BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO. (P) 1844.9

DEC 9 1999

'99 DEC 10 A11:13

TO: Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control

SUBJECT: Finding of No Significant Impact (FONSI)
Aiea Public Library Site Feasibility
TMK 9-9-05:10 and 25, Ewa District, Oahu, Hawaii

The Department of Accounting and General Services reviewed the Draft EA and comments received during the 30-day public comment period which began on May 23, 1999. The agency determined that this project will not have significant environmental effects and a FONSI can be issued. Please publish this notice in the December 23, 1999 OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form and four copies of the Final EA. Should there be any questions, please have your staff contact Mr. Ralph Morita of the Public works Division at 586-0486.

GORDON MATSUOKA
Public Works Administrator

RM:jk
Attachments

1999-12-23-OA-FEA-

Aiea Public Library Site Feasibility
Final Environmental Assessment
(DAGS Job No. 12-36-6280)

Prepared by:

Kajioka Yamachi Architects, Inc.
& PBR Hawaii

Prepared for:

State of Hawaii
Department of Accounting and General Services (DAGS)
1151 Punchbowl Street, 4th Floor
Honolulu, Hawaii 96813

November 1999

Aiea Public Library Site Feasibility

Final Environmental Assessment
(DAGS Job No. 12-36-6280)

Prepared by:

KAJIOKA
YAMACHI
ARCHITECTS Kajioka Yamachi Architects, Inc.

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November 1999

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1.0 INTRODUCTION

1.1 PROJECT SUMMARY

Project Name:	Aiea Public Library Site Feasibility/Environmental Assessment (DAGS Job No. 12-36-6280)
Applicant:	State of Hawaii Department of Accounting and General Services (DAGS) 1151 Punchbowl Street, 4th Floor Honolulu, Hawaii 96813
Applicant's Agent:	Kajioka Yamachi Architects, Inc. 934 Pumehana Street Honolulu, Hawaii 96826
Accepting Authority:	Department of Accounting and General Services
Landowners:	Crazy Shirts, Inc. 99-969 Iwaena Street Aiea, Hawaii 96701 Alexander and Baldwin Inc. 822 Bishop Street Honolulu, Hawaii 96813 (Two wells and one water tank located on TMK: 9-9-05: 25)
Tax Map Key:	9-9-05: 10 and 25
Project Area:	19.4 acres
Existing Use:	Vacant - Previously used as part of the Aiea Sugar Mill. The Hawaiian Agricultural Research Center (HARC) also utilizes approximately 4.2 acres of old Aiea Sugar Mill property on TMK 9-9-05: 10. Two wells and a water storage tower are located on the preferred library site which is on the Honolulu side of Aiea Stream.
Proposed Use:	The new Aiea Public Library would be located on TMK: 9-9-05:25. This privately-owned parcel would require acquisition by the State. The gross floor area is envisioned as approximately 20,000 gross square feet of interior space. Accessory uses include parking lot and outdoor classrooms/gathering spaces. Uses may include

multipurpose room, reading rooms, computer center, and miscellaneous support facilities.

State Land Use: Urban District

Primary Urban Center Development Plan: Industrial

Land Use Ordinance: I-2 Intensive Industrial

Special Management Area: Not Applicable

1.2 IDENTIFICATION OF PROPOSING AGENCY

State of Hawaii
Department of Accounting and General Services (DAGS)
1151 Punchbowl Street, 4th Floor
Honolulu, Hawaii 96813

1.3 AGENCIES CONSULTED IN THE PREPARATION OF THIS DOCUMENT

The following agencies and organizations have been consulted during the planning process and for the preparation of this Site Feasibility and Environmental Assessment Report:

State
Department of Agriculture
Department of Education
Department of Health
Department of Transportation
Department of Land and Natural Resources
Department of Land and Natural Resources, Historic Preservation Division
Department of Accounting and General Services
Hawaii State Public Library System
Office of Environmental Quality Control
State Land Use Commission

