand Island Access Road	Northbound Right Turn	F

\* Level of service assumed to be F as v/c ratio exceeds 1.2.

\*\* Level of service assumed to be F as 2005 level of service (without project) is F.

TABLE 17

NIMITZ HIGHWAY AND SAND ISLAND ACCESS ROAD INTERSECTION -  
 2005 (WITH PROPOSED PROJECT) LEVELS OF SERVICE FOR  
 AFTERNOON PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

2:00 TO 3:00 P.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Nimitz Highway	Eastbound Right Turn	B
Nimitz Highway	Westbound Left Turn	D

3:00 TO 4:00 P.M. PERIOD

<u>Street</u>	<u>Lane Group Movement</u>	<u>Level of Service</u>
Sand Island Access Road	Northbound Left Turn	*F
Sand Island Access Road	Northbound Right Turn	*F

\* The 1988 (without project) level of service is F or is assumed to be F, therefore, the level of service for all subsequent analyses are assumed to be F.

During the 3:00 to 4:00 P.M. period, the intersection is anticipated to operate near capacity, primarily as a result of left turns from the proposed site access to Sand Island Parkway and the volume of northbound traffic along Sand Island Parkway.

V. TRAFFIC IMPACTS AND CONCLUSION

A. NIMITZ HIGHWAY AND SAND ISLAND ACCESS ROAD

A summary of the 1988 and 2005 operational analyses without and with the proposed project for the intersection of Nimitz Highway and Sand Island Access Road during the peak traffic hours of the proposed project (for those lanes which would be affected by the proposed project) is shown in Tables 18 and 19. These results approximate traffic conditions anticipated assuming no structural or other improvements are implemented at the intersection.

As the operational analyses of future conditions did not consider implementation of improvements at the subject intersection discussed in Section II.B.1.c., results may be viewed conservatively. Coordination between the State of Hawaii, Department of Transportation, Highways Division and the City and County of Honolulu should be considered regarding construction of this interchange.

As indicated by the operational analyses of 1988 traffic conditions, development of the corporation yard and Sand Island Park extension will result in an increase in traffic at the intersection of Nimitz Highway and Sand Island Access Road, but

TABLE 18

SUMMARY OF OPERATIONAL ANALYSES FOR THE  
NIMITZ HIGHWAY AND SAND ISLAND ACCESS ROAD INTERSECTION FOR  
MORNING PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

6:30 TO 7:30 A.M. PERIOD

Street Lane Group Movement	<u>1988 WITHOUT PROJECT</u>			<u>1988 WITH PROJECT</u>			<u>2005 WITHOUT PROJECT</u>			<u>2005 WITH PROJECT</u>		
	Level of Service	Flow Rate (vph)	v/c Ratio	Level of Service	Flow Rate (vph)	v/c Ratio	Level of Service	Flow Rate (vph)	v/c Ratio	Level of Service	Flow Rate (vph)	v/c Ratio
Nimitz Highway Eastbound Right Turn	B	690	0.709	D	899	0.924	D	966	0.993	*F	1,244	1.279
Nimitz Highway Westbound Left Turn	D	499	0.673	E	727	0.975	E	699	0.942	*F	998	1.338

7:30 TO 8:30 A.M. PERIOD

Street Lane Group Movement	<u>1988 WITHOUT PROJECT</u>			<u>1988 WITH PROJECT</u>			<u>2005 WITHOUT PROJECT</u>			<u>2005 WITH PROJECT</u>		
	Level of Service	Flow Rate (vph)	v/c Ratio	Level of Service	Flow Rate (vph)	v/c Ratio	Level of Service	Flow Rate (vph)	v/c Ratio	Level of Service	Flow Rate (vph)	v/c Ratio
Sand Island Access Road Northbound Left Turn	D	551	0.772	E	663	0.955	F	771	1.080	**F	--	--
Sand Island Access Road Northbound Right Turn	D	174	0.531	E	262	0.821	E	244	0.744	F	348	1.091

\* Level of service assumed to be F as v/c ratio exceeds 1.2.

\*\* Level of service assumed to be F as 2005 level of service without proposed project is F.

TABLE 19

SUMMARY OF OPERATIONAL ANALYSES FOR THE  
NIMITZ HIGHWAY AND SAND ISLAND ACCESS ROAD INTERSECTION FOR  
AFTERNOON PEAK TRAFFIC HOURS OF THE PROPOSED PROJECT

2:00 TO 3:00 P.M. PERIOD

Street	Lane Group Movement	1988 WITHOUT PROJECT			1988 WITH PROJECT			2005 WITHOUT PROJECT			2005 WITH PROJECT		
		Level of Service	Flow Rate (vph)	v/c Ratio	Level of Service	Flow Rate (vph)	v/c Ratio	Level of Service	Flow Rate (vph)	v/c Ratio	Level of Service	Flow Rate (vph)	v/c Ratio
Nimitz Highway	Eastbound Right Turn	B	311	0.318	B	445	0.463	B	435	0.445	B	597	0.617
Nimitz Highway	Westbound Left Turn	D	225	0.337	D	333	0.504	D	315	0.472	D	444	0.672

3:00 TO 4:00 P.M. PERIOD

Street	Lane Group Movement	1988 WITHOUT PROJECT			1988 WITH PROJECT			2005 WITHOUT PROJECT			2005 WITH PROJECT		
		Level of Service	Flow Rate (vph)	v/c Ratio	Level of Service	Flow Rate (vph)	v/c Ratio	Level of Service	Flow Rate (vph)	v/c Ratio	Level of Service	Flow Rate (vph)	v/c Ratio
Sand Island Access Road	Northbound Left Turn	*F	914	1.250	**F	--	--	**F	--	--	**F	--	--
Sand Island Access Road	Northbound Right Turn	F	360	1.071	**F	--	--	**F	--	--	**F	--	--

\* Level of service assumed to be F as v/c ratio exceeds 1.2.

\*\* The 1988 level of service is F or is assumed to be F, therefore, the level of service for all subsequent analyses are assumed to be F.

not to a level considered significantly adverse. During the 6:30 to 7:30 A.M. period, the level of service for right turns from Nimitz Highway to Sand Island Access Road is anticipated to change from B to D and that for left turns from D to E. For the 7:30 to 8:30 A.M. period, the right and left turn movements from Sand Island Access Road to Nimitz Highway which currently operate at a level of service D are anticipated to operate at a level of service E with the proposed project.

The levels of service for right and left turns from Nimitz Highway to Sand Island Access Road for the 2:00 to 3:00 P.M. period with the proposed project are anticipated to be the same as the existing levels which are B and D, respectively. The left and right turn movements from Sand Island Access Road to Nimitz Highway are presently operating under level of service F conditions during the 3:00 to 4:00 P.M. period. Level of service F conditions would also be anticipated with the proposed project during this time period.

The operational analyses of 2005 traffic conditions indicate that the additional traffic generated by the proposed project is anticipated to result in level of service F operations during the 6:30 to 7:30 A.M. period for right and left turns from Nimitz Highway to Sand Island Access Road.

The right and left turn movements would be anticipated to operate at levels of service D and E, respectively, without the project. The anticipated v/c ratio for 2005 traffic conditions with the proposed project exceeds 1.00, indicating the potential for breakdowns. A range of mitigative measures may be implemented to improve anticipated conditions. These measures include lengthening the signal cycle, changing the signal phase plan, and changing intersection geometry (number and use of lanes).

For the 7:30 to 8:30 A.M. period, the left turn movement from Sand Island Access Road to Nimitz Highway is anticipated to operate at a level of service F in the year 2005, regardless of the proposed project's development. For the same time period, additional traffic generated by the project is anticipated to result in level of service F operation of the right turn movement from Sand Island Access Road to Nimitz Highway. Without the proposed project, this right turn movement is anticipated to operate at a level of service E. As the v/c ratio of this movement would exceed 1.00 with the proposed project, the mitigative measures suggested for the 6:30 to 7:30 A.M. period may be considered.

Results of the operational analysis for the year 2005 with the proposed project indicate that the additional traffic generated by the project is not anticipated to result in significant impact during the 2:00 to 3:00 P.M. period for right and left turns from Nimitz Highway to Sand Island Access Road. The levels of service in the year 2005 (with and without the proposed project) are anticipated to be the same as existing levels.

*The left and right turn movements from Sand Island Access Road to Nimitz Highway during the 3:00 to 4:00 P.M. period are presently operating under level of service F conditions. This condition is anticipated to be more pronounced in the year 2005, exclusive of the development of the proposed project.*

**B. PROPOSED SITE ACCESS ALONG SAND ISLAND PARKWAY**

Widening of Sand Island Parkway at the proposed primary site access, and proposed signalization will significantly improve operation of this intersection by increasing capacity of Sand Island Parkway, and providing for safe and efficient operations. Development of the proposed project is not anticipated to result in significant adverse traffic impacts at this intersection.

Results of the planning analyses indicate that critical volumes will be below capacity of the intersection during the 6:30 to 7:30 A.M. periods for both 1988 and 2005 conditions with the proposed project. The volume of the right turn from Sand Island Parkway to the site is, however, anticipated to be high.

During the 3:00 to 4:00 P.M. period in 1988, the intersection is anticipated to operate under capacity but the volume of left turns from the proposed site access to Sand Island Parkway is anticipated to be high. For the same period in the year 2005, the intersection is anticipated to operate near capacity, primarily as a result of left turns from the proposed site access to Sand Island Parkway and the volume of northbound traffic along Sand Island Parkway.

Subsequent to widening of Sand Island Parkway and installation of signal lights, operational analysis can be performed to obtain a more definitive analysis of both capacity and delay at the intersection.

HONOLULU CORPORATION YARD  
AND SAND ISLAND BEACH PARK

TRAFFIC IMPACT STUDY

SUPPLEMENTAL ANALYSES

Prepared for

Wilson Okamoto & Associates

Prepared by

Wilbur Smith Associates

February 1989

VI. SUPPLEMENTAL ANALYSES

A. PURPOSE

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- o How much additional traffic will be added by the Corporation Yard on the Kalihi Kai segments of Puuhale Road, Mokauea Street, and Kalihi Street?
- o How much will project traffic impact the intersection of Sand Island Access Road with Auiki Street/Pahounui Drive?
- o How much will project traffic impact the intersections of Nimitz Highway with Puuhale Road, Mokauea Street, and Kalihi Street?

B. ANALYSIS ASSUMPTIONS AND METHODOLOGY

This analysis assesses the impact of the proposed project on existing (1988) and year 2005 traffic conditions. Full build

out and occupancy of the project is anticipated prior to 2005. The assumptions and methodology used in this analysis include the following:

- o The number and origin - destination of vehicle trips generated by the project are the same as those described in Sections III and IV for the four weekday one-hour analysis periods.
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- o Existing traffic volumes at the Sand Island Access Road-Auiki Street intersection are from a traffic count made on October 26 and 27, 1988. Year 2005 traffic is based on a 2 percent per year average growth in area traffic.
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- o Year 2005 analysis assumes that the planned widening of Sand Island Access Road has been completed from Sand Island mauka to Auki Street, and that the Nimitz Highway intersection improvements proposed in the above-referenced report have been implemented at Puuhale Road, Mokauea Street, Kalihi Street, and Libby Street.
- o Intersection volume-capacity analyses were conducted using the "Planning Method" as outlined in the 1985 Highway Capacity Manual. The "Planning Method" approach is appropriate for assessing the level of impact given the uncertainties in traffic growth through 2005 and in the routing of project traffic through the Kalihi Kai area.

C. ESTIMATED PROJECT TRIPS

Estimates of the weekday vehicle trips for the Honolulu Corporation Yard were based on discussions with representatives of the various departments which would operate from the

facility. Vehicle trips for Sand Island Park were estimated using standard trip rates for similar type of park facilities.

1. 1988 Vehicle Trips

As summarized in Table 20, the Honolulu Corporation Yard and Sand Island Park would add an estimated 2,462 daily one-way vehicle trips to the area's roadway system. Of these, 2,190 vehicle trips would be to or from the Corporation Yard while 272 trips would be to or from Sand Island Park.

The majority of the Corporation Yard trips would occur during the 6:30 to 8:30 AM and 2:00 to 4:00 PM time periods when most day shift workers arrive and depart. Some 1,580 vehicle trips, or 72 percent of the total Corporation Yard trips would occur during these two periods. Nighttime traffic would be minimal with the exception of the early morning arrival of refuse truck crews and departure of the trucks during the 5:30 to 6:30 AM period.

Daily truck traffic is estimated at 202 trips to the site and 202 trips from the site. Sixty-four of these trucks are refuse collection vehicles while the remainder are general maintenance-type vehicles.

TABLE 20  
ESTIMATED WEEKDAY VEHICLE TRIPS  
HONOLULU CORPORATION YARD AND SAND ISLAND BEACH PARK

<u>YEAR/TIME PERIOD</u>	<u>VEHICLES TO PROJECT</u>	<u>VEHICLES FROM PROJECT</u>	<u>TOTAL</u>
Current 1988 Activity:			
Honolulu Corporation Yard			
5:30-6:30 AM Refuse Workers	178	64	242
6:30-8:30 AM Day Shift Start	514	276	790
Morning Refuse Workers Finish	64	178	242
Midday General Activity	46	46	92
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Night time Workers	17	17	34
Sub-Total	<u>1,095</u>	<u>1,095</u>	<u>2,190</u>
Sand Island Park	136	136	272
Total	<u>1,231</u>	<u>1,231</u>	<u>2,462</u>
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Sub-Total	<u>1,357</u>	<u>1,357</u>	<u>2,714</u>
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Total	<u>1,493</u>	<u>1,493</u>	<u>2,986</u>

2. 2005 Vehicle Trips

Full utilization of the Honolulu Corporation Yard facility would increase weekday activity to 2,714 one-way vehicle trips to or from the site. Sand Island Park activity of 272 vehicle trips would produce total daily traffic of 2,986 vehicle trips to or from the two sites.

A summary of Year 2005 vehicle trips is included in Table 20. The time periods and characteristics of vehicle trips would be similar to those in 1988. Truck traffic would increase to 231 trips to the Yard and 231 trips from the Yard.

D. TRAFFIC INCREASES ON KALIHI KAI STREETS

Auiki Street, Puuhale Road, Mokauea Street, Kalihi Street, and Libby Street are relatively narrow streets through most of the Kalihi Kai area. Makai of Nimitz Highway, the streets generally have a 40-foot curb-to-curb width with parking permitted along both sides of the street. Adjacent land uses are a mixture of light industrial and warehousing uses, and low-rise apartment buildings. The light industrial uses result in large numbers of trucks and heavy equipment traffic on these streets, with frequent disruption of traffic flow by the standing or maneuvering of these vehicles within the street.

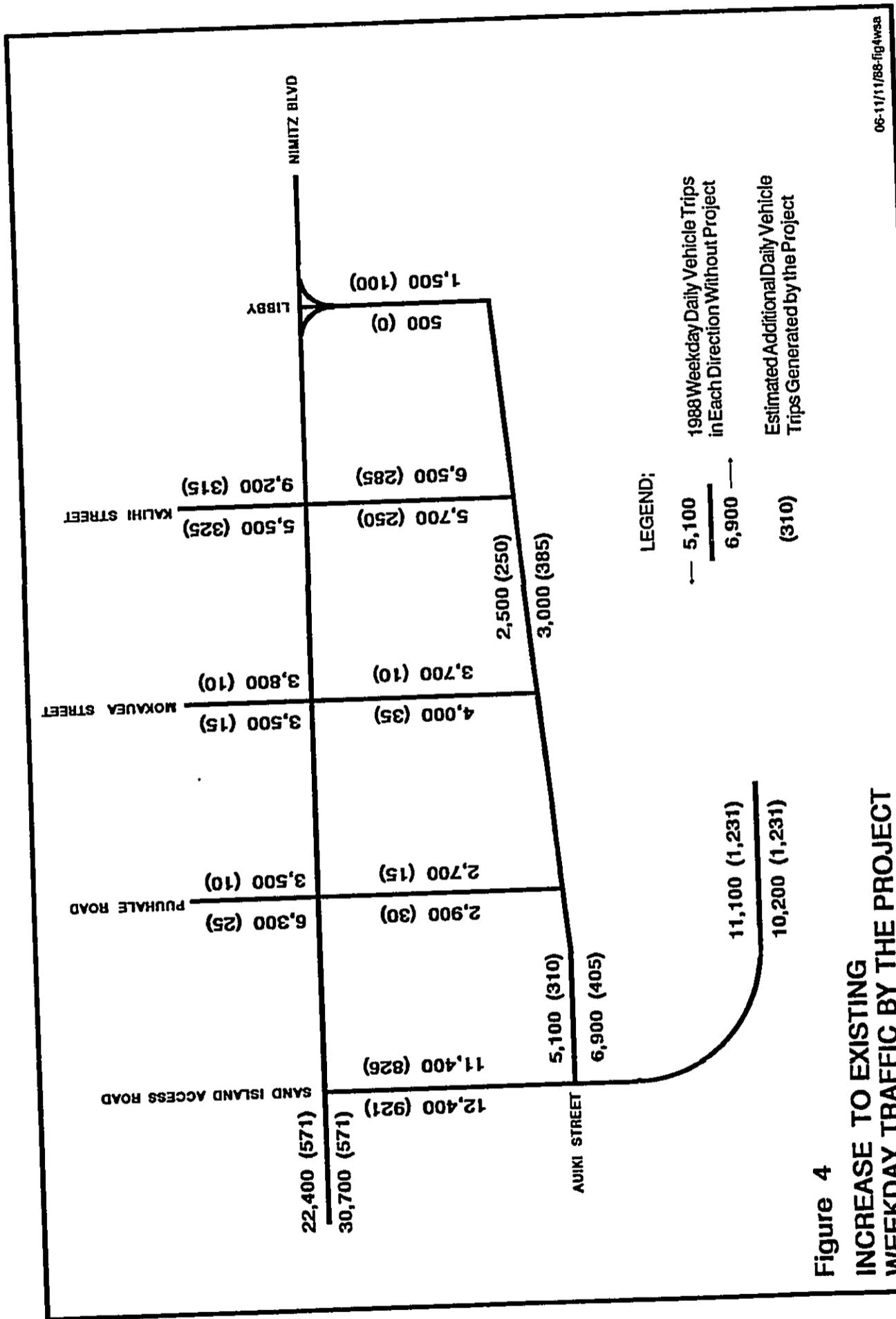
Mauka of Nimitz Highway, the streets provide one travel lane in each direction. There are few sections with sidewalks and curb sections.

Long-range plans include the widening of Puuhale Road, Mokauea Street, and Kalihi Street to four lanes on the mauka side of Nimitz Highway. However, it is uncertain as to whether these widenings will be implemented by the year 2005.

1. 1988 Traffic Increases with the Project

The narrow streets and frequent disruption of traffic flow by maneuvering or turning vehicles largely discourage through traffic use of these streets in lieu of the Sand Island Access Road, with the exception of Kalihi Street. Kalihi Street provides direct access to/from the H-1 Freeway and the Likelike Highway, and thus serves regional trips to/from the Sand Island area.

Current weekday traffic volumes along Kalihi Street near Nimitz Highway, range from 12,000 to 15,000 vehicles per day. Traffic volumes on the most heavily travelled portions of the other Kalihi Kai streets, as depicted in Figure 4, range from 2,000 to 10,000 vehicles per day. Traffic volumes further away from Nimitz Highway are one-half to two-thirds of these volumes. In comparison,



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 Building Department

Traffic Impact Study for  
 Honolulu Corporation Yard and Sand Island Beach Park  
 Environmental Impact Statement

approximately 24,000 vehicles per day currently use the Sand Island Access Road.

Most of the project traffic is expected to use the Sand Island Access Road and Nimitz Highway to travel to and from the two projects. However, a substantial portion of the project traffic, about 20 percent, is expected to use Kalihi Street in order to travel to Windward Oahu and to the mauka and eastern portions of central Honolulu. The estimated daily traffic added by the two projects to these streets and other area streets are depicted in Figure 4.

Project traffic would contribute a significant increase to area street volumes during the 6:30 - 7:30 AM peak hour, and also during the 3:00 - 4:00 PM afternoon shift change period. As indicated in Table 21, the increase would be most significant on Kalihi Street where the project day shift change would likely increase hourly traffic volumes by 20 percent and 8 percent on the mauka and makai sides of Nimitz Highway, respectively. Maximum hourly increases on Puuhale Road, Mokauea Street, and Libby would likely be 5 percent or less.

Because of the small numbers of trips outside the day shift change hours, the project would result in only small percentage changes to total daily traffic volumes on these

TABLE 21

ESTIMATED PROJECT TRAFFIC INCREASES  
ON KALIHI KAI STREETS

STREET/LOCATION	WEEKDAY DAILY TRAFFIC			MORNING PEAK HOUR		
	Traffic Without Project	Project Traffic	Percent Increase	Traffic Without Project	Project Traffic	Percent Increase
<b>Current Traffic Levels:</b>						
Puuhale Road						
Makai of Nimitz	5,600	45	0.8	483	25	5.0
Mauka of Nimitz	9,800	35	0.4	781	20	2.6
Mokauea Street						
Makai of Nimitz	7,700	45	0.6	563	25	4.4
Mauka of Nimitz	7,300	25	0.3	680	10	1.5
Kalihi Street						
Makai of Nimitz	12,200	535	4.4	1,206	100	8.3
Mauka of Nimitz	14,700	640	4.4	756	155	20.5
Libby Street						
Makai of Nimitz	2,000	100	5.0	400	0	0
<b>Year 2005 Traffic Levels:</b>						
Puuhale Road						
Makai of Nimitz	6,800	58	0.9	916	28	3.1
Mauka of Nimitz	8,300	45	0.5	1,244	20	1.6
Mokauea Street						
Makai of Nimitz	9,500	58	0.6	648	28	4.3
Mauka of Nimitz	8,800	45	0.5	782	20	2.6
Kalihi Street						
Makai of Nimitz	16,700	669	4.0	1,097	117	10.7
Mauka of Nimitz	15,700	804	5.1	757	202	26.7
Libby Street						
Makai of Nimitz	4,000	195	4.9	675	36	5.3

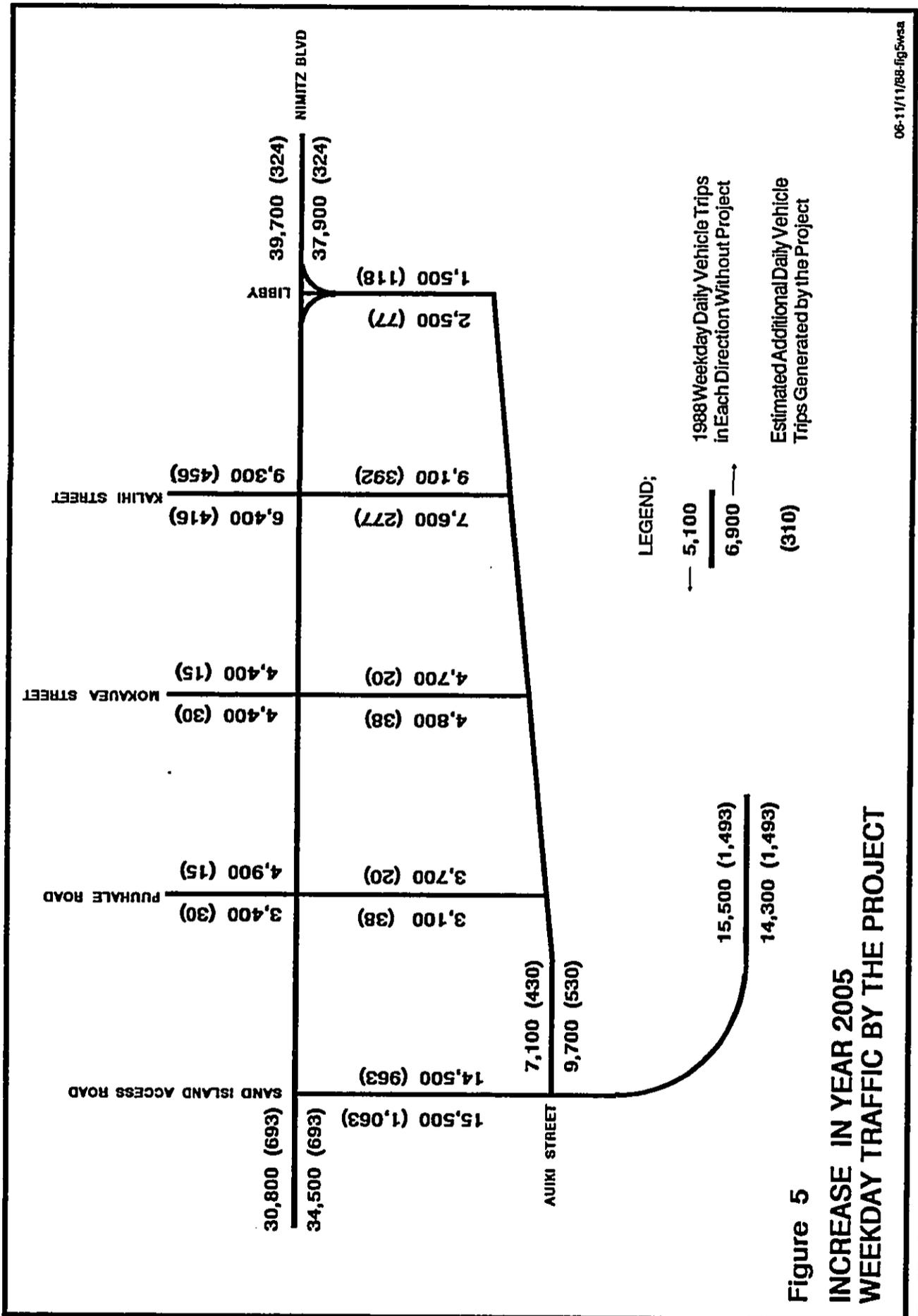
streets. Daily proportional increases due to the project are expected to be 5 percent or less on all of these streets.

Puuhaie Road, Mokauea Street and Libby should have little or no truck traffic to or from the project. Project truck traffic on Kalihi Street could range up to 30 to 40 vehicles to and an equal number from the site each weekday.

2. 2005 Traffic Increases with the Project

Traffic volumes in the Kalihi Kai area are expected to generally increase by about 20 percent or more by the year 2005. Estimated daily traffic volumes in the area are shown in Figure 5, together with the estimated number of vehicle trips to or from the Honolulu Corporation Yard and Sand Island Park facilities.

Increases in project traffic, as summarized in Table 21, would contribute a similar proportion of total street volumes as in 1988. Note that the much higher volumes on Libby reflect the planned provision of a left-turn movement from ewabound Nimitz Highway into Libby.



**Figure 5**  
**INCREASE IN YEAR 2005**  
**WEEKDAY TRAFFIC BY THE PROJECT**

06-11/11/88-fig5.waa

Traffic Impact Study for  
 Honolulu Corporation Yard and Sand Island Beach Park  
 Environmental Impact Statement

Prepared for:  
 City and County of Honolulu  
 Building Department

Prepared by:  
 Wilbur Smith  
 Associates



E. SAND ISLAND ACCESS ROAD/AUIKI STREET INTERSECTION

1. 1988 Without Project

Sand Island Access Road provides two through lanes and a left-turn storage lane in each direction at this traffic signal-controlled intersection. The Auiki Street (east leg) and Pahounui Drive (west leg) approaches are each 40-foot streets with parking permitted along both sides up to the intersection, thus usually limiting each street to one approach lane.

The major traffic movements at the intersection are the through movements on Sand Island Access Road, the makaibound left-turn and maukabound right-turn movements from Sand Island Access Road, and the ewabound left-turn from Auiki Street. The three heavy turning movements generally range between 250 and 500 vehicles each during the one-hour peak periods. The through movements on Sand Island Access Road range between 300 and 500 vehicles each hour.

Operating conditions at the intersection were analyzed using the Planning Method as described in the 1985 Highway Capacity Manual. This method identifies the critical conflicting movements at the intersection. Intersection

capacity is assumed to be a total of 1,400 vehicles for the summation of the average per-lane volumes for each of the critical conflicting vehicular movements.

Analysis of existing volumes for the four one-hour periods which would be most affected by the proposed project (Table 22) indicates that the intersection volumes are approaching capacity during the 6:30 to 7:30 AM period. The traffic volume during this period is using approximately 94 percent of the available capacity. This condition results primarily from the conflicts presented by the very large vehicular volumes turning left onto and from Auiki Street.

Traffic volumes during the other one-hour periods are well below the intersection capacity.

2. 1988 With Project

Addition of project traffic would increase the critical lane volume to 1,476 vehicles, with a theoretical volume-to-capacity ratio of 1.05, during the 6:30 to 7:30 AM period. This results from increases of 364 vehicles to the makaibound through movement and 150 vehicles to the left-turn movement from Auiki Street. Conditions during the other one-hour periods would worsen but remain within the capacity of the intersection.

TABLE 22

INTERSECTION CAPACITY ANALYSIS  
SAND ISLAND ROAD AND AUIKI STREET

ANALYSIS YEAR/PEAK HOUR	WITHOUT PROJECT			WITH PROJECT		
	Critical Movement Volume (a)	Traffic vs. Capacity Level	Volume/Capacity Ratio (b)	Critical Movement Volume (a)	Traffic vs. Capacity Level	Volume/Capacity Ratio (b)
<b>Current Traffic Levels:</b>						
6:30 - 7:30AM	1312	Near	.94	1476	Over	1.05
7:30 - 8:30AM	1102	Under	.79	1240	Near	.89
2:00 - 3:00PM	834	Under	.60	937	Under	.87
3:00 - 4:00PM	927	Under	.66	1184	Under	.85
<b>Year 2005 Traffic Levels:</b>						
6:30 - 7:30AM	1483	Over	1.07	1702	Over	1.22
7:30 - 8:30AM	1277	Near	.91	1383	Near	.99
2:00 - 3:00PM	820	Under	.59	999	Under	.71
3:00 - 4:00PM	920	Under	.66	1205	Near	.86

(a) Summation of volumes per lane for critical conflicting traffic movements at the intersection.

(b) Based on theoretical capacity of 1400 vehicles per lane for critical conflicting traffic movements.

3. 2005 Without Project

Traffic volumes are estimated to increase by 40 percent at this intersection by year 2005, without the project. These increases could be partially offset by the potential improvements identified for the Sand Island Access Road intersection in the previous section. This analysis for 2005 assumes that these improvements are in place: 1) a right-turn lane would be provided on the makai leg of Sand Island Access Road, and 2) that parking would be prohibited to provide separate left-turn storage lanes on Auiki Street and Pahounui Drive.

With these improvements, the estimated future traffic volumes without the project would still exceed the intersection capacity during the 6:30 to 7:30 AM period. The critical lane volume of 1,493 vehicles would be equivalent to a volume-to-capacity ratio of 1.07. Volumes in the other three analysis hours would remain below the intersection capacity. (See Table 22.)

4. 2005 With Project

The project would add an estimated 469 vehicles to the makai-direction through movement on Sand Island Access Road and 209 vehicles to the left-turn movement from Auiki

Street during the 6:30 to 7:30 AM period. This increase would result in a critical lane movement of 1,702 vehicles, or about 22 percent above the theoretical capacity of the intersection. The traffic increase during the 7:30 to 8:30 AM period would also approach the capacity of the intersection (Table 22).

5. Mitigation Measures

The impact of project traffic or existing (1988) conditions could be mitigated by the following actions:

- o Provide a right-turn lane on the makai leg of the intersection for the heavy right-turn movement from Sand Island to Auiki Street; and
- o Prohibit parking and restripe the Auiki Street and Pahounui Drive approaches to provide left-turn storage lanes.

The combined effect of these changes would be to reduce the critical lane volume to 1,216 vehicles and the volume-capacity ratio to 0.87 (from 1.05) during the 6:30 to 7:30 AM period, with the project.

Potential actions and the impact on the theoretical volume-capacity ratios for the year 2005 condition with the project, during the 6:30 -7:30 AM period, are:

- |    |   |      |
|----|---|------|
| a. | Add second left-turn lane for Auiki Street approach                           | 0.98 |
| b. | (a) plus add second left-turn lane to makai direction Sand Island Access Road | 0.89 |
| c. | (a) plus widen Sand Island Access Road to six lanes                           | 0.92 |
| d. | (b) plus (c)  | 0.73 |

F. NIMITZ HIGHWAY INTERSECTIONS

The Planning Method volume-capacity analysis was used to assess the project's potential impact on conditions at the Nimitz Highway intersections at Puuhale Road, Mokauea Street, and Kalihi Street.

1. 1988 With and Without Project

Project traffic was added to existing volumes at the Nimitz Highway intersections and conditions were analyzed based on the current number of roadway lanes. The results of the critical lane analysis with and without the project traffic

is summarized in Table 23. The analysis indicates the following:

- o The Puuhale Road intersection is presently operating at or above its theoretical capacity in each of the four hourly periods. Addition of project traffic should have minimal impact on the currently congested conditions, as indicated by increases in the volume-capacity ratio of 0.02 or less.
  
- o The Mokauea Street intersection is operating with volume above its theoretical capacity. The project traffic would have minimal impact upon the current conditions.
  
- o The Kalihi Street intersection is operating with volumes above its theoretical capacity during the morning hourly periods, and with volumes approaching its capacity during the afternoon hourly periods. The arriving day shift employee traffic during the 6:30 - 7:30 AM period could affect intersection operation, as indicated by an increase of 0.11 in the volume-capacity ratio for this period. Little or no impacts are indicated for the other periods.

2. 2005 With and Without Project

The analysis of year 2005 conditions assumes that several intersection projects planned by the State Department of Transportation have been implemented. These include the

TABLE 23  
 INTERSECTION CAPACITY ANALYSIS  
 NIMITZ HIGHWAY  
 1988 WITH AND WITHOUT PROJECT

INTERSECTION AND ANALYSIS HOUR	WITHOUT PROJECT			WITH PROJECT		
	Critical Movement Volume (a)	Traffic vs. Capacity Level	Volume/ Capacity Ratio (b)	Critical Movement Volume (a)	Traffic vs. Capacity Level	Volume/ Capacity Ratio (b)
<b>Puuhaie Road:</b>						
6:30 - 7:30AM	1477	Over	1.06	1506	Over	1.08
7:30 - 8:30AM	1376	Near	.98	1387	Near	.99
2:00 - 3:00PM	1368	Near	.98	1368	Near	.98
3:00 - 4:00PM	1549	Over	1.11	1580	Over	1.13
<b>Mokauea Street:</b>						
6:30 - 7:30AM	1550	Over	1.11	1573	Over	1.12
7:30 - 8:30AM	1438	Over	1.03	1448	Over	1.03
2:00 - 3:00PM	1464	Over	1.05	1469	Over	1.05
3:00 - 4:00PM	1484	Over	1.06	1517	Over	1.08
<b>Kalihi Street:</b>						
6:30 - 7:30AM	1498	Over	1.07	1653	Over	1.18
7:30 - 8:30AM	1446	Over	1.03	1457	Over	1.04
2:00 - 3:00PM	1165	Under	.83	1249	Near	.89
3:00 - 4:00PM	1304	Near	.93	1328	Over	.95

(a) Summation of volumes per lane for critical conflicting traffic movements at intersection.  
 (b) Based on theoretical capacity of 1400 vehicles per lane for critical conflicting traffic movements.

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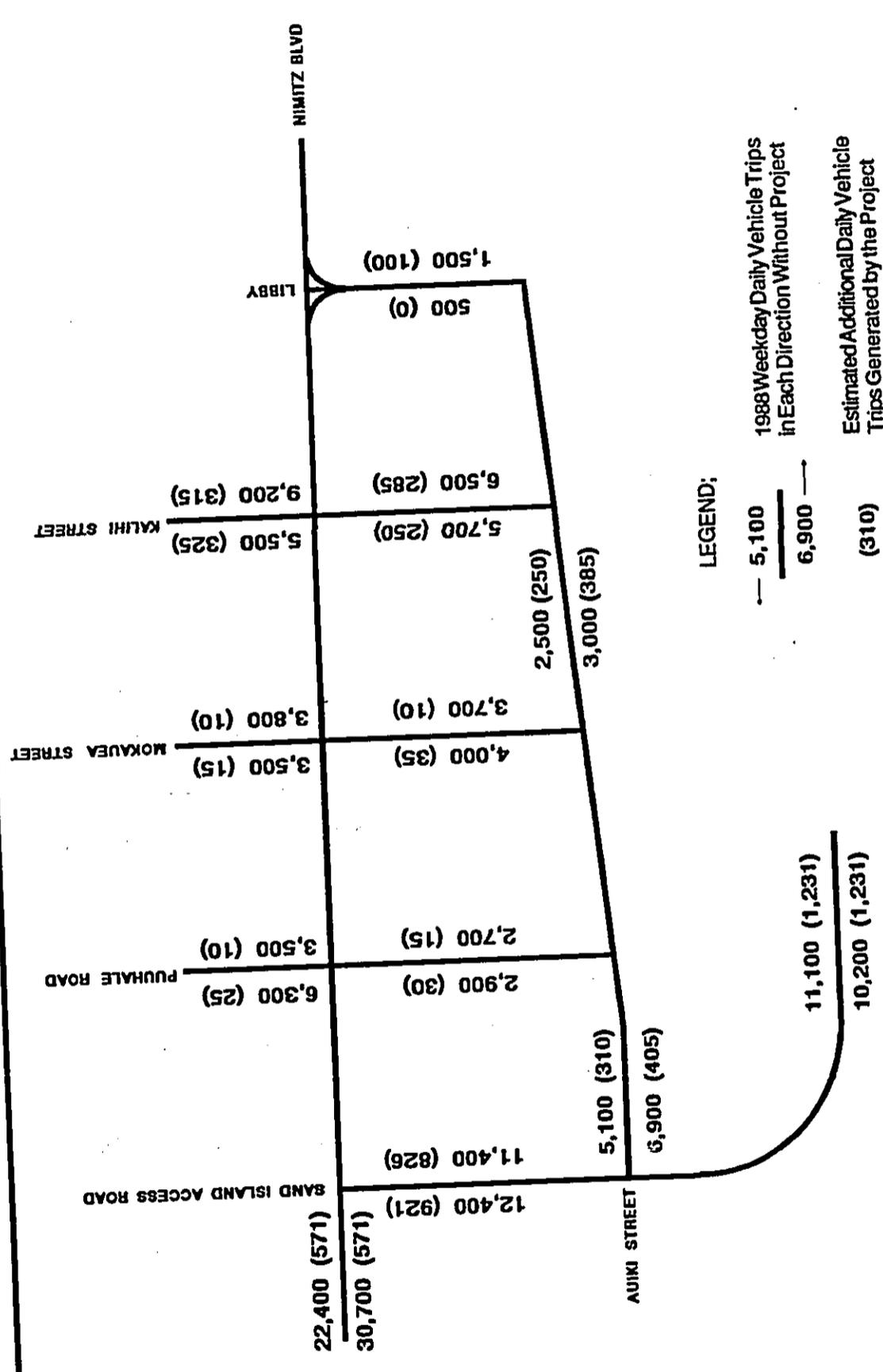
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06-11/11/88-fig4wca

**Figure 4**  
**INCREASE TO EXISTING**  
**WEEKDAY TRAFFIC BY THE PROJECT**

Prepared by:  
 Wilbur Smith  
 Associates

Prepared for:  
 City and County of Honolulu  
 Building Department

Traffic Impact Study for  
 Honolulu Corporation Yard and Sand Island Beach Park  
 Environmental Impact Statement

approximately 24,000 vehicles per day currently use the Sand Island Access Road.

Most of the project traffic is expected to use the Sand Island Access Road and Nimitz Highway to travel to and from the two projects. However, a substantial portion of the project traffic, about 20 percent, is expected to use Kalihi Street in order to travel to Windward Oahu and to the mauka and eastern portions of central Honolulu. The estimated daily traffic added by the two projects to these streets and other area streets are depicted in Figure 4.

Project traffic would contribute a significant increase to area street volumes during the 6:30 - 7:30 AM peak hour, and also during the 3:00 - 4:00 PM afternoon shift change period. As indicated in Table 21, the increase would be most significant on Kalihi Street where the project day shift change would likely increase hourly traffic volumes by 20 percent and 8 percent on the mauka and makai sides of Nimitz Highway, respectively. Maximum hourly increases on Puuhale Road, Mokauea Street, and Libby would likely be 5 percent or less.

Because of the small numbers of trips outside the day shift change hours, the project would result in only small percentage changes to total daily traffic volumes on these

TABLE 21

ESTIMATED PROJECT TRAFFIC INCREASES  
ON KALIHI KAI STREETS

STREET/LOCATION	WEEKDAY DAILY TRAFFIC			MORNING PEAK HOUR		
	Traffic Without Project	Project Traffic	Percent Increase	Traffic Without Project	Project Traffic	Percent Increase
<b>Current Traffic Levels:</b>						
Puuahale Road				483	25	5.0
Makai of Nimitz	5,600	45	0.8	781	20	2.6
Mauka of Nimitz	9,800	35	0.4			
Mckauaa Street				563	25	4.4
Makai of Nimitz	7,700	45	0.6	680	10	1.5
Mauka of Nimitz	7,300	25	0.3			
Kalihi Street				1,206	100	8.3
Makai of Nimitz	12,200	535	4.4	756	155	20.5
Mauka of Nimitz	14,700	640	4.4			
Libby Street				400	0	0
Makai of Nimitz	2,000	100	5.0			
<b>Year 2005 Traffic Levels:</b>						
Puuahale Road				916	28	3.1
Makai of Nimitz	6,800	58	0.9	1,244	20	1.6
Mauka of Nimitz	8,300	45	0.5			
Mckauaa Street				648	28	4.3
Makai of Nimitz	9,500	58	0.6	782	20	2.6
Mauka of Nimitz	8,800	45	0.5			
Kalihi Street				1,097	117	10.7
Makai of Nimitz	16,700	669	4.0	757	202	26.7
Mauka of Nimitz	15,700	804	5.1			
Libby Street				675	36	5.3
Makai of Nimitz	4,000	195	4.9			

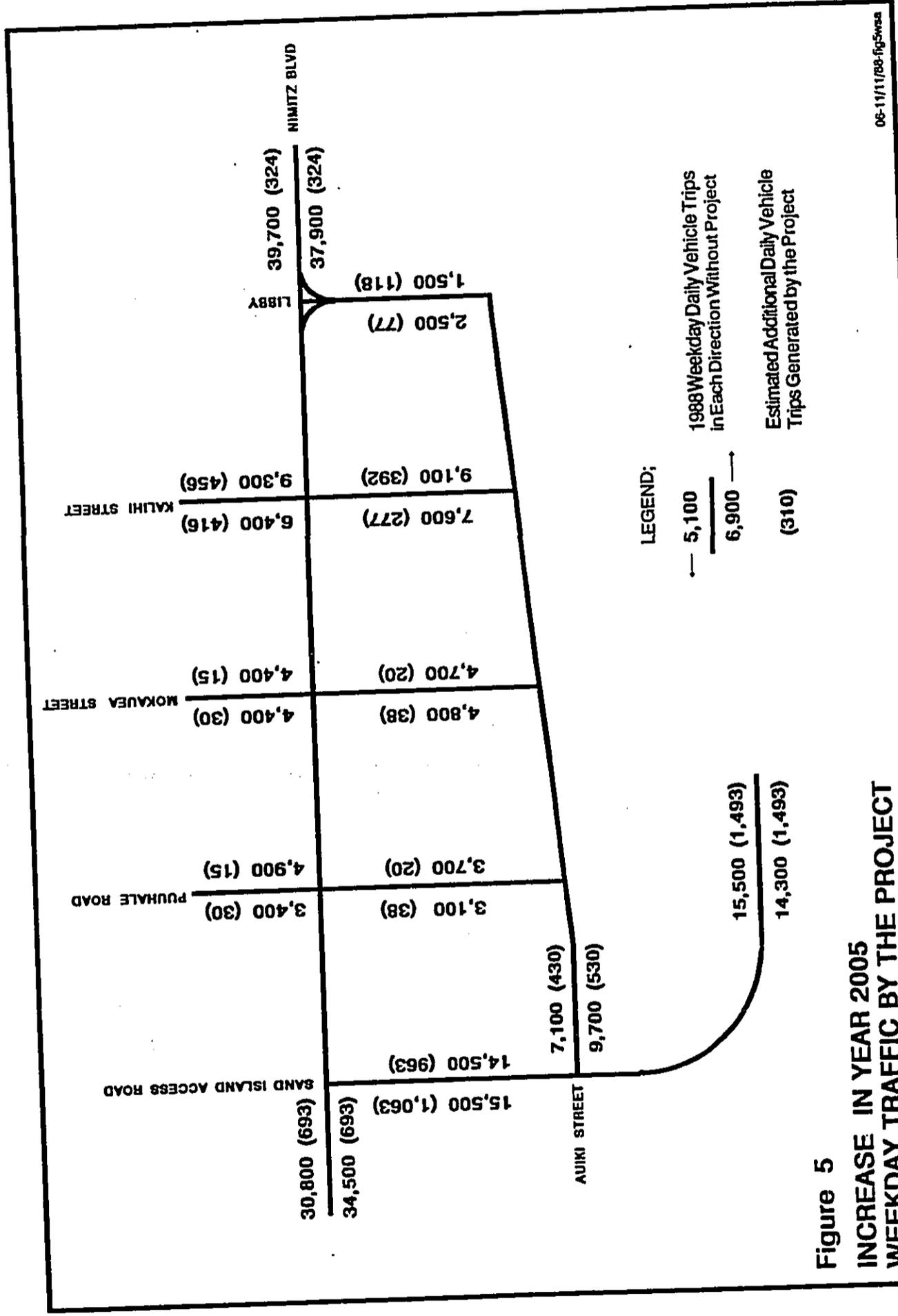
streets. Daily proportional increases due to the project are expected to be 5 percent or less on all of these streets.

Puuhaie Road, Mokauea Street and Libby should have little or no truck traffic to or from the project. Project truck traffic on Kalihi Street could range up to 30 to 40 vehicles to and an equal number from the site each weekday.

2. 2005 Traffic Increases with the Project

Traffic volumes in the Kalihi Kai area are expected to generally increase by about 20 percent or more by the year 2005. Estimated daily traffic volumes in the area are shown in Figure 5, together with the estimated number of vehicle trips to or from the Honolulu Corporation Yard and Sand Island Park facilities.

Increases in project traffic, as summarized in Table 21, would contribute a similar proportion of total street volumes as in 1988. Note that the much higher volumes on Libby reflect the planned provision of a left-turn movement from ewabound Nimitz Highway into Libby.



06-11/11/88-fig5wca

**Figure 5**  
**INCREASE IN YEAR 2005**  
**WEEKDAY TRAFFIC BY THE PROJECT**

Traffic Impact Study for  
 Honolulu Corporation Yard and Sand Island Beach Park  
 Environmental Impact Statement

Prepared for:  
 City and County of Honolulu  
 Building Department

Prepared by:  
 Wilbur Smith  
 Associates



E. SAND ISLAND ACCESS ROAD/AUIKI STREET INTERSECTION

1. 1988 Without Project

Sand Island Access Road provides two through lanes and a left-turn storage lane in each direction at this traffic signal-controlled intersection. The Auiki Street (east leg) and Pahounui Drive (west leg) approaches are each 40-foot streets with parking permitted along both sides up to the intersection, thus usually limiting each street to one approach lane.

The major traffic movements at the intersection are the through movements on Sand Island Access Road, the makaibound left-turn and maukabound right-turn movements from Sand Island Access Road, and the ewabound left-turn from Auiki Street. The three heavy turning movements generally range between 250 and 500 vehicles each during the one-hour peak periods. The through movements on Sand Island Access Road range between 300 and 500 vehicles each hour.

Operating conditions at the intersection were analyzed using the Planning Method as described in the 1985 Highway Capacity Manual. This method identifies the critical conflicting movements at the intersection. Intersection

capacity is assumed to be a total of 1,400 vehicles for the summation of the average per-lane volumes for each of the critical conflicting vehicular movements.

Analysis of existing volumes for the four one-hour periods which would be most affected by the proposed project (Table 22) indicates that the intersection volumes are approaching capacity during the 6:30 to 7:30 AM period. The traffic volume during this period is using approximately 94 percent of the available capacity. This condition results primarily from the conflicts presented by the very large vehicular volumes turning left onto and from Auiki Street.

Traffic volumes during the other one-hour periods are well below the intersection capacity.

2. 1988 With Project

Addition of project traffic would increase the critical lane volume to 1,476 vehicles, with a theoretical volume-to-capacity ratio of 1.05, during the 6:30 to 7:30 AM period. This results from increases of 364 vehicles to the makaibound through movement and 150 vehicles to the left-turn movement from Auiki Street. Conditions during the other one-hour periods would worsen but remain within the capacity of the intersection.

TABLE 22

INTERSECTION CAPACITY ANALYSIS  
SAND ISLAND ROAD AND AUIKI STREET

ANALYSIS YEAR/PEAK HOUR	WITHOUT PROJECT			WITH PROJECT		
	Critical Movement Volume (a)	Traffic vs. Capacity Level	Volume/ Capacity Ratio (b)	Critical Movement Volume (a)	Traffic vs. Capacity Level	Volume/ Capacity Ratio (b)
<b>Current Traffic Levels:</b>						
6:30 - 7:30AM	1312	Near	.94	1476	Over	1.05
7:30 - 8:30AM	1102	Under	.79	1240	Near	.89
2:00 - 3:00PM	834	Under	.60	937	Under	.67
3:00 - 4:00PM	927	Under	.66	1184	Under	.85
<b>Year 2005 Traffic Levels:</b>						
6:30 - 7:30AM	1483	Over	1.07	1702	Over	1.22
7:30 - 8:30AM	1277	Near	.91	1383	Near	.99
2:00 - 3:00PM	820	Under	.59	999	Under	.71
3:00 - 4:00PM	920	Under	.66	1205	Near	.86

(a) Summation of volumes per lane for critical conflicting traffic movements at the intersection.

(b) Based on theoretical capacity of 1400 vehicles per lane for critical conflicting traffic movements.

3. 2005 Without Project

Traffic volumes are estimated to increase by 40 percent at this intersection by year 2005, without the project. These increases could be partially offset by the potential improvements identified for the Sand Island Access Road intersection in the previous section. This analysis for 2005 assumes that these improvements are in place: 1) a right-turn lane would be provided on the makai leg of Sand Island Access Road, and 2) that parking would be prohibited to provide separate left-turn storage lanes on Auiki Street and Pahounui Drive.

With these improvements, the estimated future traffic volumes without the project would still exceed the intersection capacity during the 6:30 to 7:30 AM period. The critical lane volume of 1,493 vehicles would be equivalent to a volume-to-capacity ratio of 1.07. Volumes in the other three analysis hours would remain below the intersection capacity. (See Table 22.)

4. 2005 With Project

The project would add an estimated 469 vehicles to the makai-direction through movement on Sand Island Access Road and 209 vehicles to the left-turn movement from Auiki

Street during the 6:30 to 7:30 AM period. This increase would result in a critical lane movement of 1,702 vehicles, or about 22 percent above the theoretical capacity of the intersection. The traffic increase during the 7:30 to 8:30 AM period would also approach the capacity of the intersection (Table 22).

5. Mitigation Measures

The impact of project traffic or existing (1988) conditions could be mitigated by the following actions:

- o Provide a right-turn lane on the makai leg of the intersection for the heavy right-turn movement from Sand Island to Auiki Street; and
- o Prohibit parking and restripe the Auiki Street and Pahounui Drive approaches to provide left-turn storage lanes.

The combined effect of these changes would be to reduce the critical lane volume to 1,216 vehicles and the volume-capacity ratio to 0.87 (from 1.05) during the 6:30 to 7:30 AM period, with the project.

Potential actions and the impact on the theoretical volume-capacity ratios for the year 2005 condition with the project, during the 6:30 -7:30 AM period, are:

- |    |   |      |
|----|---|------|
| a. | Add second left-turn lane for Auiki Street approach                           | 0.98 |
| b. | (a) plus add second left-turn lane to makai direction Sand Island Access Road | 0.89 |
| c. | (a) plus widen Sand Island Access Road to six lanes                           | 0.92 |
| d. | (b) plus (c)  | 0.73 |

#### F. NIMITZ HIGHWAY INTERSECTIONS

The Planning Method volume-capacity analysis was used to assess the project's potential impact on conditions at the Nimitz Highway intersections at Puuhale Road, Mokauea Street, and Kalihi Street.

##### 1. 1988 With and Without Project

Project traffic was added to existing volumes at the Nimitz Highway intersections and conditions were analyzed based on the current number of roadway lanes. The results of the critical lane analysis with and without the project traffic

is summarized in Table 23. The analysis indicates the following:

- o The Puuhale Road intersection is presently operating at or above its theoretical capacity in each of the four hourly periods. Addition of project traffic should have minimal impact on the currently congested conditions, as indicated by increases in the volume-capacity ratio of 0.02 or less.
  
- o The Mokauea Street intersection is operating with volume above its theoretical capacity. The project traffic would have minimal impact upon the current conditions.
  
- o The Kalihi Street intersection is operating with volumes above its theoretical capacity during the morning hourly periods, and with volumes approaching its capacity during the afternoon hourly periods. The arriving day shift employee traffic during the 6:30 - 7:30 AM period could affect intersection operation, as indicated by an increase of 0.11 in the volume-capacity ratio for this period. Little or no impacts are indicated for the other periods.

2. 2005 With and Without Project

The analysis of year 2005 conditions assumes that several intersection projects planned by the State Department of Transportation have been implemented. These include the

TABLE 23  
 INTERSECTION CAPACITY ANALYSIS  
 NIMITZ HIGHWAY  
 1988 WITH AND WITHOUT PROJECT

INTERSECTION AND ANALYSIS HOUR	WITHOUT PROJECT			WITH PROJECT		
	Critical Movement Volume (a)	Traffic vs. Capacity Level	Volume/ Capacity Ratio (b)	Critical Movement Volume (a)	Traffic vs. Capacity Level	Volume/ Capacity Ratio (b)
<b>Puuhale Road:</b>						
6:30 - 7:30AM	1477	Over	1.06	1506	Over	1.08
7:30 - 8:30AM	1376	Near	.98	1387	Near	.99
2:00 - 3:00PM	1368	Near	.98	1368	Near	.98
3:00 - 4:00PM	1549	Over	1.11	1580	Over	1.13
<b>Mokauea Street:</b>						
6:30 - 7:30AM	1550	Over	1.11	1573	Over	1.12
7:30 - 8:30AM	1438	Over	1.03	1448	Over	1.03
2:00 - 3:00PM	1464	Over	1.05	1469	Over	1.05
3:00 - 4:00PM	1484	Over	1.06	1517	Over	1.08
<b>Kalihi Street:</b>						
6:30 - 7:30AM	1498	Over	1.07	1653	Over	1.18
7:30 - 8:30AM	1446	Over	1.03	1457	Over	1.04
2:00 - 3:00PM	1165	Under	.83	1249	Near	.89
3:00 - 4:00PM	1304	Near	.93	1328	Over	.95

(a) Summation of volumes per lane for critical conflicting traffic movements at intersection.  
 (b) Based on theoretical capacity of 1400 vehicles per lane for critical conflicting traffic movements.

widening of the mauka-side approach of Mokauea Street to provide a left-turn lane, and the widening of the makai-side approach of Kalihi Street to four lanes, with two through lanes and separate right and left-turn lanes.