City
Board of Water Supply
Department of Design and Construction
Department of Parks and Recreation Services
Department of Facility Management
Department of Transportation Services
Department of Planning and Permitting
Department of Environmental Services
Honolulu Police Department
Honolulu Fire Department
Office of the Mayor

Federal
U.S.D.A. Natural Resources Conservation Service
U.S. Department of the Army

Others
Aiea Community Association
Representative Tom Okamura
Aiea Neighborhood Board Chair, William Clark
Senator Norman Mizuguchi

2.0 GENERAL DESCRIPTION OF THE ACTION'S CHARACTERISTICS

2.1 TECHNICAL CHARACTERISTICS

2.1.1 Purpose

This Environmental Assessment has been prepared to identify the appropriate site and future development requirements of the proposed Aiea Public Library. This project would require the use of state funds and purchase of privately owned property.

The actions required from the State would be acquisition of the property, acceptance of the environmental disclosure documents in accordance with Chapter 343, *Hawaii Revised Statutes* ("HRS"), and design and construction of the proposed Aiea Public Library. Appropriate land use approvals will also be required from the City and County of Honolulu, although the proposed library is defined as a Public Facility by the City and is a permitted use within the existing I-2 Intensive Industrial zoning district.

The agency preparing the master plan and acting as applicant for the project is the State Department of Accounting and General Services. To identify the appropriate site for the library within the study area, the Department of Accounting and General Services contracted with Kajioka Yamachi Architects, Inc. to prepare a feasibility assessment, conceptual site plan, and the applicable environmental documents in compliance with Chapter 343, HRS. Therefore, in accordance with Chapter 343, HRS, the State Department of Accounting and General Services is the proposing agency for the project whose mailing address and primary contact person is listed below:

Mr. Ralph Morita
Public Works Division
Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawaii 96810

2.1.2 Background

The existing Aiea Public Library is a 10,724 square foot facility located at the intersection of Moanalua Road and Heleconia Street in Aiea, Oahu, Hawaii. This site comprises 34,425 square feet with little or no room for future expansion. Its service area is Aiea which had a population of 32,648 as of the 1990 census. According to the Office of the State Librarian, the existing Aiea Public Library has a circulation of 227,081 with 28,194 registered borrowers of library materials between July 1997 and May 1998. The material's collection is 68,918 which will be curbed at 70,000 because of space constraints. Users during an average week are approximately 3,250 persons. According to the Hawaii State

Public Library System (HSPLS), other inadequacies of the existing Aiea Public Library include:

- lack of parking (25 stalls)
- poor lighting
- shortage of electrical outlets
- inadequate disability accessibility
- small meeting room size and limited usage due to severe parking problems
- location proximate to commercial areas

Clearly, the high level of use and inadequacy of library facilities impacts the public's ability to efficiently use the Aiea Public Library as presently functioning.

2.1.3 Description of the Subject Property

The subject property (site of the old Aiea Sugar Mill) consists of approximately 19.4 acres and is identified as TMK's: 9-9-05: 10 and 25 (Figures 1 and 2). The subject property is located in Aiea with access provided by Ulune Street, Kulawea Street, and Aiea Heights Drive.

Land uses on the subject property historically consisted of the Aiea Sugar Mill and the Hawaiian Agricultural Research Center (HARC). Recent demolition of the major Aiea Sugar Mill structures has left the property essentially vacant except for the HARC building and some smaller vacant storage structures. Existing infrastructure improvements primarily consist of access roads, utility lines, potable water, and waste water lines all sized previously to accommodate the sugar mill operations. Two wells (#34 and #36) and a water storage tower are all owned by A&B Inc. and are located on TMK: 9-9-05: 25. These wells are designated as "Drinking Source" on the State of Hawaii, Department of Health, Underground Injection Control Program map of the area. There are no injection wells on the project site.

The subject property is surrounded by single-family residential areas and the Aiea Intermediate and Webling Elementary Schools. The schools are adjacent to a small portion of the project's northeastern boundary along Kulawea Street.