The analyses of year 2005 conditions with and without the project is summarized in Table 24. The analysis indicates the following:

- o The Puuhale Road and Mokauea Street intersections would have critical lane volumes substantially in excess of theoretical capacity, both with and without the project. Project traffic would likely have minimal impact on conditions at these intersections.
- o The Kalihi Street intersection would have critical lane volumes in excess of theoretical capacity. Project traffic could significantly affect intersection conditions during the 6:30 - 7:30 AM period when day shift employees are arriving for work. This impact is largely due to the project traffic on Kalihi Street rather than on Nimitz Highway.

TABLE 24  
 INTERSECTION CAPACITY ANALYSIS  
 NIMITZ HIGHWAY  
 2005 WITH AND WITHOUT PROJECT

INTERSECTION AND ANALYSIS HOUR	WITHOUT PROJECT			WITH PROJECT		
	Critical Movement Volume (a)	Traffic vs. Capacity Level	Volume/ Capacity Ratio (b)	Critical Movement Volume (a)	Traffic vs. Capacity Level	Volume/ Capacity Ratio (b)
<b>Puuhele Road:</b>						
6:30 - 7:30AM	1808	Over	1.29	1816	Over	1.30
7:30 - 8:30AM	1673	Over	1.20	1687	Over	1.21
2:00 - 3:00PM	1645	Over	1.16	1645	Over	1.18
3:00 - 4:00PM	1590	Over	1.14	1629	Over	1.16
<b>Mokaua Streets:</b>						
6:30 - 7:30AM	1786	Over	1.28	1794	Over	1.28
7:30 - 8:30AM	1750	Over	1.25	1764	Over	1.26
2:00 - 3:00PM	1603	Over	1.15	1603	Over	1.15
3:00 - 4:00PM	1824	Over	1.30	1864	Over	1.33
<b>Kalihi Street:</b>						
6:30 - 7:30AM	1744	Over	1.25	1961	Over	1.40
7:30 - 8:30AM	1649	Over	1.18	1663	Over	1.19
2:00 - 3:00PM	1443	Over	1.03	1526	Over	1.09
3:00 - 4:00PM	1597	Over	1.14	1660	Over	1.19

(a) Summation of volumes per lane for critical conflicting traffic movements at intersection.  
 (b) Based on theoretical capacity of 1400 vehicles per lane for critical conflicting traffic movements.

3. Mitigation

Mitigation of overall traffic problems along Nimitz Highway would require major corridor improvements such as the proposed Makai Boulevard viaduct project and/or major widenings of the mauka-makai streets.

Impacts of the project traffic on the Kalihi Street intersection could be minimized by widening the mauka-side approach to provide a second through lane. The City should also consider measures to encourage employee ridesharing, including the possible provision of all day or peak period bus service to Sand Island.

APPENDIX C

2772-07  
SKS  
JS

2772-07  
K



DEPARTMENT OF THE ARMY  
U. S. ARMY ENGINEER DISTRICT, HONOLULU  
BUILDING 230  
FT. SHAFTER, HAWAII 96858-5440

REPLY TO  
ATTENTION OF

November 29, 1988

Planning Branch

RECEIVED

WILSON OKAMOTO & ASSOCIATES

Mr. Stanford Kuroda  
Wilson Okamoto & Associates, Inc.  
115B South King Street, Suite 808  
Honolulu, Hawaii 968143

Dear Mr. Kuroda:

Thank you for the opportunity to review the Environmental Impact Statement Preparation Notice (EISPN) for the proposed Honolulu Corporation Yard and Sand Island Park Expansion, Sand Island, Oahu, Hawaii. The following comments are offered:

- a. Grading or filling along the shoreline for construction of the park may require a Department of the Army (DA) permit. Construction of the corporation yard will not infringe on waters of the U.S. and will not require a DA permit. For further information regarding permit requirements, please contact Operations Branch (telephone 438-9258).
- b. The flood hazard information presented in the EISPN (page 11-1, section 11.D) is accurate.

Sincerely,

*C. M. Cheung*  
Kisuk Cheung  
Chief, Engineering Division

PB 88-1084

RECEIVED

DEC 14 1988  
WILSON OKAMOTO & ASSOCIATES

December 12, 1988

Mr. Kisuk Cheung  
Chief, Engineering Division  
Department of the Army  
U.S. Army Engineer District, Honolulu  
Building 230  
Ft. Shafter, Hawaii 96858-5440

Attn: Planning Branch

Dear Mr. Cheung:

Subject: Environmental Impact Statement Preparation Notice  
Proposed Honolulu Corporation Yard,  
Sand Island, and Sand Island Park Extension

Thank you for your comments to the EIS Preparation Notice. At this time, we do not contemplate grading or filling nor any other type of construction activities along the shoreline. If such construction should be planned, we will coordinate our project plans with the Department of the Army.

Thank you for your interest in this project.

Very truly yours,

*Herbert K. Muraoka*

HERBERT K. MURAOKA  
Director and Building Superintendent

JK/TH:jo  
cc: Wilson Okamoto & Assoc.



US Department  
of Transportation  
Federal Aviation  
Administration

AIRPORTS DISTRICT OFFICE  
BOX 50244  
HONOLULU, HI 96850-0001  
Telephone: (808) 541-1243

November 28, 1988

Mr. Stanford Kuroda  
AIA, Project Manager  
Wilson Okamoto & Associates  
P.O. Box 3530  
Honolulu, Hawaii 96811

Dear Mr. Kuroda:

We have reviewed the EIS Preparation Notice for the Proposed Honolulu Corporation Yard, Sand Island and Sand Island Park Extension transmitted by your November 1, 1988, letter.

We have no comments regarding the Preparation Notice but would like to receive a copy of the EIS for review.

Sincerely,

*David J. Welhouse*

David J. Welhouse  
Airport Engineer/Planner

Henry A. Sumida  
Airports District Office Manager

**RECEIVED**  
NOV 29 1988  
MAIL ROOM

PB 88-1067

December 6, 1988

Mr. David J. Welhouse  
Airport Engineer/Planner  
U. S. Department of Transportation  
Federal Aviation Administration  
Airports District Office  
Box 50244  
Honolulu, Hawaii 96850-0001

Dear Mr. Welhouse:

Subject: Environmental Impact Statement Preparation Notice  
Proposed Honolulu Corporation Yard  
Sand Island and Sand Island Park Extension

Thank you for your letter on the EIS Preparation Notice. We will place your name on the distribution list for a copy of the Draft EIS.

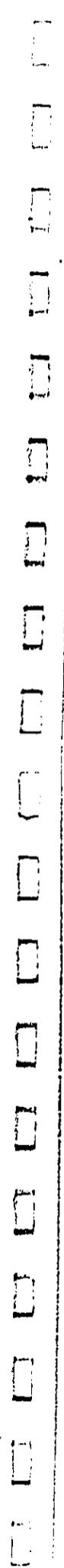
Thank you for your interest in this project.

Very truly yours,

*Herbert K. Muraoka*

HERBERT K. MURAOKA  
Director and Building Superintendent

JS/TH:jo  
cc: Wilson Okamoto & Assoc.





United States Department of the Interior  
**FISH AND WILDLIFESERVICE**  
 PACIFIC ISLANDS OFFICE  
 P.O. BOX 5017  
 HONOLULU, HAWAII 96810  
 ES Room 6307

2772-01  
 SK

Wilson Okamoto and Associates, Inc.  
 Attn: Stanford Kuroda  
 1150 South King Street, Suite 800  
 Honolulu, Hawaii 96814

Re: Environmental Impact Statement Preparation Notice, Proposed  
 Honolulu Corporation Yard at Sand Island and Sand Island  
 Park Extension, Oahu

RECEIVED  
 NOV 21 1988  
 WILSON OKAMOTO & ASSOCIATES

PB 88-1066

December 6, 1988

Dear Mr. Kuroda:

We have reviewed the referenced document and offer the following comments for your consideration.

The proposed Honolulu Corporation Yard would include vehicle fueling and washing facilities. The Preparation Notice states that oil-water separators would be installed in the drainage systems at work facilities where waste petroleum may collect. The Draft Environmental Impact Statement (EIS) should include a description of the effectiveness of the oil-water separators and their maintenance schedule.

The Draft EIS should also discuss whether the proposed facility would affect the future expansion of the Sand Island Sewage Treatment Plant if this treatment facility is upgraded to secondary treatment.

We appreciate this opportunity to comment.

Sincerely yours,

*Ernest Kosaka*  
 Ernest Kosaka  
 Field Office Supervisor  
 Environmental Services

Mr. Ernest Kosaka  
 Field Office Supervisor  
 Environmental Services  
 U. S. Department of the Interior  
 Fish and Wildlife Service  
 Pacific Island Office  
 P. O. Box 5017,  
 Honolulu, Hawaii 96850

Dear Mr. Kosaka:

Subject: Environmental Impact Statement Preparation Notice  
 Proposed Honolulu Corporation Island,  
 Sand Island, and Sand Island Park Extension

Thank you for your response to the EIS Preparation Notice. Installation of the oil-water separators in the drainage system for the proposed corporation yard will be an integral part of the design for the project. We are aware that the project site and the surrounding areas must be protected from discharge of petroleum and other waste products. The Draft EIS will address this issue.

The proposed corporation yard is sited on lands which have not been set aside for possible expansion of the Sand Island Sewage Treatment Plant. Thus, the corporation yard will not impact the possible upgrade of the treatment plant.

Thank you for your interest in this project.

Very truly yours,

*Herbert K. Muraoka*  
 HERBERT K. MURAOKA  
 Director and Building Superintendent

JS/TH:jo  
 cc: Wilson Okamoto & Assoc.



United States Department of the Interior

WATER RESOURCES DIVISION  
677 Ala Moana Boulevard, Suite 415  
Honolulu, Hawaii 96813

November 16, 1988

RECEIVED

NOV 17 1988

Mr. Stanford Kuroda, AIA  
Wilson Okamoto and Associates, Inc.  
1150 South King Street, Suite 800  
Honolulu, Hawaii 96814

Dear Mr. Kuroda:

We have reviewed the Environmental Impact Statement Preparation Notice for the Proposed Honolulu Corporation Yard, Sand Island and Sand Island Park Extension, and have no comments.

Thank you for allowing us to review this EIS preparation notice.

Sincerely,

*William Meyer*  
William Meyer  
District Chief

US Department  
of Transportation  
United States  
Coast Guard



Commander (S)  
Maintenance and Logistics  
Command Pacific

Coast Guard Island  
Alameda, CA 94501-5100  
(415) 437-3626

16475  
29 December 1988

RECEIVED

Mr. Stanford Kuroda  
Wilson, Okamoto & Associates, Inc.  
1150 S. King Street, Suite 800  
Honolulu, HI 96814

Dear Mr. Kuroda:

I am writing to request that our office be provided with a copy of the Environmental Impact Statement for the Corporation Yard relocation and Park Extension on Sand Island, as soon as it is issued to the public. We are responsible for facilities planning for the U.S. Coast Guard on Sand Island.

Thank you for your assistance.

*C. D. Wurster*  
C. D. WURSTER  
Commander, United States Coast Guard  
Acting Chief, Civil Engineering Division  
By direction of the Commander

copy: Mr. Higa, Public Works  
City and County of Honolulu



RECEIVED  
NOV 22 1988

BT



STATE OF HAWAII  
DEPARTMENT OF HEALTH

P. O. BOX 349  
HONOLULU, HAWAII 96814

November 22, 1988

IN REPLY, PLEASE REFER TO  
EIPSP

JOHN BLANCKE  
DIRECTOR OF HEALTH

3. Any existing UST not in use, must be removed according to the 40 C.F.R. Part 280 and local Fire Department requirements. NOISE

1. Construction activities must comply with the provisions of title 11, Administrative Rules Chapter 43, Community Noise control for Oahu.
  - a. The contractor must obtain a noise permit if noise levels from construction activities are expected to exceed the allowable levels of the regulations.
  - b. Construction equipment and on-site vehicles requiring an exhaust of gas or air must be equipped with mufflers.
  - c. The contractor must comply with the conditional use of the permit as specified in the regulations and conditions issued with the permit.
2. Facility should be designed so as to minimize impact of noisy operations and equipment on park users.

Very truly yours,

*Bruce S. Anderson*  
BRUCE S. ANDERSON, Ph.D.  
Deputy Director for  
Environmental Health

Mr. S. Kuroda  
Wilson Okamoto & Associates, Inc.  
1150 S. King St., Suite 800  
Honolulu, HI 96814

Dear Mr. Kuroda:

Subject: Comments on Environmental Impact Statement  
Preparation Notice (EISPN), Proposed Honolulu  
Corporation Yard, Sand Island and Sand Island  
Park Extension

Thank you for allowing us to review and comment on the subject EISPN. The following are our comments on the subject proposal:

HAZARDOUS WASTE

The type of solid wastes expected to be generated from facilities such as the Honolulu Corporation Yard (HCY), i.e. wastes from an automotive maintenance shop, will generally meet the definition of a "hazardous waste" as defined in 40 C.F.R. 261.3. As such, hazardous waste regulations, set forth in 40 C.F.R. Parts 260 - 280, will probably be applicable. These regulations will address the generation, handling, storage, treatment, manifesting, transportation and disposal of the subject hazardous waste. Project managers are advised to research the applicability of hazardous waste regulations to the anticipated activities of this project.

UNDERGROUND STORAGE TANKS

1. A facility such as this is expected to utilize Underground Storage Tanks (UST). USTs for both fuel and hazardous substances must be designed, installed and operated in accordance with the EPA's final rules, 40 C.F.R. Part 280, in order to minimize adverse environmental impacts (releases to soil and groundwater).
2. Underground tanks containing hazardous substances must be designed with secondary containment for added protectiveness.

December 15, 1988

Dr. Bruce S. Anderson  
Deputy Director for Environmental Health  
Department of Health  
State of Hawaii  
P. O. Box 3376  
Honolulu, Hawaii 96801

Dear Dr. Anderson:

Subject: Environmental Impact Statement Preparation Notice  
Proposed Honolulu Corporation Yard, Sand Island,  
and Sand Island Park Extension

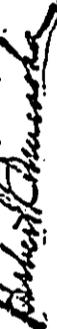
Thank you for your response to the EIS Preparation Notice. We are aware that the activities at the Corporation Yard will generate hazardous waste material as defined by the various Federal regulations. The Draft EIS will address the generation, handling, storage and disposal of the various types of hazardous waste generated by the maintenance activities at the Corporation Yard.

The underground fuel and hazardous waste tanks for the proposed Corporation Yard will be designed to meet applicable Federal rules and regulations.

The noise requirements during construction activities will be addressed in the Draft EIS. The Master Plan for the Corporation Yard has sited facilities which may generate noise in areas away from the proposed Sand Island Park Extension.

Thank you for your interest in this project.

Very truly yours,



HERBERT K. MURAOKA  
Director and Building Superintendent

JS/TH:jo  
cc: Wilson Okamoto & Assoc.



8772-03  
SKP  
JS

PB 88-1099

December 15, 1988

**RECEIVED**  
DEC 20 1988  
WILSON OKAMOTO & ASSOCIATES

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

Attn: Roy Schaefer  
Office of Conservation and  
Environmental Affairs

Dear Mr. Paty:

**Subject: Environmental Impact Statement Preparation Notice  
Honolulu Corporation Yard, Sand Island,  
and Sand Island Park Extension**

Thank you for your response to the EIS Preparation Notice. The proposed Corporation Yard will include appropriate measures to contain the various types of wastes which may be generated by the maintenance activities at Sand Island. We are aware that the project site and surrounding areas, including off-shore lands, must be protected from the discharge of waste products. The Draft EIS will address this issue.

Your suggestion that the Sand Island Park Extension include shower facilities will be considered in the planning for the site.

Thank you for your interest in this project.

Very truly yours,  
*Herbert K. Muraoka*  
HERBERT K. MURAOKA  
Director and Building Superintendent

JS/TH:jo  
cc: Wilson Okamoto & Assoc.

2772-03  
SKP  
JS

WILLIAM W. PATY, CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES

LEWIS E. LANGRISH  
MARGARET TAGUCHI  
MARGARET N. FURUKAWA

ADMINISTRATIVE DEVELOPMENT  
ADVISORY SERVICES  
CONSULTATION AND  
COORDINATION AFFAIRS  
OPERATIONS AND  
COMMUNITY DEVELOPMENT  
PLANNING AND DESIGN  
LAND MANAGEMENT  
WATER AND LAND DEVELOPMENT

DOC. NO.: 4720E  
FILE NO.: 89-240



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 621  
HONOLULU, HAWAII 96809

DEC 6 1988

**RECEIVED**  
DEC 20 1988  
WILSON OKAMOTO & ASSOCIATES

Mr. Stanford Kuroda, Project Manager  
Wilson Okamoto and Associates  
P. O. Box 3530  
Honolulu, Hawaii 96811

**SUBJECT: Environmental Impact Statement Preparation Notice  
Proposed Honolulu Corporation Yard, Sand Island  
and Sand Island Park Extension  
Tax Map Key: 1-5-41: 130**

Dear Mr. Kuroda:

Thank you for giving our Department the opportunity to comment on this matter. We have reviewed the materials you submitted and have the following comments.

Our Division of Aquatic Resources concern about the proposed development would involve possible impact to the shoreline and nearshore areas of Sand Island during construction activities. Also, runoff into the ocean while the corporation yard and the park are in use from vehicle washing and maintenance and contamination from waste storage should be mitigated. As long as adequate measures to prevent pollution are implemented, adverse impacts to the aquatic environment would be minimal.

In addition, the expansion of park area on Sand Island would be a substantial benefit of the project and we suggest that shower facilities be considered for the public.

Please feel free to call me or Roy Schaefer of our Office of Conservation and Environmental Affairs, at 548-7837, if you have any questions.

Very truly yours,  
*William W. Paty*  
WILLIAM W. PATY



2772-03  
SK-  
F

PB 88-1083

December 12, 1988

**RECEIVED**  
DEC 14 1988  
WILSON CRAWFORD & ASSOCIATES

Mr. Edward Y. Hirata  
Director of Transportation  
Department of Transportation  
State of Hawaii  
869 Punchbowl Street  
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Subject: Environmental Impact Statement Preparation Notice  
Proposed Honolulu Corporation Yard, Sand Island  
and Sand Island Extension (HWY-PS 2.3969)

Thank you for your comments on the EIS Preparation Notice. We will be addressing issues related to the State's proposed Honolulu Waterfront Master Plan in the Draft EIS. Our consultants have been coordinating the proposed intersection improvements with the State's Highways Division. The improvements to the intersection and other roadway related costs have been included in the estimated project costs.

Thank you for your interest in this project.

Very truly yours,

*Herbert K. Muraoka*  
HERBERT K. MURAOKA

Director and Building Superintendent

JK/TH:jo  
cc: Wilson Okamoto & Assoc.

2772-03  
K. H. H.  
EDWARD Y. HIRATA  
DIRECTOR  
DEPT. DIRECTOR  
JOSE E. UCHIDA  
RONALD H. HIRANO  
GARY L. HIRANO  
JANET L. SCHLITZ

MINIPLY/DIR TO  
HWY-PS  
2.3969.



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813

November 30, 1988

**RECEIVED**

WILSON CRAWFORD & ASSOCIATES

Mr. Stanford Kuroda  
Project Manager  
Wilson Okamoto & Associates, Inc.  
1150 South King Street, Suite 800  
Honolulu, Hawaii 96814

Dear Mr. Kuroda:

EIS Preparation Notice  
Proposed Honolulu Corporation Notice,  
Sand Island Park Extension, Sand Island

We have the following comments on the subject EIS Preparation Notice:

1. The report should address other planned developments, such as a raceway arena and sports complex, proposed in the vicinity of this project. You should also consider the State's proposed Honolulu Waterfront Master Plan and its impact on your proposed project.
2. The City should coordinate their plans for the intersection improvements at the access road to the proposed project with our Highways Division.
3. All costs incurred for roadway related improvements within the State's highway rights-of-way shall be borne by the applicant.

Thank you for the opportunity to provide comments.

Very truly yours,

*Edward Y. Hirata*  
Edward Y. Hirata  
Director of Transportation

277-0006

JOHN WARD  
CONTRACT  
ROBERTA UIVELING  
BARBARA BUI  
LIMES & MAZURKA  
DIANA DUNN  
DIANA DUNN



DEPARTMENT OF BUSINESS  
AND ECONOMIC DEVELOPMENT

HONOLULU BUILDING, 208 SOUTH KING ST., HONOLULU, HAWAII  
MAILING ADDRESS: P.O. BOX 1209, HONOLULU, HAWAII 96814

December 2, 1988

RECEIVED  
OFFICE

Wilson Okamoto & Associates, Inc.  
Attention: S. Kuroda  
1150 South King Street, Suite 800  
Honolulu, Hawaii 96814

Gentlemen:

The Department of Business and Economic Development (DBED) strongly supports the comprehensive planning effort for the Honolulu waterfront.

We offer no specific comments, however, regarding the environmental impact statement preparation notice your firm is preparing on behalf of the Building Department of the City and County of Honolulu for a proposed corporation yard.

We appreciate the opportunity to review the EIS preparation notice.

Sincerely,

*Barbara Kiv Hester*  
for Roger A. Uiveling

RAU:SC:gm

cc: Honorable Harold Hasegawa  
Honorable William Paly

*1/1/89*



STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
DIVISION OF PUBLIC WORKS

P. O. BOX 116, HONOLULU, HAWAII 96810

LETTER NO. P11945-8

RECEIVED  
DIVISION

OCT 31 1988

Wilson Okamoto and Associates, Inc.  
1150 South King Street, Suite 800  
Honolulu, Hawaii 96814

Attention: Mr. Stanford Kuroda

Gentlemen:

Subject: Environmental Impact Statement  
Preparation Notice for the Proposed  
Honolulu Corporation Yard, Sand Island  
and Sand Island Park Extension

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

Very truly yours,

*Teuane Tomihaga*  
TEUANE TOHINAGA  
State Public Works Engineer

SH:jk



BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU  
630 SOUTH BERTAWA STREET  
HONOLULU, HAWAII 96813



2772-01  
SE  
FRANK F. FASL, Mayor  
DOMA B. GOIN, Chairman  
JOMIK TSUKI, Vice Chairman  
SISTERIU DAVEIN AN-CHOK, OSF  
EDWARD Y. HARAHA  
ALBERT J. THODE  
EMESTIA WATAHA  
LAURENCE YAMASATO  
KAZU HAYASHIDA  
Manager and Chief Engineer

November 7, 1988

Hr. Stanford Kuroda  
Project Manager  
Wilson Okamoto and  
Associates, Inc.  
P. O. Box 3530  
Honolulu, Hawaii 96811

Dear Mr. Kuroda:

Subject: Environmental Impact Statement Preparation Notice  
for the Proposed Honolulu Corporation Yard, Sand  
Island and Sand Island Park Extension

We have the following comments on the proposed project:

1. The environmental impact statement should address the water requirements for the project, including the demands for the various facilities.
2. The available fire flow at the project site does not meet Board of Water Supply standards. The necessary improvements to upgrade the system are extensive, and we have no plans to undertake the work at this time. The Fire Prevention Bureau of the Honolulu Fire Department should be consulted to study the feasibility of utilizing a fire sprinkler system to supplement the available fire flow.

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

Very truly yours,

*Kazu Hayashida*  
KAZU HAYASHIDA  
Manager and Chief Engineer

From Water ...

RECEIVED  
DECEMBER 6 1988

WILSON OKAMOTO & ASSOCIATES

PB 88-1060

December 6, 1988

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

FROM: HERBERT K. MURAOKA  
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE  
PROPOSED HONOLULU CORPORATION YARD, SAND ISLAND,  
AND SAND ISLAND PARK EXTENSION

Thank you for your comments on the EIS Preparation Notice. The water demand for the project and the various facilities will be addressed in the EIS and the Master Plan for the Yard.

Thank you for your interest in this project.

HERBERT K. MURAOKA

Director and Building Superintendent  
cc: Wilson Okamoto & Assoc./

FIRE DEPARTMENT  
CITY AND COUNTY OF HONOLULU  
1033 S. BERKELEY STREET ROOM 305  
HONOLULU HAWAII 96813



FRANK K. KAHOOHAHANO  
FIRE CHIEF

FRANK K. KAHOOHAHANO  
FIRE CHIEF  
LOREL & CAMARA  
MINUTE RECORDS

PB 88-1062

December 6, 1988

November 23, 1988

Mr. Stanford Kuroda, AIA, Project Manager  
Wilson Okamoto & Associates  
1150 South King Street, Suite 600  
Honolulu, Hawaii 96814

MEMO TO: FRANK K. KAHOOHAHANO, FIRE CHIEF  
HONOLULU FIRE DEPARTMENT

FROM: HERBERT K. MURAOKA  
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE  
PROPOSED HONOLULU CORPORATION YARD, SAND  
ISLAND, AND SAND ISLAND PARK EXTENSION

Dear Mr. Kuroda:

SUBJECT: EISP Proposed Honolulu Corporation Yard,  
Sand Island and Sand Island Park Extension

We have reviewed the subject materials provided and have no objections to the proposed project. Primary fire protection is available from engine and ladder companies at Kalia Kai Fire Station with thirteen on-duty personnel. Secondary service is available from engine and ladder companies at Kalia and Ipanalu Fire Stations. Fire protection is considered adequate.

Thank you for your comments to the EIS Preparation Notice. The question of an adequate water supply to meet fire flow requirements and the need for a sprinklered complex will be addressed in the project design and the Draft EIS.

Thank you for your interest in this project.

We are concerned that water fire flow is below standard for the project and request improvements to the water supply system be included in the plans. A fully sprinklered complex may be a viable alternative to complement the existing water supply.

Thank you for the opportunity to comment on this project. Should you have any questions, please contact Battalion Chief Kenneth Word of our Administrative Services Bureau at 943-3838.

Very truly yours,

*Frank K. Kahooahaano*  
FRANK K. KAHOOHAHANO  
Fire Chief

FKK/KAN:in

*Herbert K. Muraoka*  
HERBERT K. MURAOKA  
Director and Building Superintendent

JS/TH:jo  
cc: Wilson Okamoto & Assoc. ✓



DEPARTMENT OF LAND UTILIZATION  
CITY AND COUNTY OF HONOLULU

615 SOUTH KING STREET  
HONOLULU, HAWAII 96813 • (808) 523-8477

Mr. Stanford Kuroda  
Page 2

2772-01  
SIC



FRANK J. JAMES  
DIRECTOR

JOHN P. WILMSEN  
DIRECTOR

DEPARTMENT OF LAND UTILIZATION  
615 SOUTH KING STREET  
HONOLULU, HAWAII 96813

LU10/88-7378 (BHM)

November 23, 1988

Mr. Stanford Kuroda  
Wilson Okamoto and Associates  
1150 South King Street #800  
Honolulu, Hawaii 96814

Dear Mr. Kuroda:

Consultation Comments for  
Proposed Honolulu Corporation Yard  
Sand Island and Sand Island Park Extension

We have reviewed your Environmental Impact Statement Preparation Notice (EISPN) for the project and have the following comments:

1. The project is in the Special Management Area (SMA) and will require a Special Management Area Use Permit (SMP). The satisfaction of the environmental compliance requirements of Chapter 34J, HRS, will also satisfy the environmental compliance requirements of the SMA ordinance, Chapter 33, ROIH.
2. We suggest you consult with the Office of State Planning (OSP) regarding the State's Plans for waterfront development, and with the State Department of Land and Natural Resources (DLNR) regarding its Sand Island State Park Plan. A comparison of how your project relates to these Plans should be included.
3. In the assessment of the SMP application, the objective that coastal dependent development necessary to the State's economy be given priority over non-coastal dependent development for locating within the coastal zone must be considered (Chapter 205A-2, HRS). In the DEIS, discussions should include:

- a. Possible pre-emption of other future coastal dependent economic activities.
  - b. An analysis of other alternative sites for the corporation yard facility, and the feasibility (or infeasibility) of these alternative sites.
  - c. An analysis of the "compelling public need" which would justify the placement of a non-coastal dependent, public facility (the corporation yard) within the coastal zone.
4. While it is possible that the Sand Island Sewage Treatment Plant may be permitted to continue to operate with only primary treatment, secondary treatment may be required in the future. In the DEIS, you should discuss this possibility, and whether the treatment plant already has sufficient land available for expansion to secondary treatment.  
You should discuss whether or not the proposed corporation yard will pre-empt a required expansion of the treatment plant to accommodate secondary treatment.
  5. An analysis of the views of the Honolulu Waterfront from the proposed park area would be appropriate. We suggest that the DEIS contain photographs with the proposed structures overlaid to show the visual impact on the views of the waterfront, if any exist. Cross-sectional profiles showing the park, corporation yard, and the Honolulu Waterfront buildings would be useful.

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

Very truly yours,

JOHN P. WILMSEN  
Director of Land Utilization

JPW:s1  
0262H

DEPARTMENT OF GENERAL PLANNING  
CITY AND COUNTY OF HONOLULU

403 SOUTH KING STREET  
HONOLULU, HAWAII 96813



FRAMES & PARS  
1980

DONALD A. CLEGG  
CHIEF PLANNING OFFICER  
GENE CONNELL  
SENIOR CHIEF PLANNING OFFICER

2772-01  
SK

PB 88-1065

November 17, 1988

MM/DGP 10/88-3918

December 6, 1988

Wilson Okamoto & Associates, Inc.  
1150 South King Street, Suite 800  
Honolulu, Hawaii 96814

Attention: S. Kuroda  
Gentlemen:

Environmental Impact Statement Preparation Notice  
Proposed Honolulu Corporation Yard  
and Sand Island Park Extension

RECEIVED

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

FROM: HERBERT K. MURAOKA  
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE  
PROPOSED HONOLULU CORPORATION YARD,  
SAND ISLAND, AND SAND ISLAND PARK EXTENSION

Thank you for your comment on the EIS Preparation Notice. The Draft EIS will include the clarifications on the status of the Development Plan Land Use Map for the corporation yard and Sand Island Park Extension.

This is in response to your request for comments on the Environmental Impact Statement Preparation Notice identified above.

Section G on Land Uses should be clarified to indicate that the corporation yard site is designated for Public Facility use on the Development Plan Land Use Map and that an amendment to the Development Plan Public Facilities Map to change the Corporation Yard symbol from site undetermined to site determined is presently being proposed.

The notice should also indicate that the park expansion is designated on the Development Plan Land Use Map for Park use and that we are proposing an amendment to add a symbol for a site determined Park on the Public Facilities Map.

If you have any questions, please call Melvin Murakami at 527-6020.

Sincerely,

*Donald A. Clegg*  
DONALD A. CLEGG  
Chief Planning Officer

DAC:ft

Thank you for your interest in the project.

*Herbert K. Muraoka*  
HERBERT K. MURAOKA  
Director and Building Superintendent

JS/TH:jo  
cc: Wilson Okamoto & Assoc.



FB 88-1063

John P. Whalen  
Page 2  
December 6, 1988

December 6, 1988

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

FROM: HERBERT K. MURAKA  
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE  
PROPOSED HONOLULU CORPORATION YARD,  
SAND ISLAND, AND SAND ISLAND PARK EXTENSION

Thank you for your comments on the EIS Preparation Notice. We are aware of the requirement for a Special Management Area Use Permit and have incorporated this fact into the project design and schedule. Relocation of the maintenance activities to Sand Island has been driven by the State's desire to use the existing corporation yard lands at Kewalo Basin, previously transferred to the City by an executive order.

Alternate sites meeting the requirements of the functions being relocated were considered prior to the decision to use Sand Island.

However, since many of the functions being relocated serve the central area of Honolulu and since the State was interested in use of the Kewalo Basin lands, the Sand Island site was selected as the most feasible.

The site for the corporation yard will not use land designated for the secondary treatment of sewage from the Sand Island Sewage Treatment Plant. The corporation yard will not adversely affect the expansion of the sewage treatment plant, if secondary treatment becomes necessary.

The views and concerns about the visual impact of the proposed building and structures will be considered in the EIS.

Thank you for your interest in this project.

HERBERT K. MURAKA  
Director and Building Superintendent

JS/TH:jo  
cc: Wilson Okamoto & Assoc.

2772-03  
SIC

2772-03  
SIC

POLICE DEPARTMENT  
CITY AND COUNTY OF HONOLULU

RECEIVED  
NOV 16 1988



DOUGLAS G. GIBB  
CHIEF OF POLICE

KN-LK

November 16, 1988

December 6, 1988

PB 88-1061

Mr. Stanford Kuroda, AIA, Project Manager  
Wilson Okamoto & Associates, Inc.  
1150 South King Street, Suite 800  
Honolulu, Hawaii 96814

Dear Mr. Kuroda:

Subject: Environmental Impact Statement Preparation Notice  
Proposed Honolulu Corporation Yard, Sand Island and  
Sand Island Park Extension

We have reviewed the EIS preparation notice for the above project and wish to offer the following comments.

We urge that mitigation measures, mentioned on Page III-2, for the anticipated increase in traffic be considered in the project design. A shuttle bus service during morning and afternoon peak hours for corporation yard workers may also help to minimize traffic congestion.

Thank you for the opportunity to comment.

Sincerely,  
DOUGLAS G. GIBB  
Chief of Police

By *Ronald Souza*  
RONALD SOUZA  
Assistant Chief of Police  
Support Services Bureau

MEMO TO: DOUGLAS G. GIBB, POLICE CHIEF  
HONOLULU POLICE DEPARTMENT

ATTN: RONALD SOUZA, ASSISTANT CHIEF  
SUPPORT SERVICE BUREAU

FROM: HERBERT K. MURAOKA  
DIRECTOR AND BUILDING SUPERINTENDENT

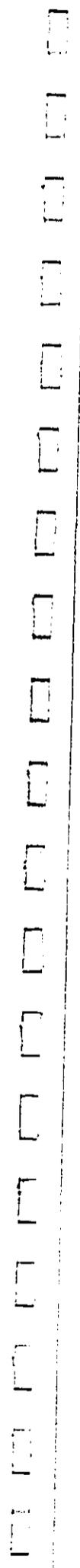
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE  
PROPOSED HONOLULU CORPORATION YARD,  
SAND ISLAND, AND SAND ISLAND PARK EXTENSION

Thank you for your comments on the EIS Preparation Notice. We will consider your suggestion to use a shuttle bus to transport workers assigned to the corporation yard in the EIS.

Thank you for your interest in this project.

*Herbert K. Muraoka*  
HERBERT K. MURAOKA  
Director and Building Superintendent

JS/TH:jo  
cc: Wilson Okamoto & Assoc.



**Hawaiian Tel**

PL 100 2700  
Honolulu, Hawaii 96811  
Telephone: (808) 531-1511

2772 0  
11/14

November 14, 1988

Wilson Okamoto & Associates, Inc.  
1150 S King Street Suite 800  
Honolulu HI 96814

Attention: Mr. Stanford Kuroda

Dear Mr. Kuroda:

Environmental Impact Statement Preparation Notice  
Proposed Honolulu Corporation Yard,  
Sand Island and Sand Island Park Extension

We have reviewed the aforementioned EISPN dated October 17, 1988 and would like to comment on the telecommunication needs of the corporation yard and Sand Island in general.

The projected telecommunication requirements of Sand Island suggests that a pair gain device will be required at the location shown on the attached plan. With this device HRC will be able to provide for the telecommunications needs of the Sand Island area.

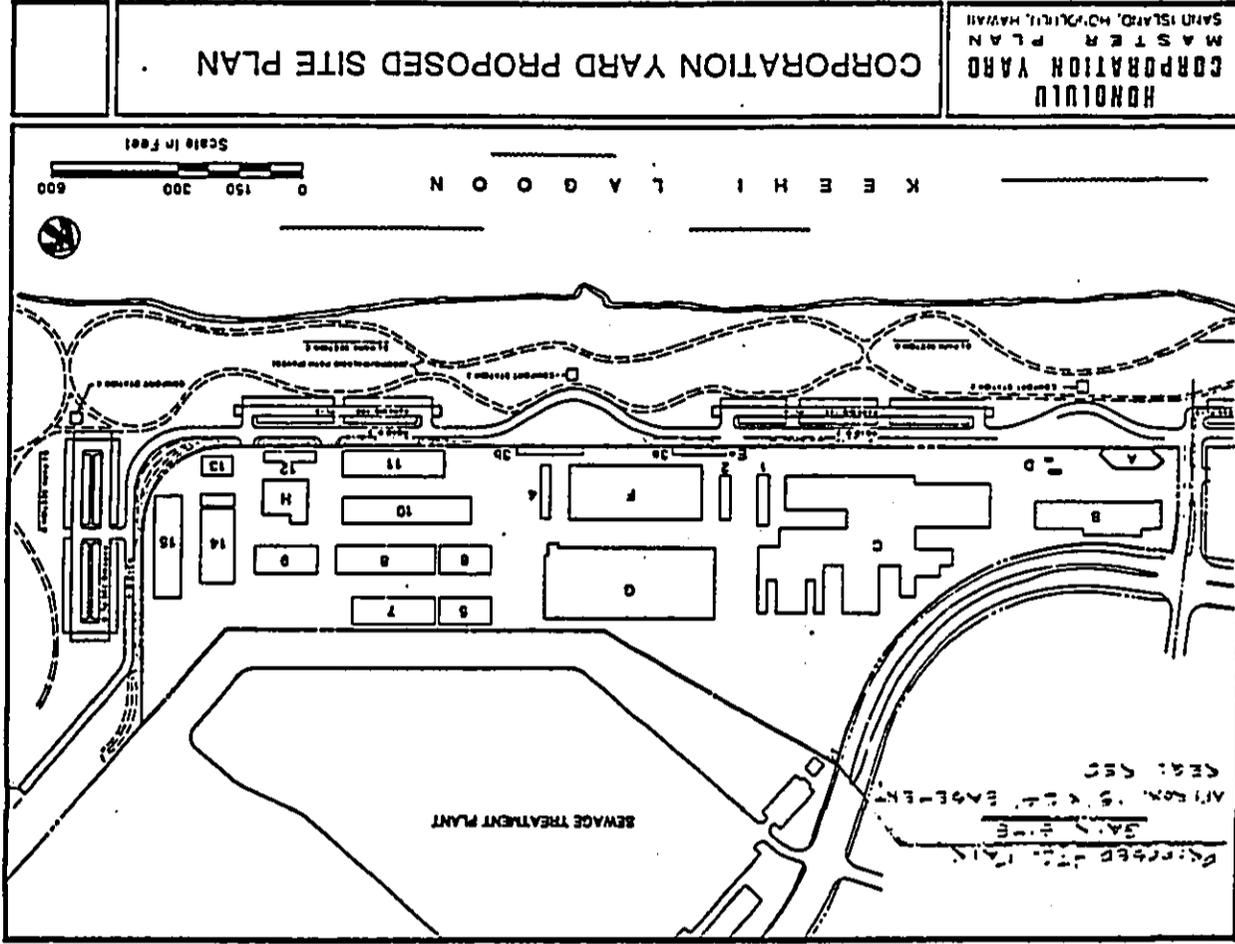
If you have any questions, please call me at 834-6221.

Sincerely,



Walter M. Matsumoto  
Oahu Engineering and  
Construction Manager

LK/SS/st(060)



2/12/88  
JK

ENV 2-1  
JA/G

November 21, 1988



PB 88-1059

RECEIVED

NOV 23 1988  
WILSON OKAMOTO & ASSOCIATES

Mr. Stanford Kuroda, AIA  
Project Manager  
Wilson Okamoto & Associates, Inc.  
1150 South King Street, Suite 800  
Honolulu, Hawaii 96814

Dear Mr. Kuroda:

Subject: Environmental Impact Statement Preparation Notice  
Proposed Honolulu Corporation Yard, Sand Island and Sand  
Island Park Extension

We have reviewed the above subject document and have no comments.

Sincerely,

William A. Bonnet, Manager  
Environmental Department

December 6, 1988

Mr. Walter M. Matsumoto  
Oahu Engineering and Construction Manager  
GTE Hawaiian Tel  
P. O. Box 2200  
Honolulu, Hawaii 96841

Dear Mr. Matsumoto:

Subject: Environmental Impact Statement Preparation Notice  
Proposed Honolulu Corporation Yard,  
Sand Island, and Sand Island Park Extension

Thank you for your comments on the EIS Preparation Notice.  
Your suggestions for the telecommunications needs of the  
Corporation Yard will be addressed in the EIS and the Master Plan  
Report for the Yard.

Thank you for your interest in this project.

Very truly yours,

HERBERT K. MURAOKA  
Director and Building Superintendent

JS/TH:jo  
cc: Wilson Okamoto & Assoc.

MAIL ROOM

MAIL ROOM

**APPENDIX D**



**FEWELL  
GEOTECHNICAL  
ENGINEERING, LTD.**

File 741-1  
August 3, 1988

Wilson Okamoto and Associates, Inc.  
P.O. Box 3530  
Honolulu, Hawaii 96811

Attention: Mr. Stanford Kuroda

Subject: Preliminary Subsurface Investigation  
Phase I of Planning Study  
Honolulu Corporation Yard and Sand Island Park Master Plan  
Sand Island, Oahu, Hawaii  
Tax Map Key: 1-5-41: 130

Gentlemen:

We have completed a preliminary subsurface investigation to develop geotechnical recommendations for the Phase I Planning Study for the Honolulu Corporation Yard. This letter summarizes the findings and conclusions.

**Project Description** - It is our understanding that a corporation yard facility is planned for the 26-acre site in the Ewa end of Sand Island in the vicinity of the existing sewage treatment plant. The site basically consists of a long strip paralleling the shoreline of Keolu Lagoon with plan dimensions of roughly 500 feet by 2,800 feet. The parcel is inland from the shoreline and is separated from Keolu Lagoon by a 400-foot wide strip of land designated as a future park site. The rest of the parcel is bound by Sand Island Access Road and the sewage treatment plant on the north.

The proposed development will consist of various workshops and storage areas along with a garage and paved parking. This investigation defined general soil conditions for the planning study. Additional investigations may be required once the project is better defined and the building locations have been established.

**Site Conditions** - Sand Island originally consisted of two separate islands surrounded by shallow coral reefs and mud flats. With the development of Honolulu Harbor and the dredging for Kapalama Basin, the shallow areas surrounding the original two islands were filled with dredged materials and a causeway was constructed to connect the newly formed Sand Island with Kalihi. The Sand Island Access Road crossed this causeway until it was replaced with the existing bascule bridge. Following the initial filling of the site, numerous other operations have gradually raised the area to its present levels. The most recent filling operations was part of the construction of the State Park Domestic Water System and several feet of fill was placed to provide cover for the newly installed waterlines.

File 741-1  
August 3, 1988  
Page 2

The existing site is near the location of the old military sewage treatment plant and is crossed by numerous buried sewerlines including a 24-inch pressure line from Fort Shafter and the outfall lines from the existing Sand Island Sewage Treatment Plant. All these lines are in addition to the recently installed Domestic Waterlines.

The enclosed Project Location Map, Figure 1, shows the general location of the proposed Corporation Yard site on Sand Island.

**Subsurface Investigation** - On July 15 and 18, 1988 live test borings were drilled at the approximate locations shown on the enclosed Site and Boring Location Plan, Figure 2. The boring locations were established in the field based upon tape and compass measurements from existing physical features or property lines and their locations should be considered accurate only to the degree implied by the methods used. The borings were extended to a depth of approximately 15 feet using auger drilling and soil sampling. Continuous penetration probes were then used below the 15-foot level to investigate the thickness of the loose deposits to total depths of 22 to 33 feet below the surface. The borings were terminated on the next hard layer when an increase in the penetration driving resistance was noted.

The enclosed Figures 3 through 7 presents the boring logs of the materials encountered and a summary of the associated laboratory test results. Water level readings were made at the date and times indicated on the boring logs. Variations in the water levels should be anticipated due to tidal fluctuations and/or storm conditions.

**Subsurface Conditions** - Within the depths explored, the test borings indicate that the site is underlain by relatively consistent soil layering composed of four distinct layers. The subsurface conditions at the boring locations are summarized in Table 1. As can be seen in this table, the site is underlain by 2.5 to 5.0 feet of fill resting upon 1.5 to 2.5 feet of organic clay on a thin coral ledge. The fill is probably a combination of dredged materials from the harbor and end dump fills placed on the surface. It can be expected to contain concrete, rocks, metal and other debris. The organic clay layer is probably a remnant of the mud flats which developed in quiet water upon the coral ledge.

The coral at the site varied from 0 to 2 feet in thickness and consisted of a thin hard ledge of coral resting upon a deep deposit of loose clayey sands. The clayey sand layer varied from 16.5 to 27.0 feet in thickness at the boring locations and terminated on a harder layer which was located with the continuous penetration sampler. The clayey sand layer is typically composed of coral reef debris deposited in a quiet water environment along with silts and clays to form a loose to very loose deposit of sand suspended in a silt and clay matrix.

**Discussion** - The soils at the site will not provide good support for the proposed structures without special site grading or deep foundations. The thin mantle of fill can support highly-loaded structures with foundation bearing pressures of 1,000 to 1,500 p.s.f. if they are not sensitive to differential settlements. Large foundation sizes or embankments would result in increased settlements due to the loads transmitted to the underlying organic clay or clayey sand.

For intermediate foundation loads in the range of 1,500 to 3,500 p.s.f., it will be necessary to undercut the silt to the surface of the coral ledge to remove the organic layer and backfill the excavation with a granular fill to provide a compacted granular mat to support the foundations. The maximum column loads to this type of solution should be limited to approximately 75 kips unless large settlements can be acceptable.

For heavily-loaded structures with column loads in excess of 75 kips, deep foundations would be required to obtain acceptable support. The borings indicate that a harder layer is present at depths of 22 to 33 feet below the existing ground surface. The scope of work did not include an investigation of the adequacy or capacity of this layer. The higher resistance was interpreted to be either a dense layer of sand or perhaps another coral ledge. If the proposed structures will develop large foundation loads, a subsurface investigation should evaluate the consistency and capacity of this lower layer to support piles.

Where possible, lightly-loaded structures with wall loads of less than 3 kips per lineal foot and maximum column loads of 20 kips should be used. Even for these loadings some settlements should be anticipated. Wood-frame or steel buildings are generally more tolerant to differential movements and do not produce the extensive cracking which could result from a similarly loaded masonry structure. It is therefore recommended that masonry and concrete structures not be used due to the larger loads they impose and their susceptibility to cracking with only small differential movements.

Groundwater was encountered at depths of 3 to 5 feet below the existing ground surface. This high water table can have a significant effect upon a site excavations for utility lines or to undercut for the foundation mats. This water level will fluctuate with the tides and its presence and impact should be considered in the proposed construction. The underlying materials are generally pervious and any excavation extending below the waterable will require dewatering.

**Summary** - The subsurface investigation indicate that the site is generally undertain by unfavorable soil conditions which may have a significant impact on the cost of the foundations for all but very lightly-loaded structures. Additional subsurface investigations should be undertaken for the actual building locations to properly estimate the anticipated settlements and to determine adequate foundation bearing levels. The findings and conclusions contained in this report are intended to be used for planning purposes only and should not be used for construction without additional investigations and analysts.

**Limitations** - This report has been prepared for the exclusive use of Wilson Okamoto and Associates, Inc. for Phase I of Planning Study for the Honolulu Corporation Yard and Sand Island Park Master Plan in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

Unanticipated soil conditions are commonly encountered and cannot be fully determined by soil samples, test borings, or test pits. Such unexpected conditions frequently require that additional expenditures be made to attain a properly constructed project. Some contingency funds are recommended to accommodate such potential extra costs.

Water level readings have been made at the times and under conditions stated on the boring logs. It must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, tides, temperature, and other factors not present at the time the measurements were made.

Respectfully submitted,

FEWELL GEOTECHNICAL ENGINEERING, LTD.

*Richard B. Fewell*  
By Richard B. Fewell, P.E.  
RBF/ise



Enclosures



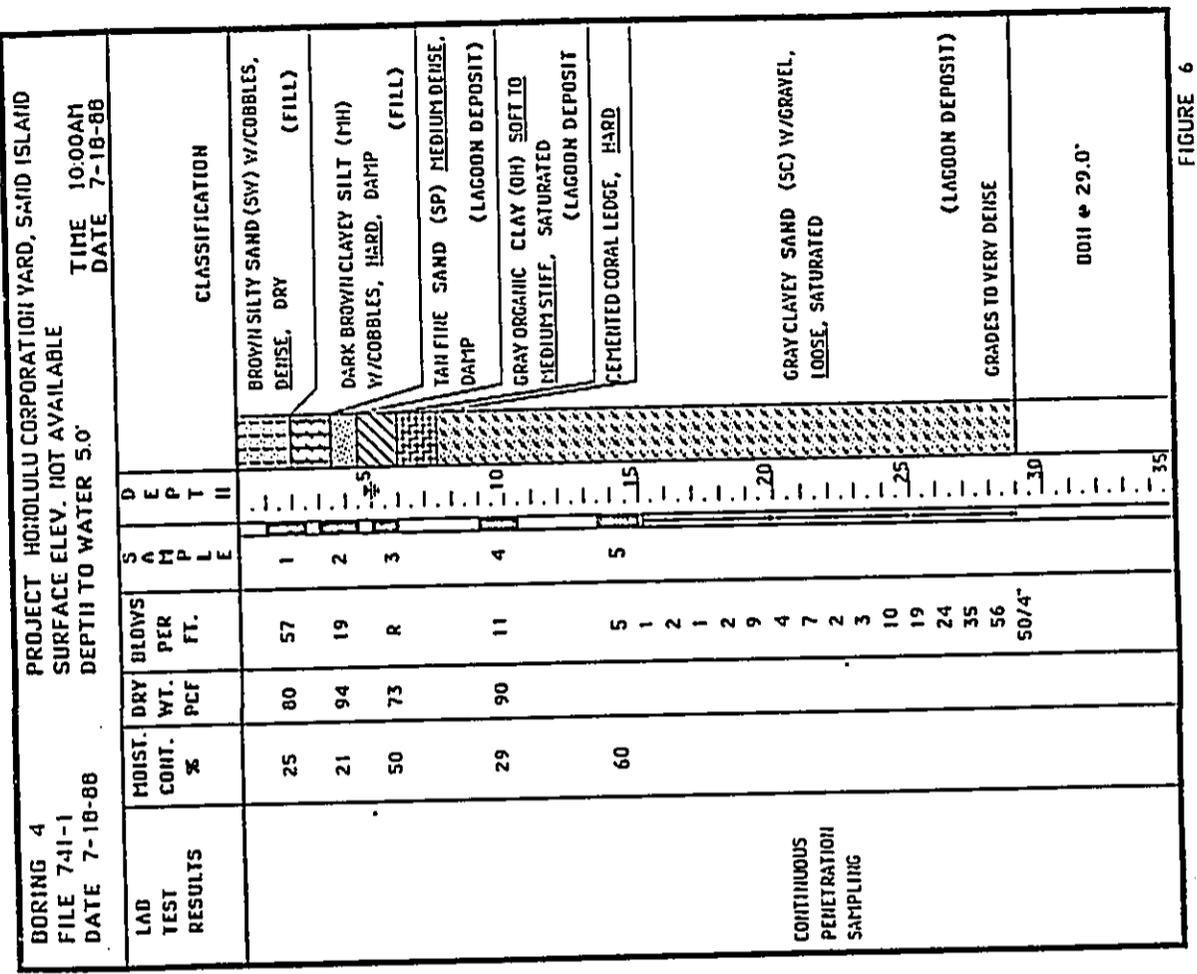


FIGURE 6

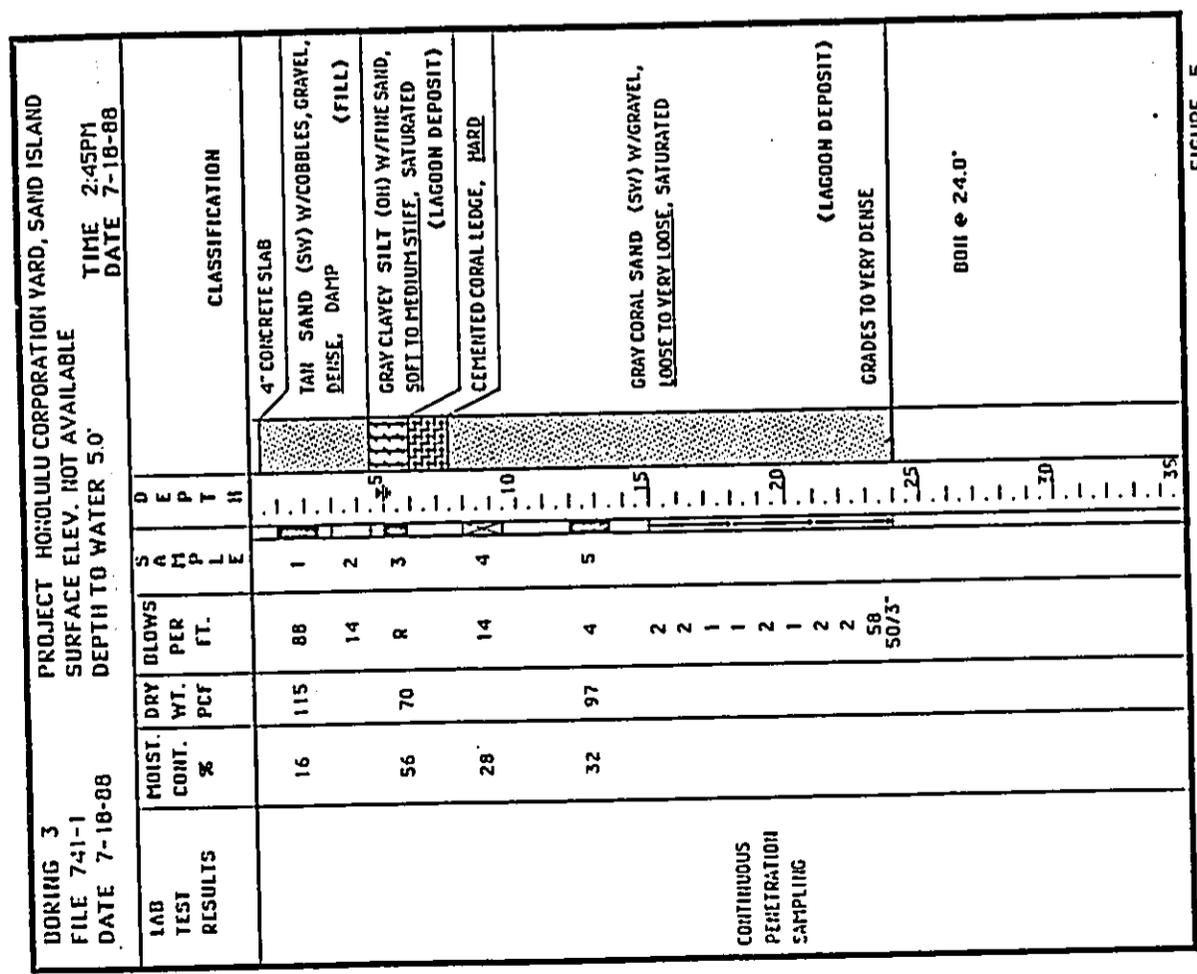
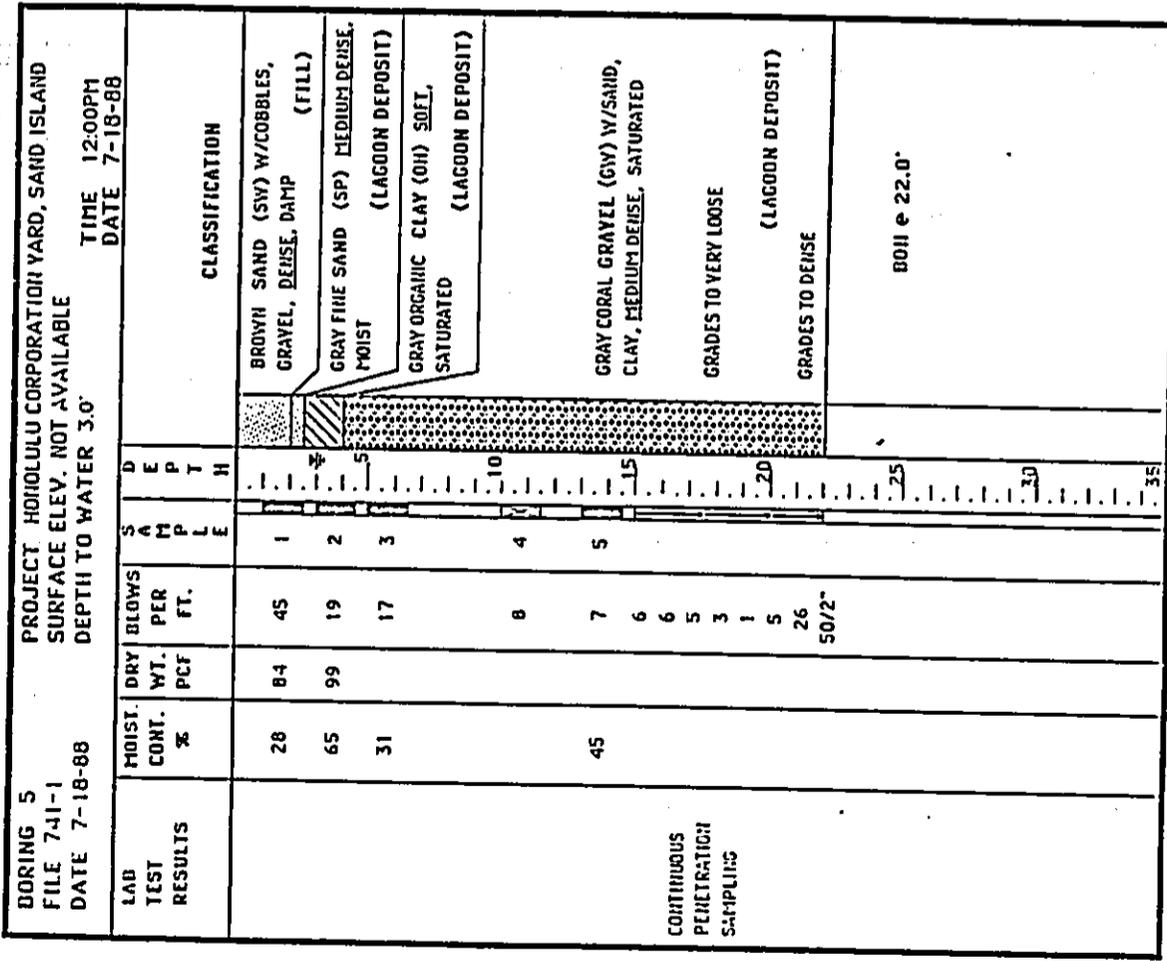