The existing land use designations for the property include the following:

a. State Land Use District - Urban
b. Primary Urban Center Development Plan - Industrial
c. Existing Land Use Ordinance Zoning - Intensive Industrial (I-2)
d. Special Management Area - Not Applicable
e. Other Special Districts - Not Applicable

Because both TMK parcels are still privately owned, access onto the subject property for conducting archaeology, flora, and fauna studies has not been available. As an

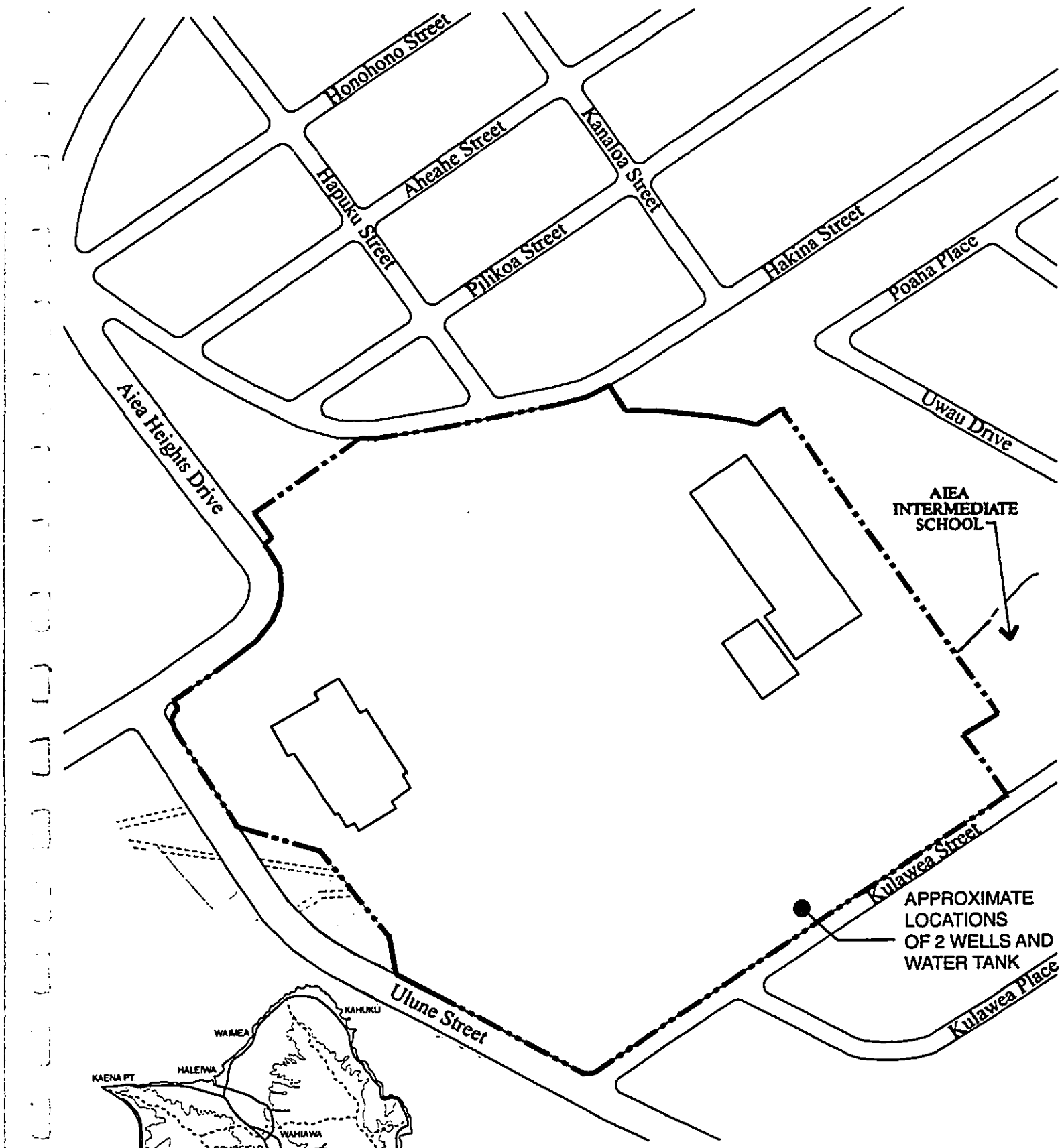

Figure 1
LOCATION MAP

Aiea Public Library

Department of Accounting & General Services

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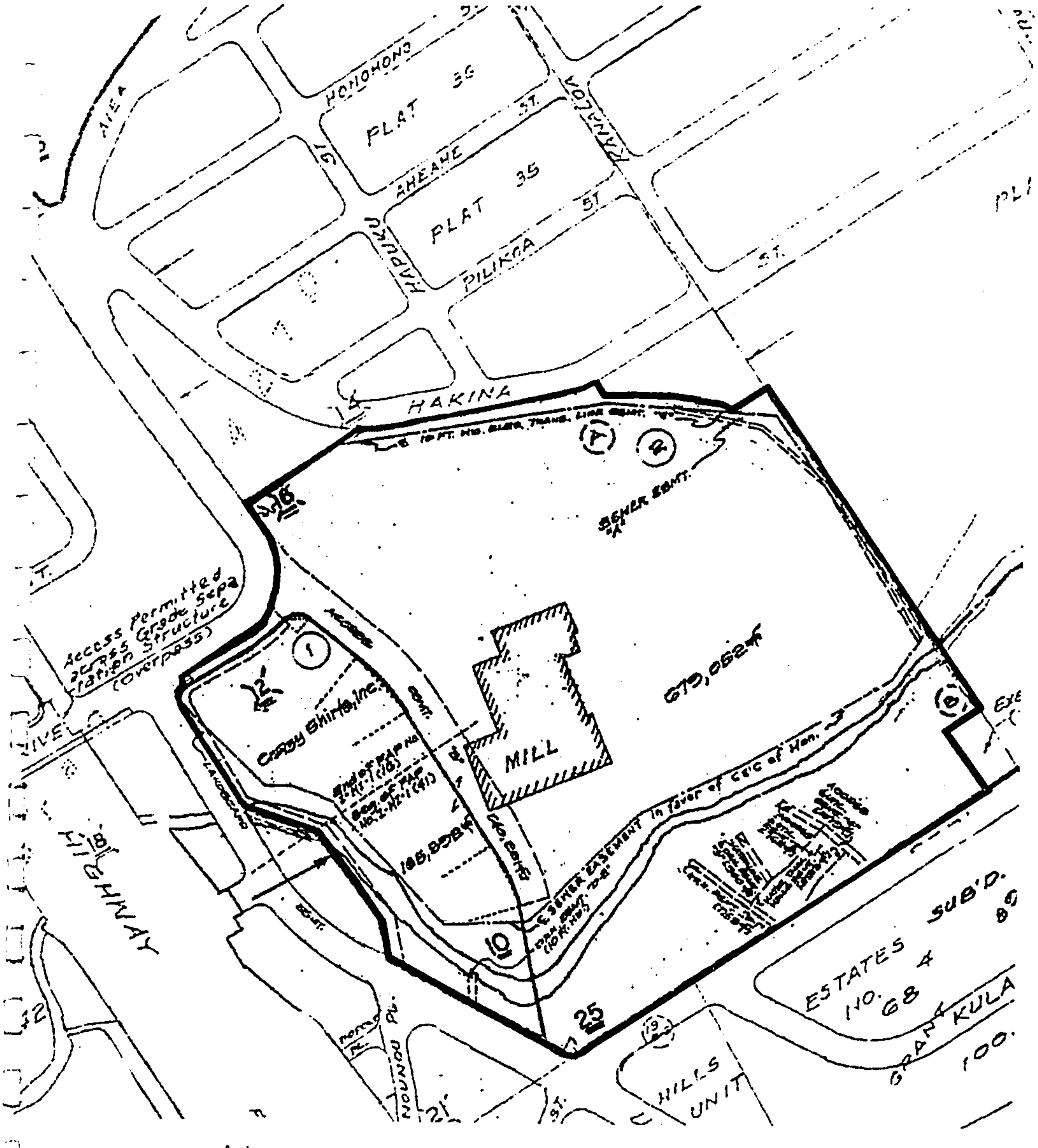