FIGURE 5



**Table 1**  
**Summary of Subsurface Conditions**

Boring Designation	Thickness of Soil Layers		
	Fill	Organic Clay	Coral Ledge Loose Clayey Sand
1	5.0	2.5	0.0
2	3.0	2.0	2.0
3	4.5	1.5	1.5
4	3.5	2.5	1.5
5	2.5	1.5	0.0

File 741-1  
Honolulu Corporation Yard  
August 1988

FIGURE 7



APPENDIX E

UNITED STATES  
DEPARTMENT OF  
AGRICULTURE

SOIL  
CONSERVATION  
SERVICE

P. O. BOX 50004  
HONOLULU, HAWAII  
96850

April 27, 1989

Dr. Marvin Miura, Director  
Office of Environmental Quality Control  
465 S. King Street, Rm. 104  
Honolulu, HI 96813

Dear Dr. Miura:

Subject: Draft Environmental Impact Statement (DEIS) -  
Proposed Honolulu Corporation Yard, Sand Island,  
Sand Island & Sand Island Park Extension,  
Honolulu, HI

We have no comments to offer at this time; however, we would appreciate the opportunity to review the final EIS.

Sincerely,

*Warren M. Lee*

WARREN M. LEE  
State Conservationist

cc: Herbert Muraoka, City and County of Honolulu, Building Department,  
650 S. King Street, Honolulu, HI 96813  
Stanford Kuroda, Wilson Okamoto & Associates, Inc., 1150 S. King St.,  
Honolulu, HI 96814

PB 89-410

**RECEIVED**  
(1187)

WILSON OKAMOTO & ASSOCIATES

May 8, 1989

Mr. Warren M. Lee, State Conservationist  
Soil Conservation Service  
U. S. Department of Agriculture  
P. O. Box 50004  
Honolulu, Hawaii 96850

Dear Mr. Lee:

Subject: Draft Environmental Impact Statement for  
Proposed Honolulu Corporation Yard,  
Sand Island and Sand Island Park Extension

Thank you for reviewing the subject DEIS.

We have received your letter dated April 27, 1989 and understand that you have no comments. The final EIS will be available at all regional libraries.

Very truly yours,

HERBERT K. MURAOKA  
Director and Building Superintendent

RH:jo  
cc: Wilson Okamoto & Assoc. ✓

272.51  
OK



DEPARTMENT OF THE ARMY  
U. S. ARMY ENGINEER DISTRICT, HONOLULU  
BUILDING 230  
FT. SHAFTER, HAWAII 96813

REPLY TO  
ATTENTION OF

April 10, 1989

Planning Branch

RECEIVED  
MAY 01 1989  
WILSON OKAMOTO & ASSOCIATES

RECEIVED  
APR 13 1989  
WILSON OKAMOTO & ASSOCIATES

PB 89-333

April 18, 1989

Dr. Marvin Miura  
Office of Environmental Quality Control  
465 South King Street, Room 104  
Honolulu, Hawaii 96813

Dear Dr. Miura:

Thank you for the opportunity to review the Draft Environmental Impact Statement (DEIS) for the proposed Honolulu Corporation Yard, Sand Island and Sand Island Park Expansion, Honolulu, Oahu. Our review comments on the EIS Preparation Notice (letter dated November 29, 1988) have been incorporated into the DEIS. We have no additional comments.

Sincerely,

*C. J. J.*  
Kisuk Cheung  
Chief, Engineering Division

Copies Furnished:

Mr. Herbert Muraoka  
City and County of Honolulu  
Building Department  
650 South King Street  
Honolulu, Hawaii 96813

Mr. Stanford Kuroda  
Wilson Okamoto and Associates, Inc.  
1150 South King Street, Suite 800  
Honolulu, Hawaii 96814

Mr. Eric Miller  
AES Barbers Point, Inc.  
1001 Bishop Street, Suite 810  
Honolulu, Hawaii 96813

Mr. Kisuk Cheung  
Chief, Engineering Division  
Department of the Army  
U.S. Army Engineer District, Honolulu  
Building 230  
Ft. Shafter, Hawaii 96858-5440

Dear Mr. Cheung:

Subject: Draft Environmental Impact Statement (DEIS) for Proposed Honolulu Corporation Yard, Sand Island and Sand Island Park Extension

Thank you for reviewing the subject DEIS.

We have reviewed your letter dated April 10, 1989 and understand that your comments have been incorporated and you have no additional comments.

*Very truly yours,*  
HERBERT K. MURAOKA  
Director and Building Superintendent

RH:jo  
cc: Wilson Okamoto & Assoc



2772-01  
SK



United States Department of the Interior  
FISH AND WILDLIFE SERVICE  
PACIFIC ISLANDS OFFICE  
PO BOX 50167  
HONOLULU, HAWAII 96850

BS  
Room 6307  
APR 24 1989

DEFERRED

WILSON OKAMOTO & ASSOCIATES

Dr. Marvin Miura  
Director  
Office of Environmental Quality Control  
465 South King Street, Room 104  
Honolulu, Hawaii 96813

Re: Draft Environmental Impact Statement, Proposed Honolulu  
Corporation Yard at Sand Island and Sand Island Park  
Extension, Oahu

Dear Dr. Miura:

At your request, we have reviewed the referenced March 1989 Draft  
Environmental Impact Statement. We have no comments to offer at  
this time.

We appreciate this opportunity to comment.

Sincerely yours,

*Ernest Kosaka*  
Ernest Kosaka  
Field Office Supervisor  
Environmental Services

cc: Building Dept., CSC of Hnl  
Wilson Okamoto & Associates, Inc.

PB 89-375

April 26, 1989

DEFERRED  
WILSON OKAMOTO & ASSOCIATES

Mr. Ernest Kosaka  
Field Office Supervisor  
Environmental Services  
United States Department of Interior  
Fish and Wildlife Service  
P. O. Box 50167  
Honolulu, Hawaii 96850

Dear Mr. Kosaka:

Subject: Draft Environmental Impact Statement (DEIS) for  
Proposed Honolulu Corporation Yard, Sand Island  
and Sand Island Park Extension

Thank you for reviewing the subject DEIS.

We have received your letter dated April 20, 1989 and  
understand that you have no comments.

Very truly yours,

*Herbert K. Muraoka*  
Herbert K. Muraoka

HERBERT K. MURAOKA  
Director and Building Superintendent

RH:li  
cc: Wilson Okamoto & Assoc. ✓

2772-01  
SK

DEPARTMENT OF THE NAVY  
COMMANDER  
NAVAL BASE PEARL HARBOR  
BOX 110  
PEARL HARBOR, HAWAII 96860-5020



REPLY HERE TO

11010  
Ser 03(0992)/639  
21 Mar 1989

RECEIVED

Office of Environmental Quality Control  
465 South King Street, Room 104  
Honolulu, HI 96813

Dear Sir:

DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) FOR PROPOSED HONOLULU CORPORATION YARD, SAND ISLAND AND SAND ISLAND PARK EXTENSION

The subject DEIS forwarded by your office has been reviewed, and we have no comments to offer.

The Navy point of contact is Mr. Bill Liu, telephone 471-3324.

Sincerely,

*W. K. Muraoka*

W. K. MURAOKA  
DIRECTOR AND BUILDING SUPERINTENDENT

Copy to:  
CAC of Honolulu Building Dept.  
Attn: Mr. Herbert Muraoka  
Wilson Okamoto & Associates, Inc.  
Attn: Mr. Stanford Kuroda

PB 89-259

RECEIVED  
MARCH 29 1989  
WILSON OKAMOTO & ASSOCIATES

March 29, 1989

Mr. William K. Liu  
Assistant Base Civil Engineer  
Naval Base Pearl Harbor  
Box 110  
Pearl Harbor, Hawaii 96860-5020

Dear Mr. Liu:

Subject: Draft Environmental Impact Statement (DEIS) for the Proposed Honolulu Corporation Yard, Sand Island and Sand Island Park Extension

Thank you for reviewing the subject DEIS. We have received your letter dated March 21, 1989 and understand that you have no comments.

*Very truly yours,*

HERBERT K. MURAOKA  
Director and Building Superintendent

RM:jo  
cc: Wilson Okamoto & Assoc.



US Department  
of Transportation  
United States  
Coast Guard



Commander  
Maintenance and Logistics  
Command Pacific

110  
Coast Guard Island  
Alameda, CA 94501-5100  
Staff Symbol: (S)  
Phone: (415) 437-3626  
(FIS) 536-3626

16475  
11 April 1989

Mr. Herbert Muraoka  
Director, Building Department  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Muraoka:

As the regional planning office for the Pacific facilities of the Coast Guard, we are writing to comment on the Draft Environmental Impact Statement (DEIS) for the proposed Honolulu Corporation Yard and Sand Island Park Extension, dated March 1989.

Our main concern relates to immediate and long term traffic on Sand Island itself. With completion of the new park segments and the consequent establishment of a new loop road the length of the park, we believe a significant increase in traffic will occur past the Coast Guard Base. We do not find this traffic aspect addressed in the DEIS. In fact, no single DEIS map or diagram shows all the Sand Island streets, particularly this loop condition which will exist. With the heavy, concurrent demands on the new planned access north of the Corporation Yard, we feel more park users will choose the scenic exit looping by the Coast Guard Base.

Several years ago we had requested that the State provide/allow a left hand turn lane (going south) into the Coast Guard Base. The need for this lane will certainly increase with the Corporation Yard and Park completion.

The existing Sand Island access road past the Coast Guard Base is narrow, in poor condition, and easily flooded. We suggest that this is an ideal time to plan to correct these other deficiencies on Sand Island access road, in access and capacity, and are anxious to work with the City and State toward this end. Such planning could also relate to the State's recently completed Honolulu Waterfront Master Plan.

The existing Sand Island Wastewater Treatment plant has provided a high standard of landscape design and maintenance. We hope the same standards will apply to the Corporation Yard.

We believe your proposal for the Corporation Yard and Park Extension represent constructive improvements for Sand Island and we expect as a neighbor to continue to improve our facilities also.

Thank you for the opportunity to comment on the DEIS.

Sincerely,

J. F. HILBRAND  
Captain, U. S. Coast Guard  
Chief, Civil Engineering Division  
By direction of the Commander

2772-A  
CK

Captain J. F. Milbrand, Chief  
Page 2  
May 18, 1989

PB 89-447

RECEIVED  
MAY 22 1989

May 18, 1989

Captain J. F. Milbrand, Chief  
Civil Engineering Division  
U. S. Department of Transportation  
Coast Guard Island  
Alameda, California 94501-5100

Dear Captain Milbrand:

Subject: Draft Environmental Impact Statement (EIS)  
Honolulu Corporation Yard, Sand Island  
and Sand Island Park Extension

Thank you for your comments on the Draft EIS for the Honolulu Corporation Yard and Sand Island Park Extension.

We have considered your concerns about traffic impacts from the proposed project. First, it should be noted very little, if any, of the traffic from the operation of the Corporation Yard is expected to go beyond the secondary access provided near the east end of the Sand Island Wastewater Treatment Plant. This secondary access will be used primarily by large vehicles and equipment assigned to the Corporation Yard. Most of the vehicle traffic from City vehicles entering or leaving the Corporation yard will use the main access located well before the Coast Guard facilities. Secondly, City employees working at the Corporation yard will also use this main access. Lastly, most of the visitors to Sand Island Park Extension are expected to also enter and exit through the main access since it will provide a direct route to the parking spaces. Visitors to Sand Island Park Extension using the route described in your letter would have to travel through all the activity areas of the existing Sand Island State Park. This route would be an indirect approach to areas on the east end of the State Park and take more time since driving speeds would be much lower throughout the park. Thus, the problem of using the scenic loop by the Coast Guard facilities should not occur.

You are correct in stating that Sand Island Parkway Road is a State controlled highway. It should also be noted that the State has limited access points to the highway. Thus, the need and approval of additional lanes or turns would have to be determined by the State of Hawaii Department of Transportation.

Since the Corporation Yard will require security, most of the Yard will be surrounded by an 8-foot high concrete block wall which will also screen public views of the facilities.

We appreciate your comments on this City project.

Very truly yours,

HERBERT K. MURAOKA  
Director and Building Superintendent

JS\RM:ly  
cc: Wilson Okamoto & Assoc., Inc\



2772 01  
SK

PB 89-237

March 20, 1989

RECEIVED  
DEPARTMENT OF PUBLIC WORKS

Mr. Teuane Tomiinaga  
State Public Works Engineer  
Public Works Division  
Department of Accounting and  
General Services  
1151 Punchbowl Street  
Honolulu, Hawaii 96813

Dear Mr. Tomiinaga:

Subject: Draft Environmental Impact Statement (DEIS)  
for the Proposed Honolulu Corporation Yard,  
Sand Island and Sand Island Park Extension.

Thank you for reviewing the subject DEIS.  
Your comments will be incorporated into the final EIS.

Very truly yours,

HERBERT K. MURAOKA  
Director and Building Superintendent

RM:jo/  
cc: Wilson Okamoto & Assoc.

(P)1218.9

MAR 13 1989

RECEIVED  
DEPARTMENT OF PUBLIC WORKS

Office of Environmental Quality Control  
465 South King Street, Room 104  
Honolulu, Hawaii 96813

Gentlemen:

Subject: Proposed Honolulu Corporation Yard  
Sand Island & Sand Island Park Extension  
Draft Environmental Impact Statement

Thank you for the opportunity to review the subject  
document for THK 1-5-41:130 on Sand Island, Oahu. We have  
the following comments to offer on Section VII. Unresolved  
Issues (Page VII-1):

1. Approval of the site by the Board of Land and  
Natural Resources and Governor should be listed.
2. Approval by the City and County Department of Land  
Utilization to subdivide THK 1-5-41:130 should be  
listed.

Should there be any questions, please have your staff  
contact Mr. Cedric Takamoto of the Planning Branch at  
548-5742.

Very truly yours,  
*Teuane Tomiinaga*

TEUANE TOMINAGA  
State Public Works Engineer

CT:jnt  
cc: Mr. Herbert Muraoka  
Mr. Stanford Kuroda

2772-01  
K

2772-01  
OK

JOHN WAIHEE  
GOVERNOR



YUKIO KITAGAWA  
CHAIRPERSON, BOARD OF AGRICULTURE  
SUZANNE D. PETERSON  
DEPUTY TO THE CHAIRPERSON

State of Hawaii  
DEPARTMENT OF AGRICULTURE  
1428 So. King Street  
Honolulu, Hawaii 96814-2512

Mailing Address:  
P. O. Box 22159  
Honolulu, Hawaii 96822-0159

RECEIVED

LEWIS OWLAND & ASSOCIATES

PB 89-396

April 21, 1989

RECEIVED  
APR 27 1989  
WILSON OKAMOTO & ASSOCIATES

May 3, 1989

MEMORANDUM

To: Dr. Marvin T. Miura, Director  
Office of Environmental Quality Control

Subject: Draft Environmental Impact Statement (DEIS) for  
Proposed Honolulu Corporation Yard, Sand Island  
and Sand Island Park Extension  
Building Department, City and County of Honolulu  
THK: 1-5-41: 130 Honolulu, Hawaii

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

Thank you for the opportunity to comment.

*Yukio Kitagawa*  
YUKIO KITAGAWA  
Chairperson, Board of Agriculture

cc: City and County Building Department  
Wilson Okamoto and Associates, Inc.

Mr. Yukio Kitagawa, Chairperson  
Board of Agriculture  
Department of Agriculture  
State of Hawaii  
1428 S. King Street  
Honolulu, Hawaii 96814-2512

Dear Mr. Kitagawa:

Subject: Draft Environmental Impact Statement (DEIS)  
for Proposed Honolulu Corporation Yard  
Sand Island and Sand Island Park Extension

Thank you for reviewing the subject DEIS.

We have received your letter dated April 21, 1989 and  
understand that you have no comments.

Very truly yours,

HERBERT K. MURAOKA  
Director and Building Superintendent

RI:jo  
cc: Wilson Okamoto & Assoc.



2772-01  
K  
10-2-81



DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT

STATE OF HAWAII DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT  
1555 ALI'OLEA DRIVE, SUITE 200, HONOLULU, HAWAII 96813

2772-01  
K  
ROGER A. UIVELING  
DIRECTOR

RECEIVED  
APR 14 1989

APRIL 13, 1989  
BUSINESS OPERATIONS & ADMINISTRATION

MEMORANDUM

TO: Dr. Marvin Miura  
Office of Environmental Quality Control

FROM: Roger A. Uiveling

SUBJECT: Proposed Honolulu Corporation Yard, Sand Island, Sand Island & Sand Island Park Extension

The Department of Business and Economic Development has no comments of this draft Environmental Impact Statement.

*John B. Peterson*  
for Director

Enclosure

cc: City & County of Honolulu w/o enclosure  
Building Department  
Attn: Herbert Muraoka

Stanford Kuroda, w/o enclosure ✓  
Wilson Okamoto & Associates, Inc.

RECEIVED

MAY 2 1989  
BUSINESS OPERATIONS & ADMINISTRATION

PB 89-353

April 20, 1989

Mr. Roger A. Uiveling, Director  
Department of Business and Economic Development  
P. O. Box 2359  
Honolulu, Hawaii 96804

Dear Mr. Uiveling:

Subject: Draft Environmental Impact Statement (DEIS) for Proposed Honolulu Corporation Yard, Sand Island and Sand Island Park Extension.

Thank you for reviewing the subject DEIS.

We have received your memo dated April 13, 1989 and understand that you have no comments.

Very truly yours,

HERBERT K. MURAOKA  
Director and Building Superintendent

RM:jo  
cc: Wilson Okamoto & Assoc.



DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT

PERIOD DIVISION, 335 MERCHANT STREET, 4TH FLOOR, HONOLULU, HAWAII 96813

2775011  
JOHN W. WANG  
COMMISSIONER  
ROBERTA U. UETA  
DIRECTOR  
BARBARA K. KANE  
DEPUTY DIRECTOR  
LESLIE S. HARRISON  
DEPUTY DIRECTOR

March 9, 1989

RECEIVED  
MARCH 13 1989  
WILSON OKAMOTO & ASSOCIATES

Dr. Marvin T. Miura  
Office of Environmental Quality Control  
650 South King Street  
Honolulu, Hawaii 96813

Dear Dr. Miura:

Subject: Proposed Honolulu Corporation Yard, Sand Island,  
Sand Island and Sand Island Park Extension,  
TMK: 1-5-41: 130, Oahu

We have no comments to offer at this time.

Sincerely,

*Maurice H. Kaya*  
MAURICE H. KAYA  
Energy Program Administrator

MHK/hk

cc: Mr. Herbert Muraoka  
Mr. Stanford Kuroda

1775011  
FL

RECEIVED  
MARCH 15 1989  
WILSON OKAMOTO & ASSOCIATES

PB 89-215

March 15, 1989

Mr. Maurice H. Kaya  
Energy Division  
Department of Business and  
Economic Development  
State of Hawaii  
335 Merchant Street, Room 110  
Honolulu, Hawaii 96813

Dear Mr. Kaya:

Subject: Draft Environmental Impact Statement (DEIS)  
for the Proposed Honolulu Corporation Yard,  
Sand Island and Sand Island Park Extension

Thank you for reviewing the subject DEIS.

We understand that you have no comments on the DEIS. The  
final EIS will be available at all regional libraries.

Very truly yours,

*Herbert Muraoka*  
HERBERT K. MURAOKA  
Director and Building Superintendent

RM:jo

cc: Wilson Okamoto & Assoc.



10-2112  
K's

PB 89-337

RECEIVED

WILSON OKAMOTO & ASSOCIATES

April 18, 1989

Mr. Joseph K. Conant, Executive Director  
Department of Business and Economic Development  
Housing Finance and Development Corporation  
P. O. Box 29360  
Honolulu, Hawaii 96820-1760

Dear Mr. Conant:

Subject: Draft Environmental Impact Statement (DEIS)  
for Proposed Honolulu Corporation Yard  
Sand Island and Sand Island Park Extension

Thank you for reviewing the subject DEIS.

We have reviewed your memo dated April 10, 1989 and understand that you have no comments.

Very truly yours,

HERBERT K. MURAOKA  
Director and Building Superintendent

RH:jo  
cc: Wilson Okamoto & Assoc.

10-2112

E

JOSEPH K. CONANT  
EXECUTIVE DIRECTOR

IN REPLY REFER  
TO:



STATE OF HAWAII  
DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT  
HOUSING FINANCE AND DEVELOPMENT CORPORATION  
P. O. BOX 2134  
HONOLULU, HAWAII 96820-1714

89:PLNG/1200B JT

April 10, 1989

MEMORANDUM

TO: Dr. Marvin Miura, Director  
Office of Environmental Quality Control

FROM: Joseph K. Conant

SUBJECT: Draft Environmental Impact Statement for the Proposed  
Honolulu Corporation Yard at Sand Island and the  
Proposed Sand Island Park Extension

We have reviewed the enclosed draft EIS and have no comments to offer.

Thank you for the opportunity to comment.

JOSEPH K. CONANT  
Executive Director

Enclosure

cc: Building Department, City & County of Honolulu  
Stanford Kuroda, Wilson Okamoto & Associates, Inc.

2772-01  
SK

PB 89-277

RECEIVED  
APR 6 1989  
WILSON OKAMOTO & ASSOCIATES

April 4, 1989

Major Jerry M. Matsuda  
Construction & Engineering Officer  
Hawaii Air National Guard  
Office of the Adjutant General  
Department of Defense  
State of Hawaii  
3949 Diamond Head Road  
Honolulu, Hawaii 96816

Dear Major Matsuda:

Subject: Draft Environmental Impact Statement for  
Proposed Honolulu Corporation Yard,  
Sand Island and Sand Island Park Extension

Thank you for reviewing the subject DEIS.

We have received your letter dated March 22, 1989 and understand that you have no comments.

Very truly yours,

*Herbert K. Muraoka*  
HERBERT K. MURAOKA

Director and Building Superintendent

RM:jo  
cc: Wilson Okamoto & Assoc.

2772-01



STATE OF HAWAII  
DEPARTMENT OF DEFENSE  
OFFICE OF THE ADJUTANT GENERAL  
3949 DIAMOND HEAD ROAD, HONOLULU, HAWAII 96816

ALLEN I. LUM  
Major General  
Adjutant General  
Department of Defense  
State of Hawaii  
3949 Diamond Head Road  
Honolulu, Hawaii 96816

March 22, 1989

Engineering Office

State Office of Environmental Quality Control  
465 South King Street, Room 104  
Honolulu, Hawaii 96813

Dear Sir:

Proposed Honolulu Corporation Yard  
Sand Island & Sand Island Park Extension

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

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

Sincerely,

*Jerry M. Matsuda*  
Jerry M. Matsuda  
Major, Hawaii Air  
National Guard  
Contr & Engr Officer

cc:  
City & County of Honolulu, Building Department  
Mr. Stanford Kuroda, Wilson Okamoto & Associates, Inc.

NATIONAL GUARD  
Honolulu, Hawaii

11/10/89  
11/10/89  
11/10/89



STATE OF HAWAII  
DEPARTMENT OF HEALTH

APR 11 1989

RECEIVED

APR 17 1989

MEMORANDUM

To: Dr. Marvin T. Miura, Director  
Office of Environmental Quality Control

From: Deputy Director for Environmental Health

Subject: Draft Environmental Impact Statement (DEIS) for Proposed Hazardous Corporation Yard, Sand Island and Sand Island Park, Tax Map Key 1-5-41; 120

The Hazardous Waste Program has reviewed the above mentioned DEIS and provides the following comments.

Underground Storage Tanks

The U.S. Environmental Protection Agency's (EPA) final technical rules and regulations for underground storage tanks (UST's) containing petroleum and hazardous substances became effective on December 22, 1988 (Federal Register, September 23, 1988). Also, the EPA has finalized the financial responsibility requirements for owners of petroleum UST's (Federal Register, October 26, 1988). A copy of these federal regulations is being sent to the applicant, City & County of Honolulu Building Department.

It is stated in the DEIS that the applicant plans to install several UST's to store diesel, unleaded and regular fuels, as the proposed fueling facility within the Corporation Yard, and that these UST's shall comply with the federal UST rules and regulations.

The DEIS also states that "garage-type" activities will be performed at the proposed Corporation Yard. The applicant should be made aware that UST's utilized to contain used oil, transmission fluids, solvents or other hazardous substances must also comply with the federal UST rules and regulations. We are also sending the applicant a copy of the "Hazardous Substance Listing" for their reference and use in complying with the federal UST regulations.

Hazardous Waste

As mentioned in correspondence dated November 20, 1988 from the Department of Health to Mr. Kuroda of Wilson Okamoto and Associates, Inc., the proposed facility may generate several waste streams that are of environmental concern. Used oil and used vehicle batteries should be handled and disposed of by following applicable federal and State regulations. Automotive solvents, oil based paints and paint thinners may be generated in sufficient quantities to require the proposed facility to obtain a U.S. EPA identification number as a generator of hazardous wastes.

Dr. Marvin T. Miura  
April 11, 1989  
Page 2

Furthermore, without specific information regarding the proposed operations in the various "trade shops," specific guidance cannot be provided to the applicant. The applicant should be made aware that, pursuant to Title 40 of the Code of Federal Regulations, it is the generator's responsibility to determine whether or not the solid waste generated by the facility, is regulated as hazardous waste.

Also sent to the applicants for information is a copy of the EPA publication, "Understanding the Small Quantity Generator Hazardous Waste Rules: A Handbook for Small Business," EPA 530-SW-86-019 (September 1986).

Air Pollution

The Environmental Impact Statement (EIS) should include the potential impact on the ambient air quality as a result of the increase in vehicular activity from the proposed project. Note that the traffic study does address some concerns with the impacts the projected traffic may have at several intersections. The increased traffic volume and the impact on the ambient air quality should be determined for the associated corridors, roadways and highways. The results should be compared to the State and federal ambient air quality standards. Should a potential violation be determined, the EIS should address the mitigating actions which shall be implemented and the corresponding reduction the actions will have on the air quality impact.

*Bruce S. Anderson*  
BRUCE S. ANDERSON, Ph.D.

cc: Mr. Herbert Muraoka, Bldg Dept  
Mr. Stanford Kuroda, Wilson Okamoto & Assoc. ✓

27725  
K

Mr. Bruce S. Anderson, Ph.D.  
Page 2  
May 17, 1989

PB 89-448

RECEIVED  
MAY 23 1989

May 17, 1989

Mr. Bruce S. Anderson, Ph.D.  
Deputy Director for Environmental Health  
Department of Health  
State of Hawaii  
P. O. Box 3378  
Honolulu, Hawaii 96801

Dear Dr. Anderson:

Subject: Draft Environmental Impact Statement (EIS)  
Honolulu Corporation Yard, Sand Island and  
Sand Island Park Extension

Thank you for your comments on the Draft EIS for the Honolulu Corporation Yard and Sand Island Park Extension. We are aware of the recent Federal regulations concerning underground storage tanks. As you noted, and as stated in the Draft EIS, the City fully intends to comply with applicable Federal and State of Hawaii regulations for installation of underground storage tanks for petroleum products and hazardous wastes.

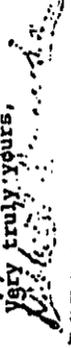
Operation of the fleet maintenance and trades shops will be governed by operating procedures established by the responsible City agencies. Proper handling of hazardous wastes are included in these procedures.

The trades shops to be located at the Sand Island facility include the following: carpentry; masonry; paint; welding; plumbing; radio; electrical; electronics; and parking meter. Each of these shops have procedures for disposal of any hazardous materials which may be generated by their operation.

The Final EIS will include an analysis of air quality impacts from traffic generated by the projects.

Thank you for your interest in this project.

Very truly yours,



HERBERT K. MURAOKA  
Director and Building Superintendent

JS\RM:ly  
cc: Wilson Okamoto & Assoc., Inc ✓



JOHN WAINES  
DIRECTOR OF LAND



5/15/89

WILLIAM W. PATY, CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES

LIBERTY E. LANGOLF  
MAYOR  
RUSSELL E. TOSUMOTO

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
P. O. BOX 511  
HONOLULU, HAWAII 96809

REF: OCEA-VIN

MAY 11 1989

DOC. NO.: 5643E  
FILE NO.: 89-492

MEMORANDUM

TO: The Honorable Marvin T. Miura, Director  
Office of Environmental Quality Control

FROM: William W. Paty, Chairperson  
Board of Land and Natural Resources

SUBJECT: Draft E.I.S. for Proposed Honolulu Corporation Yard, Sand  
Island and Sand Island Park Extension  
THK: 1-5-41: 130

Thank you for giving our Department the opportunity to comment again on this matter. Historic Sites Section comments were provided in the April 3, 1989 memorandum. We have reviewed the materials you submitted and have the following comments.

Our Department's Aquatic Resources Division states that a number of potentially hazardous materials may be used during normal work activities. Some of these would include fuel, oil and petroleum derivatives from fueling facilities, automotive liquids such as antifreeze, transmission and brake fluids, and paints and solvents from automotive body and fender repair operations.

Precautions should be taken to prevent these materials from being introduced accidentally into Honolulu Harbor. Also, the proposed yard should not detract from nor inhibit access to Sand Island Park, which is actively used for public recreation.

About 700 people would be stationed at the yard, and the Sand Island Wastewater Treatment Plant's load would need to be increased accordingly. The plant, at times, is known to emit an offensive smell and the expected load increase will add to the existing problem. Measures should be taken to improve this condition to enhance the public's use of the Park.

Honorable Marvin T. Miura - 2 - FILE NO.: 89-492

Our Land Management Division notes that the subject document contains a statement (Pg. I-2) that the State Park area may be transferred to the City and County. Board approval at the January 8, 1988 (Item F-11) meeting did not include a provision to transfer the Sand Island Park Expansion area to the City and County. This statement should be explained in more detail in the final E.I.S.

Please feel free to call me or Roy Schaefer of our Office of Conservation and Environmental Affairs, at 548-7837, if you have any questions.

*William W. Paty*  
WILLIAM W. PATY

cc: Mr. Herbert Muraoka,  
C & C of Honolulu Building Department

Mr. Stanford Kuroda,  
Wilson Okamoto & Associates, Inc.

2772-3  
JK

Mr. William W. Paty  
Page 2  
May 23, 1989

PB 89-450

May 23, 1989

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

Dear Mr. Paty:

Subject: Draft Environmental Impact Statement (EIS)  
Honolulu Corporation Yard, Sand Island and  
Sand Island Park Extension

Thank you for your comments on the Draft EIS for this project.

The Corporation Yard will include maintenance functions for City owned vehicles. Hazardous materials and wastes will be handled and disposed according to established City procedures for handling these materials. These procedures comply with the requirements set by the Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA) and the State of Hawaii Department of Health.

The drainage system near these maintenance functions and the wash rack will be equipped with oil-water separators to protect against accidental discharge of these pollutants into Honolulu Harbor.

At this time, the City and County of Honolulu intends to operate Sand Island Park as a City park with access policies similar to other City parks. Thus, access to Sand Island State Park should not be restricted or inhibited by Sand Island Park Extension.

The proposed Honolulu Corporation Yard project does not contemplate any actions to the Sand Island Wastewater Treatment Plant which is under the jurisdiction of the Department of Public Works (DPW). Your comments will be forwarded to DPW for consideration.

Questions are still under discussion regarding the operation and maintenance of Sand Island Park Extension. At this time, the decision regarding the operation and maintenance of the Park is unresolved. The final EIS will reflect this information.

Thank you for your interest in this project.

/s/ Very truly yours,

HERBERT K. MURAOKA  
Director and Building Superintendent

JS\RM:ly  
cc: Wilson Okamoto & Assoc., Inc. ✓



Escelle  
JK

Mr. William W. Paty  
Page 2  
May 23, 1989

PB 89-450

May 23, 1989

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

Dear Mr. Paty:

Subject: Draft Environmental Impact Statement (EIS)  
Honolulu Corporation Yard, Sand Island and  
Sand Island Park Extension

Thank you for your comments on the Draft EIS for this project.

The Corporation Yard will include maintenance functions for City owned vehicles. Hazardous materials and wastes will be handled and disposed according to established City procedures for handling these materials. These procedures comply with the requirements set by the Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA) and the State of Hawaii Department of Health.

The drainage system near these maintenance functions and the wash rack will be equipped with oil-water separators to protect against accidental discharge of these pollutants into Honolulu Harbor.

At this time, the City and County of Honolulu intends to operate Sand Island Park as a City park with access policies similar to other City parks. Thus, access to Sand Island State Park should not be restricted or inhibited by Sand Island Park Extension.

The proposed Honolulu Corporation Yard project does not contemplate any actions to the Sand Island Wastewater Treatment Plant which is under the jurisdiction of the Department of Public Works (DPW). Your comments will be forwarded to DPW for consideration.

Questions are still under discussion regarding the operation and maintenance of Sand Island Park Extension. At this time, the decision regarding the operation and maintenance of the Park is unresolved. The Final EIS will reflect this information.

Thank you for your interest in this project.

Very truly yours,

HERBERT K. MURAOKA  
Director and Building Superintendent

JS/RH:ly  
cc: Wilson Okamoto & Assoc., Inc. ✓



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
100 FULCHER STREET  
HONOLULU, HAWAII 96813

MAY 3 1989

2772-1  
EDWARD Y. HIRATA  
DIRECTOR  
DEPUTY DIRECTORS  
JOHN K. MORIYA  
RONALD N. HIRANO  
DAN T. KOCHI  
JEANNE K. SCHLITZ

IN REPLY REFER TO  
STP 8.3447

Dr. Marvin Miura, Director  
Office of Environmental Quality Control  
465 South King Street  
Honolulu, Hawaii 96813

Dear Dr. Miura:

Draft Environmental Impact Statement (DEIS)  
Proposed Honolulu Corporation Yard  
Sand Island, Oahu

We have reviewed the DEIS for the proposed Honolulu Corporation Yard and offer the following comments:

1. The developer should bear all costs of improvements to mitigate any adverse traffic impacts resulting from the project. All plans for work within the State highway right-of-way must be submitted to our Highways Division for review and approval.
2. The Honolulu Waterfront Master Plan envisions a highway through Sand Island. We need to discuss the project's boundary further in coordination with the Office of State Planning to avoid any conflicts.
3. Careful consideration should be given to the significant noise levels generate by aircraft traffic. It is recommended that office buildings be totally enclosed and air conditioned.
4. We have been coordinating boating facilities needs with the State Parks Administrator, Mr. Raiston Nagata. A memorandum to Mr. Nagata outlines our requirements and is attached for your consideration. In addition, we are

Dr. Marvin Miura  
Page 2

STP 8.3447

also aware of needs expressed by the University of Hawaii (UH) for a Sand Island Aquatics Center to be located in the same vicinity where the boat launching ramp facility is planned. Background material on the UH's proposal is attached for your information.

We appreciate this opportunity to provide comments.

Very truly yours,

Edward Y. Hirata  
Director of Transportation

Attachments

Mr. Edward Y. Hirata  
Page 2  
May 25, 1989

PB 89-451

May 25, 1989

Mr. Edward Y. Hirata  
Director of Transportation  
Department of Transportation  
State of Hawaii  
869 Punchbowl Street  
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Subject: Draft Environmental Impact Statement (EIS)  
Honolulu Corporation Yard Sand Island and  
Sand Island Park Extension

Thank you for your comments on the Draft EIS. Our response to your comments are as follows:

1. Improvements to mitigate traffic impacts were discussed in the Draft EIS and the traffic studies which were appended to the document. The Sand Island Parkway Road intersection and access road improvements for the Corporation Yard and Sand Island Park Extension have been incorporated into the project. In addition, to mitigate traffic impacts in the Park, a second access has been provided via a road along the edge of Sand Island Wastewater Treatment plant for refuse and other large trucks and equipment. The two access points should minimize traffic impacts within the area.
2. A review of the Waterfront Master Plan did not reveal a definite alignment of the highway through Sand Island. Discussion with the Office of State Planning also indicated that the exact alignment and required right-of-way have not been clearly determined at this time. Until more definitive information is available, it is not possible to determine the impact of the roadway on the planned facilities in the Corporation Yard. We will continue to work with the Office of State Planning on this issue.

3. The Draft EIS discussed the high noise levels generated by aircraft operations at Honolulu International Airport (HIA). In addition, the current and projected number of aircraft operations at the HIA and the noise impacts to the Corporation Yard and Sand Island Park Extension were included in the Draft EIS. The preliminary plans for the office buildings have considered enclosing office and administrative areas to mitigate noise impacts.

4. The Department of Parks and Recreation has considered the Keehi Lagoon Recreation Plan and facilities shown in the plan. At this time, the offshore swimming beach shown in the Keehi Lagoon Plan is not contemplated in development of the Sand Island Park Extension.

The plan for development of Sand Island Park Extension examined the need for boating facilities. As shown in the Draft EIS, an area has been proposed for future maritime needs near Kalia Channel. Similarly, this area can be used for facilities by the University of Hawaii Sand Island Aquatics Center or any state agency. The City does not contemplate any improvements in this area as part of this project.

Thank you for your interest in this project.

Very truly yours,

HERBERT K. MURAKA  
Director and Building Superintendent

JS/RM:ly  
cc: Wilson Okamoto & Assoc., Inc.

2772c  
SK

2772-d1  
SK



STATE OF HAWAII  
OFFICE OF HAWAIIAN AFFAIRS  
1408 KAPOLANI BLVD., SUITE 1500  
HONOLULU, HAWAII 96813

WILSON OKAMOTO & ASSOCIATES  
1000 KALANIAN'OLELE BLVD., SUITE 1500  
HONOLULU, HAWAII 96813

C-189-0036

March 28, 1989

Dr. Marvin Mura, Director  
Office of Environmental Quality Control  
465 S. King Street, Room 104  
Honolulu, Hawaii 96813

May 18, 1989

Mr. Richard K. Paglinawan  
Administrator  
Office of Hawaiian Affairs  
State of Hawaii  
1600 Kapiolani Boulevard, Suite 1500  
Honolulu, Hawaii 96814

Subject: Draft EIS: City and County of Honolulu Corporation Yard, Sand Island, Honolulu. TMK: 1-5-41: 130

Dear Mr. Paglinawan:

Subject: Draft Environmental Impact Statement (EIS)  
Honolulu Corporation Yard, Sand Island and  
Sand Island Park Extension

Thank you for sending our office a copy of the Draft EIS, and for the opportunity to comment.

Thank you for your comments on the Draft EIS for the Honolulu Corporation Yard and Sand Island Park Extension.

Human burials have turned up in the Keehi Lagoon area in the past, and project work plans and other documents related to the project should contain the instructions to contact the State Historic Preservation Office whenever bones and other kinds of archaeological remains are discovered.

It should be noted that most of the land area or Sand Island, including the project area, is fill land. The Draft EIS on page VI-3 noted that, in the event any archaeological features or remains are uncovered during construction, work will be halted and the State Historic Preservation Officer will be notified to determine and direct the proper course of action. These instructions will be included in the construction contract.

Sincerely,  
*Richard K. Paglinawan*  
Richard K. Paglinawan  
Administrator

Thank you for your interest in this project.

Very truly yours,

MRP:EN:klr

cc: DCP/City and County of Honolulu  
DLNR/Historic Sites  
U.S./Environmental Center  
U.S./Anthropology Dept.  
Wilson Okamoto & Associates  
Building Department/City and County of Honolulu

HERBERT K. MURAOKA  
Director and Building Superintendent

JS\RM:ly  
cc: Wilson Okamoto & Assoc., Inc. ✓





**OFFICE OF STATE PLANNING**

Office of the Governor  
STATE CAPITAL, HONOLULU, HAWAII 96813 TELEPHONE (808) 548-1000

Ref. No. P-9373

April 24, 1989



MEMORANDUM

TO: Dr. Marvin T. Miura, Director  
Office of Environmental Quality Control

SUBJECT: Draft Environmental Impact Statement for Proposed Honolulu Corporation Yard, Sand Island and Sand Island Park Extension

We have reviewed the subject document and have the following comments to offer.

The chronology of events presented in Section I of the DEIS is accurate, but incomplete. The discussion should be amended to indicate the City Administration's acceptance of the conditions set forth by the State in November 1987.

Page III-1 indicates that the development of both the Corporation Yard and the Park Extension will be with State and County funds. This is contrary to the original understanding between the State and County that the projects would be completed solely with County funds. While the County has requested project funding support from the 1989 Legislature, it may be premature to indicate the State's participation in project development costs.

While the proposed Corporation Yard and extension of Sand Island Park are generally consistent with the Pre-Final Honolulu Waterfront Master Plan, further discussion is warranted on those specific proposals in the Waterfront Plan (e.g., Proposed Sand Island By-Pass; Sand Island Swimming Beach) which could have significant bearing on the projects as currently conceived.

Pages V-19 through V-21 describe the provisions for the Hawaii Coastal Zone Management Program Federal Consistency Review and related applicable regulations. However, the potential discharge impacts on nearshore waters from site runoff are not described. While it may be necessary to identify impacts in subsequent regulatory reviews, this information should also be provided in the EIS.

Pages VI-12 and VI-13 describe a surface runoff system that will include separators in selected locations for collection of petroleum and other wastes associated with vehicle maintenance functions. If washdown of refuse

Dr. Marvin T. Miura  
Page 2  
April 24, 1989

collection vehicles will take place within the proposed yard, the collection and separation of wastes in these areas should be addressed as well.

Thank you for the opportunity to comment on this matter.

*Harold S. Masumoto*  
Harold S. Masumoto  
Director

cc: Mr. Herbert Muraoka  
Building Department  
City and County of Honolulu  
✓ Mr. Stanford Kuroda  
Wilson Okamoto & Associates, Inc.

2772-03  
JK

Mr. Harold Masumoto  
May 18, 1989  
Page 2

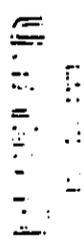
Solid waste from refuse vehicles will be removed prior to washing. Any other remaining waste will be collected by the separators prior to discharge.

Thank you for your interest in this project.

Very truly yours,

HERBERT K. MURAOKA  
Director and Building Superintendent

JS/RM:li  
cc: Wilson Okamoto & Assoc., Inc.



PB 89-457

May 18, 1989

Mr. Harold S. Masumoto, Director  
Office of State Planning  
Office of the Governor  
State of Hawaii  
State Capitol  
Honolulu, Hawaii 96813

Dear Mr. Masumoto:

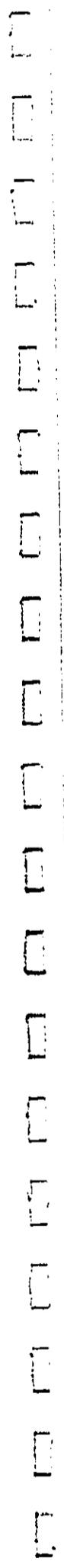
Subject: Draft Environmental Impact Statement (EIS)  
Honolulu Corporation Yard, Sand Island and  
Sand Island Park Extension

Thank you for your comments on the Draft EIS for the Honolulu Corporation Yard and Sand Island Park Extension.

Your comments about the chronology of events and funding entirely by the City for this project will be noted in the Final EIS.

We will address the issues surrounding the Honolulu Waterfront Master Plan in the Final EIS. However, it should be noted that the Waterfront Master Plan and specific projects which may impact the proposed Corporation Yard site were not extant at the time the City discussed with the State the use of the Sand Island site for the Corporation Yard. Since site planning for the Corporation Yard contemplates use of almost all of the 26-acre area, if State projects were to decrease the available land, additional areas would be required at some other location or the City may have to upgrade the existing facilities in Kewalo Basin and remain there. At this time, the City does not contemplate either one of these alternatives.

The discharge of drainage runoff will require a permit from the Department of the Army, U. S. Army Engineer District and the State of Hawaii Department of Health. The City must meet the requirements established by these permits to discharge drainage runoff as proposed.





## University of Hawaii at Manoa

Environmental Center  
Crawford 317 • 2550 Campus Road  
Honolulu, Hawaii 96822  
Telephone (808) 948-7361

April 21, 1989  
RE:0527

Dr. Harvin T. Miura, Director  
Office of Environmental Quality Control  
465 South King Street, Room 104  
Honolulu, Hawaii 96813

Dear Dr. Miura:

Draft Environmental Impact Statement  
Sand Island Corporation Yard and Park Extension  
Sand Island, Oahu

The above cited document proposes to relocate the existing city fleet maintenance and trades shops to a centralized 26-acre facility on Sand Island adjacent to the Sand Island Wastewater Treatment Plant. The proposed extension of Sand Island Park will expand an area primarily for daytime activities such as picnicking, informal recreation, and jogging. Both sites are located within the State Coastal Zone Management area and the City and County of Honolulu Special Management Area.

This review was prepared with the assistance of Paul Hummel, Civil Engineering; Hans-Jurgen Krock, Ocean Engineering; and Carolyn D. Cook, Environmental Center.

### Drainage System

Reviewers find the Draft Environmental Impact Statement (EIS) unclear regarding the location and efficiency of the drainage system. Page V-20 cites the drainage system outfall as flowing into Keelii Lagoon while page VI-13 states that the drainage system's point of discharge is in Honolulu Harbor. There appears to be some understandable confusion as to water quality standard classifications (page V-20). Department of Health Administrative Rules, Title 11, Chapter 54 - Water Quality Standards (page 54-3-54-6) uses AA and A to classify permissible marine water uses and I or II for marine bottom ecosystem classifications. It is unclear in the Draft EIS why Kewalo Basin's class A is compared to "the harbor's class II, and why the classification for Keelii was not referred to at all. Keelii Lagoon and Honolulu Harbor are both class A marine waters and require class II marine bottom ecosystem preservation standards.

Dr. Harvin T. Miura

-2-

April 21, 1989

Specific information on the nature of the oil/water separators would be very helpful in evaluating the impact of the discharge from the system. Reviewers remain concerned about methods and efficiency of drainage collection and subsequent oil separation and discharge.

The document lacks an explanation of how water and sediment from construction dewatering of building foundations within the Corporation Yard will be disposed of.

Will the drainage system be designed to handle peak periods of rainfall? Most of the year, demands on drainage systems are low, but storms could create need for much higher drainage capacity.

### Shoreline Protection

Does "no improvements are proposed for off-shore areas" on page VI-15 refer to the shoreline itself? What is the park extension's expected impact on the shoreline?

Thank you for the opportunity to comment on this document. We hope that our comments will be helpful, and we look forward to your responses.

Yours truly

John Harrison  
Environmental Coordinator

cc: City and County Building Dept.  
Stanford Kuroda Wilson Okamoto & Associates, Inc.  
L. Stephen Lau  
Paul Hummel  
Hans-Jurgen Krock  
Carolyn D. Cook

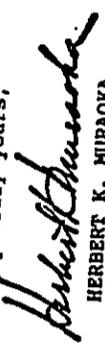
272-03  
K

Mr. John Harrison  
May 18, 1989  
Page 2

No structures, facilities or other construction are proposed within the shoreline of the park.

Thank you for your interest in this project.

Very truly yours,



HERBERT K. MURAOKA  
Director and Building Superintendent

JS/RM:ll  
cc: Wilson Okamoto & Assoc., Inc.

PB 89-456

May 18, 1989

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

Dear Mr. Harrison:

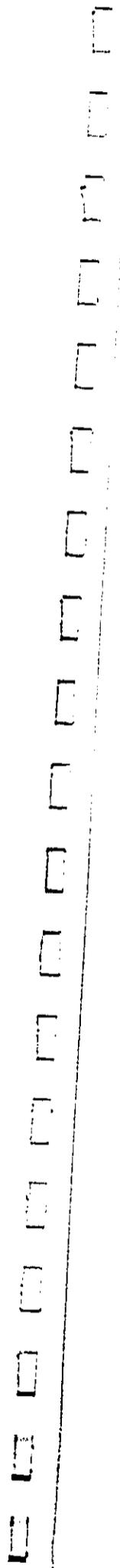
Subject: Draft Environmental Impact Statement (EIS)  
Honolulu Corporation Yard, Sand Island and  
Sand Island Park Extension

Thank you for your comments on the Draft EIS for the Honolulu Corporation Yard and Sand Island Park Extension.

We will clarify the water quality standards which will be applicable to the project in the Final EIS.

The engineering design phase of the Corporation Yard will be undertaken after the Final EIS has been approved. At that time, separators to be used, will be accomplished. Since the drainage flow from the project during construction will be subject to a U. S. Army Corps of Engineers discharge permit, the water quality standards of Honolulu Harbor and nearby areas will be protected. The permit will be subject to established review procedures.

The drainage system will be designed to handle peak flow during periods of heavy rainfall. This aspect of the drainage system will also be subject to final engineering design.



BOARD OF WATER SUPPLY  
CITY AND COUNTY OF HONOLULU



COPY

April 5, 1989

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

Dear Dr. Miura:

Subject: Your Letter Received on March 8, 1989 Regarding the  
Draft Environmental Impact Statement (EIS) for the  
Proposed Honolulu Corporation Yard at Sand Island  
and Sand Island Extension, THK: 1-5-41: 130

RECEIVED

APR 11 1989

WILSON OKAMOTO & ASSOCIATES

We have the following comments on the proposed project:

1. Our previous comments of November 7, 1988, which are published in Appendix C of the EIS, are still applicable to the project.
2. A water master plan showing the water system improvements and connections to our existing system should be submitted for our review and approval.

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

Very truly yours,

KAZU HAYASHIDA  
Manager and Chief Engineer

cc: Mr. Herbert Muraoka (Building Department)  
Mr. Stanford Kuroda (Wilson Okamoto & Associates, Inc.)

2772-1  
ck

Mr. Kazu Hayashida  
Page 2  
May 18, 1989

PB 89-450

RECEIVED  
MAY 22 1989

May 18, 1989

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

FROM: HERBERT K. MURAOKA  
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)  
HONOLULU CORPORATION YARD, SAND ISLAND AND  
SAND ISLAND PARK EXTENSION

Thank you for your comments on the Draft EIS for the  
Honolulu Corporation Yard and Sand Island Park Extension.

Our analysis of the water demand shows that the Corporation  
Yard will have an average daily demand of approximately 108,000  
gallons per day, or about 4,000 gallons per acre for the light  
industrial use. Sand Island Park will have an average daily  
demand of about 215,000 gallons per day, or 4,000 gallons per  
acre for park use. Thus, when both projects are fully developed,  
the total average daily demand will be about 323,000 gallons per  
day.

The fire flow requirements for the Corporation Yard will be  
met through the use of fire sprinkler systems in each of the  
buildings. We have discussed this approach with the Honolulu  
Fire Department. A fire sprinkler system will satisfy the Fire  
Department alternative fire flow requirement for these types of  
buildings and uses.

We have prepared a Master Plan for the Corporation yard  
which provides a schematic plan for the water distribution  
system. The plan will be included in the Final EIS. We have  
discussed the approach used in this plan with the Board of Water  
Supply's Engineering Section and will continue to work with the  
Board of Water Supply personnel during the design phase of the  
Project.

Thank you for your interest in this project.

HERBERT K. MURAOKA  
Director and Building Superintendent

SK/RM:ly  
cc: Wilson Okamoto & Assoc., Inc.}



277341  
H

DEPARTMENT OF GENERAL PLANNING  
**CITY AND COUNTY OF HONOLULU**  
650 SOUTH KING STREET  
HONOLULU, HAWAII 96813



DONALD A. CLEGG  
CHIEF PLANNING OFFICER  
GENERAL COUNSEL  
DEPARTMENT OF GENERAL PLANNING

KK/DGP 3/89-887

April 5, 1989

Honorable Marvin Miura, Director  
Office of Environmental Quality Control  
State of Hawaii  
465 South King Street, Room 104  
Honolulu, Hawaii 96813

**D E C R E T U M**  
APR 5 1989  
WILSON OKAMOTO & ASSOCIATES

Dear Dr. Miura:

Draft Environmental Impact Statement (DEIS)  
for the Proposed Honolulu Corporation Yard at  
Sand Island and Sand Island Park Extension

We have reviewed the subject Draft Environmental Impact Statement (EIS) and have the following comments to offer.

The last paragraph on page V-11 which extends onto page V-14 should be updated in the Final EIS to reflect the current status of the proposed public facility amendment.

The proposed Development Plan Public Facilities Map amendment to add a symbol for a Corporation Yard, site determined, within 6 years is needed to allow the project's land acquisition and construction costs to be funded by the City Council. Bill No. 31 (1988) passed first reading as reported in the Draft EIS, however, in a subsequent City Council Planning Committee meeting held on October 4, 1988 the Committee deferred this Bill until they could receive a copy of a preliminary Draft EIS which was expected in January of this year. We have submitted a Draft EIS to the City Council to permit reconsideration of this Bill.

Our other EIS preparation Notice concerns have been addressed.

Honorable Marvin Miura, Director  
Office of Environmental Quality Control  
Page 2  
April 5, 1989

Thank you for the opportunity to comment on this document.

Sincerely,

DONALD A. CLEGG  
Chief Planning Officer

DAC:lh

cc: Building Department  
Mr. Stanford Kuroda, Wilson Okamoto & Assoc.

2172-03  
SK

RECEIVED  
MAY 23 1989

PB 89-444

May 18, 1989

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

FROM: HERBERT K. MURAOKA  
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)  
HONOLULU CORPORATION YARD, SAND ISLAND AND  
SAND ISLAND PARK EXTENSION

Thank you for your comments on the Draft EIS for the Honolulu Corporation Yard and Sand Island Park Extension. We will incorporate your comments and the latest information regarding the Development Plan Public Facilities Map amendment in the Final EIS.

Thank you for your interest in this project.



HERBERT K. MURAOKA  
Director and Building Superintendent

JS/RM:ly  
cc: Wilson Okamoto & Assoc., Inc.



2772-11  
SK

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
CITY AND COUNTY OF HONOLULU

430 SOUTH KING STREET, SUITE 1000  
HONOLULU, HAWAII 96813  
PHONE: 923-4477



MICHAEL SCARFONE  
DIRECTOR  
HERBERT K. MURAOKA  
DEPUTY DIRECTOR

March 15, 1989

Harvin Miura, Ph.D.  
Office of Environmental Quality Control  
465 South King Street, Room 104  
Honolulu, Hawaii 96813

Dear Dr. Miura:

Subject: Draft Environmental Impact Statement  
Proposed Honolulu Corporation Yard, Sand Island  
and Sand Island Park Extension

Thank you for the opportunity to review and comment on the Draft EIS for the Proposed Honolulu Corporation Yard and Sand Island Park Extension. We have no comments at this time. We will retain a copy of the Draft EIS for our files.

Sincerely,

*[Signature]*  
MICHAEL H. SCARFONE  
Director

cc: Building Department  
Wilson Okamoto & Associates, Inc.

RECEIVED

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

PB 89-248

March 22, 1989

MEMO TO: MICHAEL SCARFONE, DIRECTOR  
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
FROM: HERBERT K. MURAOKA  
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)  
FOR THE PROPOSED HONOLULU CORPORATION YARD,  
SAND ISLAND AND SAND ISLAND PARK EXTENSION

Thank you for reviewing the subject DEIS.

We have received your memo dated March 15, 1989 and understand that you have no comments on the DEIS.

HERBERT K. MURAOKA  
Director and Building Superintendent

RM:jo  
cc: Wilson Okamoto & Assoc.

DEPARTMENT OF LAND UTILIZATION  
**CITY AND COUNTY OF HONOLULU**  
330 SOUTH KING STREET  
HONOLULU HAWAII 96813 • (808) 523-4022



JOHN P. WHALEN  
DIRECTOR  
REGULATIONS & USE  
DEVELOPMENT SECTION

LU3/89-1362(BWH)

April 24, 1989

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

**DEFERRED**

WHICH RELATES TO: 17111

Dear Dr. Miura:

Draft Environmental Impact Statement (DEIS)  
Proposed Honolulu Corporation Yard  
Sand Island and Sand Island Park Extension, Oahu  
Tax Map Key: 1-5-81: 130

We have reviewed the DEIS for the project and find that it has adequately addressed the concerns that the Department of Land Utilization (DLU) raised in its consultation comments of November 23, 1988.

Very truly yours,

*John P. Whalen*  
JOHN P. WHALEN  
Director of Land Utilization

JPW:s1  
0299H

cc: Herb Muraoka, Bldg. Dept.  
Stanford Kuroda, Wilson  
Okamoto & Assoc., Inc.

277:91  
16/11/89

PB 89-394

**RECEIVED**

REGULATIONS & USE DEVELOPMENT SECTION

May 3, 1989

MEMO TO: JOHN WHALEN, DIRECTOR  
DEPARTMENT OF LAND UTILIZATION

FROM: HERBERT K. MURAOKA  
DIRECTOR AND BUILDING SUPERINTENDENT

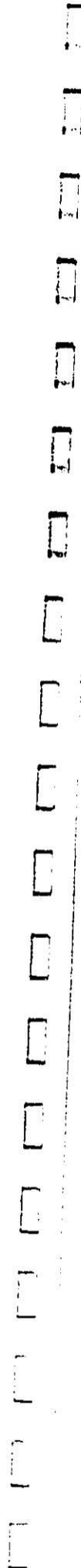
SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) FOR  
PROPOSED HONOLULU CORPORATION YARD,  
SAND ISLAND AND SAND ISLAND PARK EXTENSION

Thank you for reviewing the subject DEIS.

We have received your letter dated April 24, 1989 and understand that concerns raised in your letter dated November 23, 1988 have been adequately addressed.

HERBERT K. MURAOKA  
Director and Building Superintendent

RM:jo  
cc: Wilson Okamoto & Assoc./



2772  
SK

DEPARTMENT OF PARKS AND RECREATION  
CITY AND COUNTY OF HONOLULU

NON-RESIDENTIAL PERMIT  
NO. 1111 (REAR) (EIS)



WALTER M. OZAWA  
DIRECTOR

PB 89-449

1111 REAR (EIS)

April 21, 1989

May 18, 1989

Mr. Stan Kuroda, Project Manager  
Wilson Okamoto & Associates, Inc.  
1150 South King Street, Suite 800  
Honolulu, Hawaii 96814

Dear Mr. Kuroda:

Subject: Review of Draft Environmental Impact Statement for  
Proposed Sand Island Corporation Yard and Park Extension  
Tax Map Key: 1-5-41; Par. of 6 and Por. of 130

We have reviewed your Draft Environmental Impact Statement for the proposed Sand Island Corporation Yard and Park Extension and have the following recommended changes to Section 11B, Sand Island Park Extension:

Page 11-2 (third paragraph): Insert the word "State's" before "Master Plan for Sand Island (1973)."

Page 11-9 (fourth paragraph, second sentence): Revise to "This concept of dual-use parking lots will permit the employees of the Corporation Yard to share parking during the weekdays with ample parking for visitors on weekends."

Page 11-12: Add new paragraph, "SITE SECURITY," to include information on park access to the Corporation Yard gates and on night security lighting in the park.

Thank you for the opportunity to comment on this document.

Sincerely,

WALTER M. OZAWA, Director

WMO:dh

cc: Building Department  
Public Works Department

TO: MR. WALTER M. OZAWA, DIRECTOR  
DEPARTMENT OF PARKS AND RECREATION

FROM: HERBERT K. MURAOKA  
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)  
HONOLULU CORPORATION YARD, SAND ISLAND AND  
SAND ISLAND PARK EXTENSION

Thank you for your comment on the Draft EIS for the Honolulu Corporation Yard and Sand Island Park Extension.

We will incorporate your comments about Sand Island Park Extension into the Final EIS.

Thank you for your interest in this project.

HERBERT K. MURAOKA  
Director and Building Superintendent

JS/RM:ly  
cc: Wilson Okamoto & Assoc., Inc.

DEPARTMENT OF PUBLIC WORKS  
CITY AND COUNTY OF HONOLULU  
630 SOUTH KING STREET  
HONOLULU HAWAII 96813



FRANK P. FALK  
MAYOR

SAM CALLEJO  
DIRECTOR AND CHIEF ENGINEER  
In reply refer to:  
ENV 89-49(449)

April 5, 1989  
**RECEIVED**  
APR 7 1989  
WILSON OKAMOTO & ASSOCIATES

Mr. Harvin T. Miura, Ph.D.  
Office of Environmental Quality Control  
465 South King Street, Room 104  
Honolulu, Hawaii 96813

Dear Dr. Miura:

Subject: Draft Environmental Impact Statement (DEIS)  
Proposed Honolulu Corporation Yard  
Sand Island and Sand Island Park Extension, Oahu  
Tax Map Key: 1-5-41: 130

We have reviewed the subject DEIS and do not have any additional comments to offer.

Very truly yours,

*Sam Callejo*  
SAM CALLEJO  
Director and Chief Engineer

cc: Building Department  
Wilson Okamoto & Associates

**RECEIVED**

APR 10 1989  
WILSON OKAMOTO & ASSOCIATES

PB 89-307

April 10, 1989

MEMO TO: SAM CALLEJO, DIRECTOR  
DEPARTMENT OF PUBLIC WORKS  
FROM: HERBERT K. MURAOKA  
DIRECTOR AND BUILDING SUPERINTENDENT  
SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR  
PROPOSED HONOLULU CORPORATION YARD,  
SAND ISLAND AND SAND ISLAND PARK EXTENSION

Thank you for reviewing the subject DEIS.  
We have received your letter dated April 5, 1989 and understand that you have no comments.

HERBERT K. MURAOKA  
Director and Building Superintendent

RM:jo  
cc: Wilson Okamoto & Assoc/

2777-02  
SK

DEPARTMENT OF TRANSPORTATION SERVICES  
CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING  
465 SOUTH KING STREET  
HONOLULU, HAWAII 96813



JOSEPH M. MAGALDI, JR.  
ACTING DIRECTOR

TE-1482  
PLJ.1496

April 24, 1989

RECEIVED

DEPARTMENT OF TRANSPORTATION SERVICES

Office of Environmental Quality Control  
State of Hawaii  
465 South King Street, Room 104  
Honolulu, Hawaii 96813

Gentlemen:

Subject: Proposed Honolulu Corporation Yard  
Sand Island Park Extension  
Draft Environmental Impact Statement  
TMK: 1-5-11: 130

This is in response to your memorandum requesting our review and comments on the above subject.

We have reviewed the "Supplemental Analyses" section contained in the Traffic Impact Study. The additional analysis sufficiently addresses our concerns.

Should you have any questions, please contact Wayne Nakamoto of my staff at 523-4190.

Sincerely,

*Joseph M. Magaldi, Jr.*  
JOSEPH M. MAGALDI, JR.

cc: Building Department  
Wilson Okamoto and Associates, Inc.

RECEIVED

WILSON OKAMOTO & ASSOCIATES

PB 89-565

June 21, 1989

MEMO TO: ALFRED THIEDE, DIRECTOR  
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: HERBERT K. MURAOKA  
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)  
FOR PROPOSED HONOLULU CORPORATION YARD,  
SAND ISLAND AND SAND ISLAND PARK EXTENSION

Thank you for reviewing the subject DEIS.

We have received your letter dated April 24, 1989 and understand that your concerns have been adequately addressed.

*Herbert K. Muraoka*  
HERBERT K. MURAOKA  
Director and Building Superintendent

RH:ly  
cc: Wilson Okamoto and Assoc., Inc.

277a-91  
BK

FIRE DEPARTMENT  
CITY AND COUNTY OF HONOLULU  
1545 KALANIKULANI DRIVE, ROOM 300  
HONOLULU, HAWAII 96813



FRANK K. KAHOOHANOAHANO  
FIRE CHIEF  
LOHEL'S CAMERA  
GENUINE FIRE CHIEF

RECEIVED  
APR 11 1989  
WILSON OKAMOTO & ASSOCIATES

March 22, 1989

Gentlemen:  
Office of Environmental Quality Control  
465 South King Street, Room 104  
Honolulu, Hawaii 96813

SUBJECT: PROPOSED HONOLULU CORPORATION YARD  
SAND ISLAND PARK EXTENSION (LHK: 1-5-41:130)

We have reviewed the draft and have no additional comments at this time. Should you have any questions, please contact Battalion Chief Kenneth Word of our Administrative Services Bureau at 943-3838.

Very truly yours,

*Frank K. KahooHanoahano*  
FRANK K. KAHOOHANOAHANO  
Fire Chief

HA:ny  
Copy to: City & County Building Dept.  
Wilson Okamoto & Assoc.

RECEIVED  
APR 6 1989  
WILSON OKAMOTO & ASSOCIATES

PB 89-278

April 4, 1989

MEMO TO: FRANK K. KAHOOHANOAHANO, FIRE CHIEF  
HONOLULU FIRE DEPARTMENT

FROM: HERBERT K. MURAOKA  
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)  
FOR PROPOSED HONOLULU CORPORATION YARD,  
SAND ISLAND AND SAND ISLAND PARK EXTENSION

Thank you for reviewing the subject DEIS.

We have received your memo dated March 22, 1989 and understand that you have no comments.

*Herbert K. Muraoka*  
HERBERT K. MURAOKA  
Director and Building Superintendent

RH:jo  
cc: Wilson Okamoto & Assoc.



277-91  
12

POLICE DEPARTMENT  
CITY AND COUNTY OF HONOLULU

1435 SOUTH KING STREET  
HONOLULU, HAWAII, 96813 AND 5 CDDT (808) 935-3111



DOUGLAS G. GIBB  
CHIEF  
WARREN FERREIRA  
DEPUTY CHIEF

RECEIVED  
MAR 30 1989

March 29, 1989 WILSON OKAMOTO & ASSOCIATES

FRANK P. WASH  
MAYOR

OUR REFERENCE KN-LC

Office of Environmental Quality Control  
465 South King Street, Rm. 104  
Honolulu, Hawaii 96813

Dear Sirs:

Subject: Proposed Honolulu Corporation Yard, Sand Island  
Sand Island Park Extension  
TEK: 1-5-41-130 Oahu

We have reviewed the draft environmental impact statement for the above projects and have nothing to add to our November 16, 1988 response to Mr. Kuroda of Wilson Okamoto & Associates, Inc..

Please keep us informed of the project's development.

Sincerely,

DOUGLAS G. GIBB  
Chief of Police

*Joseph Aveiro*  
JOSEPH AVEIRO  
Assistant Chief of Police

cc: Mr. Herbert Muraoka  
Building Department

Mr. Stanford Kuroda  
Wilson Okamoto & Associates, Inc.

2720  
21

Mr. Douglas S. Gibb, Police Chief  
Page 2  
May 18, 1989

PB 89-451

**RECEIVED**

MAY 22 1989

MAIL ROOM

May 18, 1989

**TO: MR. DOUGLAS S. GIBB, POLICE CHIEF  
HONOLULU POLICE DEPARTMENT**

**FROM: HERBERT K. MURAOKA  
DIRECTOR AND BUILDING SUPERINTENDENT**

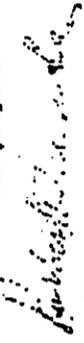
**SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)  
PROPOSED HONOLULU CORPORATION YARD, SAND ISLAND  
AND SAND ISLAND PARK EXTENSION**

Thank you for your comments on the Draft EIS for the Honolulu Corporation Yard and Sand Island Park Extension.

We have evaluated your suggestion that a shuttle bus service be included as a mitigation measure for traffic impacts. Our analysis of the current City employees that would be assigned to the Sand Island Yard indicates relatively low bus ridership. Thus, off-site parking facilities would have to be provided to make a shuttle bus system practical. In addition, analysis of these same workers shows that no concentration on employees in one area of the City. Thus, a number of bus routes would be necessary to make a significant decrease to the projected traffic volumes. Lastly, our discussions with the City's Department of Transportation Services indicates that the City did provide regular bus service to Sand Island at one time. However, this service was discontinued because of low ridership. Based on these considerations we do not see the use of a shuttle bus a feasible alternative.

Potentially, after the Corporation Yard has been fully developed, we may consider a limited shuttle bus system for the employees assigned to the yard. Since the management of the Yard will be by a single agency, we may suggest that the agency investigate this shuttle bus alternative.

Thank you for your interest in this project.



HERBERT K. MURAOKA  
Director and Building Superintendent

JS/RM:ly  
cc: Wilson Okamoto & Assoc., Inc. ✓



Hawaiian Electric Company, Inc. - PO Box 2750 - Honolulu, HI 96840 0001



Wilson Okamoto & Associates  
100-55-1  
Environmental Engineers

ENV 2-1  
JA/G

April 12, 1989

RECEIVED

WILSON OKAMOTO & ASSOCIATES

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

Dear Dr. Miura:

Subject: Draft Environmental Impact Statement (EIS) for Proposed Honolulu Corporation Yard, Sand Island and Sand Island Park Extension

We have reviewed the subject EIS and have no comments.

Sincerely,

*William A. Bonnet*

cc: Mr. Herbert Muraoka  
City & County of Honolulu  
Building Department

Mr. Stanford Kuroda  
Wilson Okamoto & Associates, Inc.

2772-02  
\*  
7

RECEIVED

WILSON OKAMOTO & ASSOCIATES

PB 89-569

June 23, 1989

Mr. William A. Bonnet, Manager  
Environmental Department  
Hawaiian Electric Company, Inc.  
P. O. Box 2750  
Honolulu, Hawaii 96840-0001

Dear Mr. Bonnet:

Subject: Draft Environmental Impact Statement (DEIS) for the Proposed Honolulu Corporation Yard, Sand Island and Sand Island Park Extension

Thank you for reviewing subject DEIS.

We have received your letter dated April 12, 1989 and understand that you have no comments.

Very truly yours,

*James H. Hanks*

HERBERT K. MURAOKA  
Director and Building Superintendent

RM:ly  
cc: Wilson Okamoto and Assoc., Inc.

April 12, 1989

APPENDIX F

AIR QUALITY STUDY  
FOR THE PROPOSED  
HONOLULU CORPORATION YARD  
AND SAND ISLAND PARK EXTENSION  
SAND ISLAND, OAHU, HAWAII

Prepared for:

City and County of Honolulu Building Department  
Wilson Okamoto and Associates, Inc., Planners

Prepared by:

Barry D. Root & Barry D. Neal

May 30, 1989

## SUMMARY

1. The City and County of Honolulu Building Department is proposing to relocate and consolidate existing maintenance and trades shops located at 12 sites in central Honolulu to a 26-acre site on Sand Island with concurrent development of the Sand Island Park Extension.
2. Ambient Air Quality Standards (AAQS) have been set for six major pollutants. Particulates from construction and other activities taking place within the proposed Honolulu Corporation Yard, emissions from vehicular maintenance activities and carbon monoxide from vehicles traveling to and from the project are likely to be of greatest concern. The Hawaii one-hour AAQS for carbon monoxide is four times more stringent than the national limit.
3. Present air quality in the project area is estimated to be good, but State of Hawaii standards for particulates, carbon monoxide and ozone have been exceeded in the Honolulu area in recent years.
4. While the proposed Honolulu Corporation Yard may create increased emissions of particulates and vehicular air pollutants on Sand Island, the activities creating these emissions are being relocated from other spots in central Honolulu. There should thus be small improvements in local air quality in the vicinity of sites being vacated by relocating activities and Sand Island is usually downwind from urban Honolulu so that a slight overall increase in urban air quality could result as well.
5. Detailed computer modeling of potential worst case peak hour carbon monoxide concentrations in the vicinity of three major intersections along the route to and from the project shows that impact from project-related traffic to peak levels will be relatively small, but peak levels at the sites studied exceeded allowable state of Hawaii standards for all conditions with or without peak hour traffic associated with the project. For the eight hour case, federal air quality standards could be exceeded along Nimitz Highway with or without project traffic in 1989. By 2005, improvements to Nimitz Highway, including an elevated viaduct for peak direction HOV use, should mitigate this situation. Eliminating parking along both sides of Auiki Street and opening two more lanes to traffic use could significantly reduce the impact of project-related traffic to air quality in the vicinity of that Sand Island Access Road intersection.
6. Other mitigative considerations include the fact that vehicles traveling to and from the proposed Honolulu Corporation Yard are being relocated from other sites throughout central Honolulu. Thus for every project-related vehicle traveling along Sand Island Access Road after project completion there will be a slight decrease in traffic congestion and air pollution along the central Honolulu route that vehicle used to travel. It is also possible that technological innovations in vehicle propulsion could in future eliminate air pollutant emissions from this source.

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## 1. INTRODUCTION AND PROJECT DESCRIPTION

The City and County of Honolulu currently operates fleet maintenance and trades shops activities from 12 different locations within central Honolulu. The purpose of the Corporation Yard project is to relocate these activities to a centralized 26-acre facility on Sand Island adjacent to the Sand Island Wastewater Treatment Plant. Concurrently the land between the proposed Corporation Yard and the south shoreline of Sand Island will be improved to create the Sand Island Park Extension. Access roads and parking areas will be used in common by City employees assigned to the Corporation Yard and park users. The proposed park will be primarily for day uses such as picnicking or jogging. Figure 1 is the project location map and Figure 2 is the proposed site plan.

The project will be linked to the Oahu roadway network via Sand Island Parkway and Sand Island Access Road to Nimitz Highway with secondary routes to the project from Nimitz Highway to Sand Island Access Road via Auiki Street and Kalahi, Puuhale, Mokauea, or Libby Streets. The project will be completed in phases with all development completed by 2005. By that date it is expected that a two lane High Occupancy Vehicle (HOV) elevated viaduct will have been completed along Nimitz Highway as part of the proposed Makai Boulevard Concept, and an additional lane will be added in the mauka direction to Kalihi Street through the Nimitz intersection.

The proposed project site is currently vacant and contains no buildings or other improvements. The proposed Honolulu Corporation Yard will involve construction of automotive maintenance shops, trades shops and material storage facilities, vehicle and equipment parking sheds, fueling facilities, open areas storage areas for materials and spoils, and internal circulation roads. The proposed park will include trees and landscaping to provide large open areas for picnicking and informal sports activities. No formal playing fields or courts are included in park development plans.

The purpose of this study is to describe existing air quality in the project area and to assess the potential short-term and long-term direct and indirect air quality impacts that could result from construction and use of the site as planned. Possible measures to mitigate any adverse impacts are also described and discussed.

## 2. AMBIENT AIR QUALITY STANDARDS

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

Federal AAQS have been divided into primary and secondary levels for particulates and sulfur dioxide. For these pollutants, primary AAQS are relevant to the prevention of adverse health impacts, while secondary AAQS refer to public welfare impacts such as decreased visibility, diminished comfort levels, or other potential damage to the natural or man-made environment, e.g. soiling of materials or other economic impact.

State of Hawaii AAQS have been set at a single level which is in some cases significantly more stringent than Federal AAQS. In particular, the State of Hawaii one-hour AAQS for carbon monoxide is four times more stringent than the comparable Federal AAQS.

Under the provisions of the Federal Clean Air Act, the U.S. Environmental Protection Agency (EPA) is required to periodically review and re-evaluate Federal AAQS in light of research findings more recent than those which were available at the time the standards were originally set. Periodically new standards are created as well. Most recently the Federal standard for particulate matter has been revised to include a standard which applies only to particulates 10 microns or less in diameter (PM-10). The State of Hawaii has not addressed the question of whether to set more stringent limits for this category of air pollutant, but Federal AAQS prevail where States have not set their own more stringent levels.

### 3. PRESENT AIR QUALITY

Present air quality on Sand Island is likely to be affected by air pollutants from three different types of sources: natural, industrial, and vehicular. Natural air pollutant producers which could affect local air quality include the ocean (sea spray), plants (aero-allergens), dust (from wind blowing over unvegetated areas or from construction or commercial activities), or perhaps a distant volcanic eruption on the island of Hawaii.

Particulate matter, sulfur dioxide, and nitrogen dioxide are the main regulated constituents of air pollution generated by industrial sources. A summary of recent air pollutant measurements from State of Hawaii long term monitoring stations located nearest to the project is presented in Table 2. Particulates (and PM-10) are measured at Liliha, about 1.5 miles northeast of Sand Island, while sulfur dioxide is measured at the Department of Health building in urban Honolulu, less than 2 miles east of the project site. With the exception of a few high readings in 1985, levels of particulates at the Liliha location and sulfur dioxide at the Department of Health have been well within allowable AAQS in recent years. Nitrogen dioxide concentrations have not been measured in Hawaii since the early 1980's. The AAQS for nitrogen dioxide is an annual value, implying that nitrogen dioxide presents a health concern only for long term exposures. When nitrogen dioxide was last measured at Sand Island in 1981, readings were well below the 24-hour standard then in force. The Liliha and Department of Health monitoring stations are located at sites that are usually upwind of Sand Island, but from the readings at these sites it seems reasonable to conclude that air pollutants from industrial sources are generally present in levels within allowable standards in the Sand Island area.

Carbon monoxide, ozone, and lead are the regulated pollutants most commonly associated with vehicular emissions. Measurements of lead from the Liliha site indicate that levels are barely above the threshold of detection for current measuring techniques. Airborne lead is thus not considered to be a problem at any Oahu location.

On the other hand, carbon monoxide and ozone readings from urban Honolulu and Sand Island indicate that allowable State of Hawaii standards for these vehicle-related air pollutants have recently been violated at rates of up to three times a year. Ozone is an indicator of the formation of photochemical pollutants in the air, a condition which tends to develop if the air mass over the islands has been fairly stable with little wind flow for a period stretching over several days. High ozone concentrations are thus an area-wide concern the origin of which is impossible to trace to a specific site. Concentrations of carbon monoxide are more directly related to vehicular emissions and tend to be highest at "hot spots" near congested intersections during peak hour traffic conditions. Carbon monoxide is thus the pollutant most likely to cause difficulty in meeting allowable AAQS as a result of Honolulu Corporation Yard development on Sand Island.

#### 4. SHORT TERM DIRECT AND INDIRECT IMPACTS OF PROJECT CONSTRUCTION

There will be two types of short term direct air quality impacts from project construction: fugitive dust and on-site emissions from construction equipment. There will also be a short term indirect impact from slow moving construction equipment traveling to and from the project site as well as a temporary increase in local traffic caused by commuting construction workers.

Fugitive dust emissions will arise from grading, dirt-moving, and landscaping activities within the project site and from any off-site dirt hauling as well. The quantitative rate of emission for fugitive dust is almost impossible to estimate because the potential for such emissions will vary greatly from day to day depending upon the amount of dirt-disturbing activity taking place and the moisture content of exposed soil in work areas. The EPA has provided a rough estimate for fugitive dust emissions from construction activity: 1.2 tons per acre per month of activity under conditions of "medium" activity, moderate soil silt content (30%), and a precipitation/evaporation (P/E) index of 50. The project site is considerably drier than the stated P/E index, thus increasing the potential for fugitive dust generation from this project. State of Hawaii Air Pollution Control Regulations require that visible fugitive dust emissions from construction activity be essentially nil.

Adequate fugitive dust control can usually be accomplished by establishment of a frequent watering program to keep bare-dirt surfaces in work areas from becoming significant dust generators. Paving parking areas and establishing landscaping as early in the construction process as possible as well as good housekeeping on the job site have all proven to be helpful in abating fugitive dust emissions.

On-site mobile and non-mobile construction equipment will also emit some air pollutants in the form of engine exhausts. The largest equipment is usually diesel-powered. Nitrogen dioxide emissions from this type of equipment can be significant, but resulting concentrations are of short duration and are of little concern with respect to the long term AAQS for nitrogen dioxide. Carbon monoxide emissions from a single piece of construction equipment are rarely more than those from a single automobile, and the overall air quality impact of emissions from construction equipment should be insignificant compared to vehicular emissions from roadways nearby.

Indirectly, slow moving construction vehicles on roadways adjacent to the project can obstruct the normal free flow of traffic to such an extent that overall vehicular emissions are increased, but this impact can be mitigated by moving heavy construction equipment during periods of low traffic volume on the roadways affected. Likewise the schedules of commuting workers can be adjusted slightly to avoid peak traffic hours in the project vicinity. Thus most potential short term air quality impacts from project construction should be relatively easy to mitigate.

## 5. LONG TERM DIRECT IMPACT

### A. ON-SITE

Once construction has been completed, the on-site direct air quality impact of the proposed Honolulu Corporation Yard will vary daily depending upon the type of specific activity in progress. In general there will be particulate generation from trades activities, and vehicle-related emissions from maintenance and fueling activities. It is not likely that any of these activities will generate air pollutants in quantities leading to ambient air concentrations exceeding allowable standards. In fact, relocating these activities to a site that is usually downwind from urban Honolulu could very well lead to local improvements in air quality in the vicinity of those sites vacated by the relocation and a minor improvement to overall urban air quality. Long term direct air pollutant emissions from the proposed Sand Island Park Extension are expected to be minimal - consisting mostly of smoke from weekend barbecues.

### B. OFF-SITE

#### ELECTRICAL ENERGY GENERATION AND SOLID WASTE INCINERATION

Because the proposed Honolulu Corporation Yard project is essentially a relocation effort, there should be no net change in electrical energy usage or solid waste incineration associated with the project. Increased efficiencies gained by relocating and combining some of these activities may even decrease overall requirements for electrical energy, leading to small improvements in air quality in the vicinity of electrical energy generating stations.

## 6. LONG TERM INDIRECT IMPACT OF PROJECT-RELATED TRAFFIC

By serving as an attraction for increased motor vehicle traffic in the Sand Island area the proposed project constitutes a potential indirect air pollution source.

Motor vehicles, especially those with gasoline-powered engines, are prodigious emitters of carbon monoxide. Motor vehicles also emit some nitrogen dioxide and those burning fuel which contains lead as an additive contribute some lead particles to the atmosphere as well. The major control measure designed to limit lead emissions is a Federal law requiring the use of unleaded fuel in most new automobiles. As older cars are removed from the vehicle fleet lead emissions should continue to fall. In fact, so few vehicles now require leaded gasoline that the EPA is proposing a total ban on lead in gasoline to take effect immediately. Even without such a ban, reported quarterly averages of lead in air samples collected at the Liliha monitoring site have been below measurable thresholds since early 1986.

Federal control regulations also call for increased efficiency in removing carbon monoxide and nitrogen dioxide from vehicle exhausts. By the year 1995 carbon monoxide emissions from the Oahu vehicle fleet then operating should be significantly lower than amounts now emitted. At present, however, no further reductions in vehicular emissions have been mandated and increases in traffic levels after 1995 will result in directly proportional increases in vehicle-related pollutant emissions.

In order to evaluate the potential air quality impact of increased traffic from the proposed project in view annually varying emission rates per vehicle, a detailed computer modeling effort was carried out. Carbon monoxide was selected for modeling because it is both the most stable and the most abundant of the motor vehicle generated pollutants. It is also likely to be the pollutant with the greatest likelihood of violating present AAQS.

## 7. CARBON MONOXIDE DIFFUSION MODELING

Three critical intersections were selected for analysis: the Sand Island Access Road and Kalihi Street intersections with Nimitz Highway (sites 1 and 2, respectively, on Figure 1) and the Auiki Street intersection with Sand Island Access Road (site 3 on Figure 1). The particular position of the worst case receptor site with respect to each intersection was determined by highest peak hour traffic volumes on each leg of the intersection and the wind direction required to yield highest carbon monoxide concentrations under worst case meteorological dispersion conditions.

Peak hour traffic volumes through these intersections were determined using data from the preliminary Traffic Impact Study for the Keehi Lagoon Recreation Plan prepared by Wilbur Smith Associates. Volumes for 2005 are based on straight line extrapolations of 1998 volumes contained in the above study. Project-related traffic volumes for 1989 and 2005 are given in the Draft Environmental Impact Statement for the proposed project prepared by Wilson Okamoto and Associates. From these sources it was determined that afternoon peak hour traffic volumes are much higher than morning peak hour levels along the Nimitz Highway corridor, while morning peak hour volumes were higher than afternoon peaks in the vicinity of the Auiki Street intersection with Sand Island Access Road.

Modeling was performed for peak hour periods in the vicinity of these intersections for 1989 and 2005 for scenarios with and without the peak hour traffic expected to be generated by the Honolulu Corporation Yard and Sand Island Park Extension. For 1989 project-related traffic is expected to be 517 morning peak hour vehicles and 525 afternoon peak hour vehicles. By 2005 these project-related peak hour volumes are expected to increase to 681 in the morning and 689 in the afternoon. About 56% of the peak hour traffic associated with the project is expected to originate from the Honolulu direction with about 75% of that utilizing the Sand Island Access Road intersection with Nimitz Highway and 25% using the Kalihi/Auiki Street route. Traffic volumes for 2005 assume completion of the Keehi Lagoon Recreation Plan by that date and completion of an elevated two-lane viaduct over Nimitz Highway that is planned by the State as part of the Makai Boulevard Concept. This viaduct would be utilized by HOV traffic in reversible peak hour directions with expected volumes by 2005 of 240 in the morning peak hour direction and 290 in the evening peak hour direction. It was also assumed that a new mauka-bound lane would be added to Kalihi Street through the Nimitz Highway intersection by 2005.

Carbon monoxide modeling computations for site 3 assume that Auiki Street remains two lanes with parking available along already paved lanes on both sides of the roadway. In the traffic study for the project it is proposed that this parking be eliminated as a potential measure to mitigate traffic congestion. Computations for site 3 thus show the potential air quality improvements that could result from implementation of this proposed mitigative measure in conjunction with project development.

Using 1986 vehicle registration figures for Oahu, the existing vehicle mix is estimated to be 91.9% light duty gasoline-powered vehicles, 4.2% light duty gasoline-powered trucks and vans between 6000 and 8500 pounds, 0.5% heavy duty gasoline-powered vehicles, 0.5% diesel-powered automobiles, 0.1% light duty diesel-powered trucks, 1% diesel powered trucks and buses, and 1% motorcycles. The 1986 State of Hawaii Department of Transportation Traffic Summary for the island of Oahu indicates that on Nimitz Highway afternoon peak hour traffic includes 7% trucks. For peak hour carbon monoxide computations the Nimitz Highway vehicle mix was thus altered to 1% heavy duty gasoline-powered vehicles and 3% heavy duty diesel-powered trucks and buses with corresponding decreases in light-duty vehicles. For Sand Island Access Road and Kalihi Street the afternoon percentage of trucks is even higher (about 11.5%) so the vehicle mix for those roadways was altered to include 2.5% heavy duty gasoline-powered vehicles and 5% heavy duty trucks and buses. For Sand Island Access Road in the morning the percentage of trucks increases to 20, which increases the percentage of heavy duty diesels to 8 and the percentage of heavy-duty gasoline powered vehicles to 5 with corresponding increases to medium sized trucks and decreases to percentages of automobiles.

Vehicle speeds were assumed to be 16 mph on all roadways during peak hour conditions. A cold winter morning temperature of 15 degrees C (59 degrees F) was assumed for morning rush hour conditions with a slightly warmer temperature of 20 degrees C (68 degrees F) prevailing for the afternoon rush hour. Vehicle operating characteristics were computed assuming that 20.6 percent of the vehicles equipped with catalytic converters and 20.6 percent of the vehicles without catalytic converters would be operating in the "cold start" mode and that 27.3 percent of all vehicles would be operating in the hot start mode. The EPA computer model MOBILE3 was run using the above parameters to produce vehicular carbon monoxide emission estimates for each of the years studied. National averages for "mis-fueling" were assumed.

The computer model CALINE4 was used for calculating carbon monoxide concentrations for each scenario. Stability category 4 was used for determining diffusion coefficients. This stability category represents the most stable (least favorable) atmospheric condition that would be likely to occur in an urban area such as this. For all scenarios a surface roughness of 100 was assumed since this value is closest to that which occurs over urban areas where one and two story buildings are the prevailing form of construction.

To simulate worst case wind conditions a uniform wind speed of one meter per second was assumed with the worst case wind direction determined by which wind direction produced the highest concentration of carbon monoxide. Concentrations were computed at a distance of 4 meters from the edge of the roadway and at a height of 1.5 meters above ground in order to estimate levels that would exist within the normal human breathing zone. Background contributions from sources not directly considered in the carbon monoxide computations were assumed to be 1 milligram per cubic meter in 1989 and 0.6 milligrams per cubic meter in 2005. These values were estimated to include potential emissions from numerous small parking areas located in the vicinity of each of the sites studied. These values are within the probable modeling margin of error given the numerous assumptions required in model input formulations.

Results of the peak hour carbon monoxide analysis are summarized in Table 3. None of the worst case computed carbon monoxide values meet stringent State of Hawaii standards no matter which scenario is considered. On the other hand, the federal one-hour limit is likely to be met at all locations whether traffic from the proposed project is included or not.

The reason that traffic from the proposed project appears to make such a small contribution to worst case values along Nimitz Highway in the vicinity of the Sand Island Access Road and Kalihi Street intersections is that afternoon peak hour traffic from the Corporation Yard contributes mostly to the off peak direction or downstream legs from signals on Nimitz Highway and traffic on these legs of the intersections makes only a small contribution to the highest level of carbon monoxide that can be found at any site within the vicinity of the intersection. In fact the major effect of project-related traffic will be to raise peak hour levels of carbon monoxide at other sites around these intersections, such as along Sand Island Access Road and Kalihi Street where present and future concentrations are significantly lower than the highest values projected to occur along the edge of Nimitz Highway closest to peak direction traffic. A more significant contribution to maximum worst case peak hour carbon monoxide levels occurs near the Aniki Street intersection with Sand Island Access Road when project-related traffic contributes directly to peak direction volumes during the morning rush hour. These values, however, are significantly lower than those which occur along the edge of Nimitz Highway.

For areas where no better data exists, worst case eight-hour carbon monoxide levels are usually estimated by multiplying peak hour modeled values by a "meteorological persistence factor" of 0.6 which is recommended in EPA modeling guidelines to account for the fact that average one hour traffic volumes over an eight hour period are lower than peak hour volume and the fact that wind conditions are more variable over an eight hour period than they are for a one hour period. Eight hour estimated carbon monoxide levels have thus been computed using this ratio with results summarized in Table 4.

Estimated worst case eight-hour carbon monoxide concentrations along Nimitz Highway are high enough to exceed federal limits in the vicinity of sites 1 and 2 with or without project related traffic in 1989, but by 2005 the proposed elevated HOV viaduct is expected to reduce traffic volumes in the peak hour direction sufficiently to meet the federal eight hour limit. Compliance with the federal eight hour standard should occur when the HOV lane is first opened for use (currently expected to be prior to 1998). As was the case with the peak hour worst case computations, more stringent State of Hawaii eight hour standards are not expected to be met by any of the scenarios considered. It is noted, however, that significant gains in air quality can be expected if the proposal to ban parking and open two additional lanes for traffic use on Aukiki Street is implemented as suggested in the traffic study for the project.

It should also be noted that the wind direction required to yield the worst case levels shown for sites 1 and 2 is from the northwest. This is a very rare wind direction for Honolulu, occurring less than once per year in conjunction with afternoon wind speeds as low as those used in worst case modeling. Similarly, the worst case morning wind direction for site 2 is south southwest, which is even more rare in conjunction with light winds. When the wind does blow from these directions it is usually much stronger than the one meter per second used in modeling calculations. With wind speeds of two meters per second, for example, computed levels of carbon monoxide would be only about half those shown in the worst case analysis.

## 8. MITIGATIVE CONSIDERATIONS

### A. SHORT TERM

From an air quality standpoint the major short term impact of project construction will be potential emissions of fugitive dust. Strict compliance with State of Hawaii Air Pollution Control Regulations regarding establishment of a regular watering program should effectively mitigate this concern.

### B. LONG TERM

While it is likely that activities taking place within the proposed Honolulu Corporation Yard will generate particulates and vehicle-related emissions such as carbon monoxide and nitrogen dioxide, new facilities will be designed from the outset to meet all EPA and State of Hawaii requirements currently in force. These new, modern facilities should be designed so that their impact on air quality is less than is currently the case with these activities scattered throughout the urban Honolulu area where they are often housed in facilities not designed for the type of work being performed. Consolidating these activities on Sand Island will not only move these activities to an area that is generally downwind from urban Honolulu, but also create local improvements in air quality in the vicinity of sites vacated by relocation.

There could also be a net decrease in energy requirements for the proposed new facility resulting from colocation of related activities. This could translate into slightly reduced air pollutant emissions in the vicinity of energy generating facilities.

Other indirect long term air quality impacts are expected in those areas where traffic congestion can potentially be worsened by the addition of vehicles traveling to and from the project. Computer modeling indicates that these impacts are expected to be minimal, although the impacts are likely to occur in areas that may already be exceeding allowable state of Hawaii and federal ambient air quality standards under worst case peak hour traffic and meteorological conditions. As is pointed out in the modeling study, however, the combination of wind direction and wind speeds required to yield these worst case conditions is rare in Honolulu, and typical peak hour carbon monoxide levels for these locations would likely be much lower than worst case levels.

It should also be noted here that the vehicular traffic generated by the proposed project is not really new traffic volume. Like the activities themselves, the impact of project-related traffic is merely being relocated from other busy Honolulu intersections. For every project-related vehicle traveling along Sand Island Access Road during peak hour there will be some small decrease in traffic congestion and related air pollutant emission along the route that vehicle used to travel.

Furthermore, it cannot be discounted that future innovations in vehicle design occurring before the year 2005 could lead to power systems that produce greatly reduced or perhaps no significant air pollutant emissions.

#### REFERENCES

1. U.S. Congress. Clean Air Act Amendments of 1977 (P.L. 95-95), Section 109, National Ambient Air Quality Standards, August, 1977.
2. U.S. EPA. Revisions to National Ambient Air Quality Standards for Particulate Matter, Federal Register, Vol. 52, p.2463, July 1, 1987.
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4. Wilbur Smith Associates, Keehi Lagoon Recreation Plan Traffic Impact Study Preliminary, March 3, 1989.
5. State of Hawaii Department of Transportation Highways Division, Traffic Summary, Island of Oahu, 1986.
6. U.S. EPA. User's Guide to MOBILE-3 (Mobile Source Emissions Model), June, 1984.
7. State of California, Department of Transportation, CALINE4 - A Dispersion Model for Predicting Air Pollution Concentrations Near Roadways, November, 1984.
8. U.S. EPA. Guidelines for Air Quality Maintenance Planning and Analysis: Indirect Sources. Volume 9. Revised, September, 1978.
9. Wilson Okamoto and Associates, Inc., Draft Environmental Impact Statement for Proposed Honolulu Corporation Yard and Sand Island Park Extension, March, 1989.

TABLE 1

SUMMARY OF STATE OF HAWAII AND  
FEDERAL AMBIENT AIR QUALITY STANDARDS  
(AAQS)

(micrograms per cubic meter except where noted)

POLLUTANT	SAMPLING PERIOD	FEDERAL		STATE OF HAWAII
		PRIMARY	SECONDARY	
Total Suspended Particulate Matter (TSP)	Annual Geometric Mean	75	60	60
	24 Hour	260	150	150
PM-10 Particulates <10 microns in diameter	Annual Mean	50	50	-
	24 Hour	150	150	-
Sulfur Dioxide	Annual Mean	80		80
	24 Hour	365		365
	3 Hour		1300	1300
Nitrogen Dioxide	Annual Mean		100	100
Carbon Monoxide (milligrams per cubic meter)	8 Hour		10	5
	1 Hour		40	10
Photochemical Oxidants (as Ozone)	1 Hour		240	100
Lead	Calendar Quarter		1.5	1.5

Federal AAQS: U.S. Government, Code of Federal Regulations, Title 40, Protection of Environment, Part 50, National Primary and Secondary Ambient Air Quality Standards.

State of Hawaii AAQS: State of Hawaii, Title 11, Administrative Rules, Chapter 59, Ambient Air Quality Standards, as amended, April, 1986.

TABLE 2

SUMMARY OF RECENT AIR POLLUTANT MEASUREMENTS  
AT MONITORING STATIONS NEAREST TO  
THE PROPOSED PROJECT SITE

Pollutant/Location	1985	YEAR 1986	1987
<b>Carbon Monoxide/Honolulu:</b> (milligrams per cubic meter)			
No. Days of 1-Hr Samples	342	348	345
Range of Daily Max 1-Hr Values	0.0 - 10.4	0.2 - 13.5	0.3 - 11.1
Average Daily Max 1-Hr Value	1.5	2.2	1.7
No. of State 1-Hr AAQS Exceedences	1	3	1
No. Days of 8-Hr Samples	246	213	228
Range of Daily Max 8-Hr Values	0.1 - 4.4	0.3 - 4.7	0.3 - 3.9
Average Daily Max 8-Hr Value	1.3	1.4	1.2
No. of State 8-Hr AAQS Exceedences	0	0	0
<b>Ozone/Sand Island:</b> (micrograms per cubic meter)			
No. Days of 1-Hr Samples	341	346	342
Range of Daily Max 1-Hr Values	8 - 198	10 - 88	4 - 84
Average Daily Max 1-Hr Value	43	39	38
No. of State 1-Hr AAQS Exceedences	3	0	0
<b>Lead/Liliha:</b> (micrograms per cubic meter)			
No. of 24-Hr Samples	58	61	59
Range of 24-Hr Values	0.0 - 0.5	0.0 - 0.3	0.0 - 0.1
Average Quarterly Value	0.2	0.0	0.0
No. of State AAQS Exceedences	0	0	0

TABLE 2 CONT'D

SUMMARY OF RECENT AIR POLLUTANT MEASUREMENTS  
AT MONITORING STATIONS NEAREST TO  
THE PROPOSED PROJECT SITE

Pollutant/Location	1985	YEAR 1986	1987
<b>Particulate Matter/Liliha (micrograms per cubic meter)</b>			
No. of 24-Hr Samples	60	61	55
Range of Daily Values	11 - 254	17 - 60	20 - 59
Average Daily Value	45	32	31
No. of State 24-Hr AAQS Exceedences	3	0	0
<b>PM-10/Liliha (micrograms per cubic meter)</b>			
No. of 24-Hr Samples	10	51	42
Range of Daily Values	13 - 52	7 - 35	10 - 33
Average Daily Value	23	18	17
No. of 24-Hr AAQS Exceedences	0	0	0
<b>Sulfur Dioxide/Department of Health (micrograms per cubic meter)</b>			
No. of 24-Hr Samples	53	57	54
Range of Daily Values	<5 - <5	<5 - 6	<5 - 11
Average Daily Value	<5	<5	<5
No. of State 24-Hr AAQS Exceedences	0	0	0

Source: State of Hawaii Department of Health

TABLE 3

RESULTS OF PEAK HOUR CARBON MONOXIDE MODELING  
(milligrams per cubic meter)

SITE	LOCATION\SCENARIO	YEAR	
		1989	2005
1	Sand Island Access Road at Nimitz Highway Afternoon Rush Hour		
	Without Project	17.7	12.5
	With Project	17.8	13.3
2	Kalihi Street at Nimitz Highway Afternoon Rush Hour		
	Without Project	23.2	16.1
	With Project	23.3	16.2
3	Auiki Street at Sand Island Access Road Morning Rush Hour		
	Without Project	13.0	12.8
	With Project + Mitigation	15.8 13.0	14.1 11.0

STATE OF HAWAII AAQS: 10  
FEDERAL AAQS: 40

NOTE: See Figure 1 for location of receptor sites. See text, Section 7, for description of scenarios, models, and assumptions.

TABLE 4

ESTIMATED EIGHT HOUR CARBON MONOXIDE CONCENTRATION  
(milligrams per cubic meter)

SITE	LOCATION\SCENARIO	YEAR	
		1989	2005
1	Sand Island Access Road at Nimitz Highway		
	Without Project	10.6	7.5
	With Project	10.7	8.0
2	Kalihi Street at Nimitz Highway		
	Without Project	13.9	9.7
	With Project	14.0	9.7
3	Auiki Street at Sand Island Access Road		
	Without Project	7.8	7.7
	With Project + Mitigation	9.5 7.8	8.1 6.6

STATE OF HAWAII AAQS: 5  
FEDERAL AAQS: 10

NOTE: See Figure 1 for location of receptor sites. See text, Section 7, for description of scenarios, models, and assumptions.

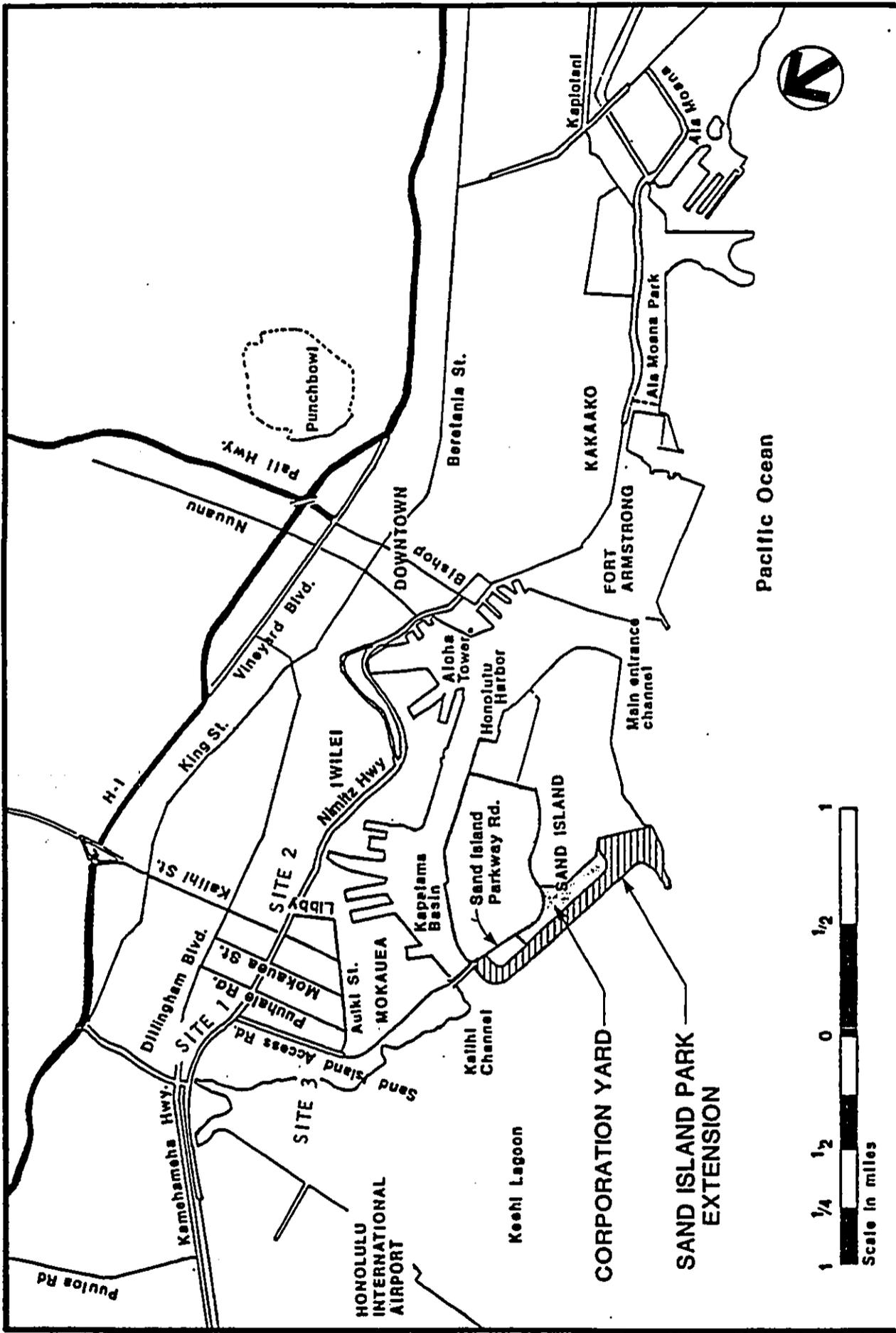


Fig. 1

LOCATION MAP

CORPORATION YARD  
AND SAND ISLAND PARK  
Environmental Impact Statement

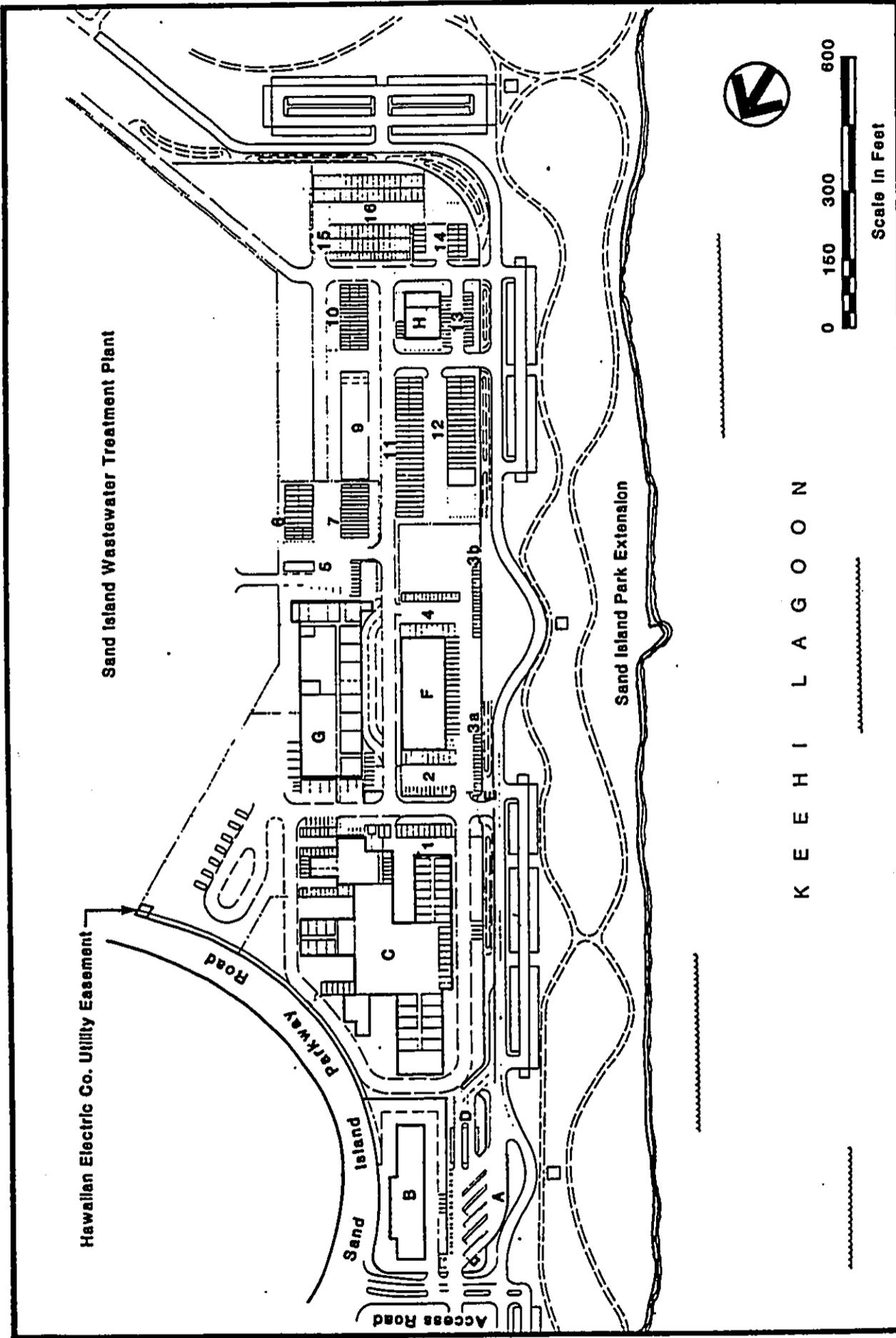


Fig. 2

**SITE PLAN -  
CORPORATION YARD**

**CORPORATION YARD  
AND SAND ISLAND PARK**  
Environmental Impact Statement