Figure 2
TAX MAP KEY

Aiea Public Library

Department of Accounting & General Services

0 100 200 FEET

KAJIOKA YAMACHI ARCHITECTS

PBR HAWAII

alternative, information regarding archaeology, flora, and fauna resources was obtained from environmental documents prepared by the current land owner in relation to a proposed commercial development planned for the property. This document entitled *"Final Environmental Impact Statement for Aiea Sugar Mill Commercial Development, Aiea, Oahu, June 6, 1997."*

2.1.4 Description of the Planning Area

The subject property, previously known as the Aiea Sugar Mill, was most recently used as a liquid white sugar refinery and was owned by A&B Hawaii, Inc. With the end of sugar production on Oahu, there was no longer a need for this facility. The property was subsequently sold to the current owner, Crazy Shirts, Inc. for potential use as a factory, tourist attraction, and for administrative purposes. After extensive analysis, it was determined that the redevelopment costs for these uses would be excessive relative to the potential revenues. Consequently, the current owners dismantled the equipment and demolished the mill. Therefore, the subject property will be described as the Aiea Public Library site for planning purposes rather than the Aiea Sugar Mill site.

The proposed Aiea Public Library site is located near the center of Oahu's urban complex within the city Primary Urban Center Development Plan area and near planned future growth areas of Central Oahu. The site is near the H-1 Freeway and the Moanalua Freeway. During periods of congestion on the H-1 Freeway, the Moanalua Freeway is often used as a shorter route between Honolulu and the Pearl City/Waipahu area. Neighborhood collector streets adjoining the property include Kulawea Street, Ulune Street, and Aiea Heights Drive. Hakina Street also abuts the property, but access into the property would be very difficult and costly due to topographic constraints and limited size of residential collector streets.

According to HSPLS, libraries are generally not compatible with commercial or industrial land uses, or lower density land uses such as agricultural areas. Because the surrounding area is essentially residential, the proposed library located on the subject property would draw users from the adjoining elementary and intermediate schools, and nearby homes. As such, the subject property is strategically located to provide optimum accessibility for users of the proposed Aiea Public Library.

2.1.5 Project Development Goals

The goal of the project is to develop a new Aiea Public Library as a replacement to the existing facility located at the intersection of Koanalua Road and Heleconia Street in Aiea. The existing facility is clearly inadequate to service the Aiea community in an effective and efficient manner.

The proposed library will be designed to serve as a regional facility serving Aiea as well as the surrounding communities. The new Aiea Public Library would be designed to allow

efficient delivery of library services to the community, eliminate current deficiencies in existing facilities, and provide new facilities as new communication technologies evolve in the future.

2.1.6 Description of the Project

The new library is envisioned to have an interior area of approximately 15,000 to 20,000 square feet on one story. Outdoor spaces could also be incorporated into the building design to provide covered outdoor reading "rooms." The optimum land area for all required facilities and improvements would range from 80,000 to 100,000 square feet (See Figure 3).

Programmed Spaces. Although the specific spatial requirements have not been programed at this level of planning, the new Aiea Public Library building will have a gross interior floor area of approximately 15,000 to 20,000 square feet. For planning purposes, the 20,000 square foot size has been used to determine building footprint, parking, and infrastructure requirements. Consequently, a facility of this size should be considered as the optimum, and a smaller library could also be accommodated on the selected site. The library is to consist of one level and would include the following major elements.

1) Reading room with areas for:

   - Public access catalog terminals and Internet terminals;
   - Adult section;
   - Periodicals section;
   - Reference section;
   - Children's section with a storytelling alcove;
   - Young adult section with noise proof glass; and,
   - Restrooms with public disabled stalls and floor drainage
   - Public display cases.

2) Computer room for public and HSPLS staff training

3) A circulation desk

4) Reference desks

5) Book drops with size adequate for book truck entry

6) Meeting room with accessibility from parking lot and accessibility to restrooms with disabled stalls

7) A parking lot with adequate stalls

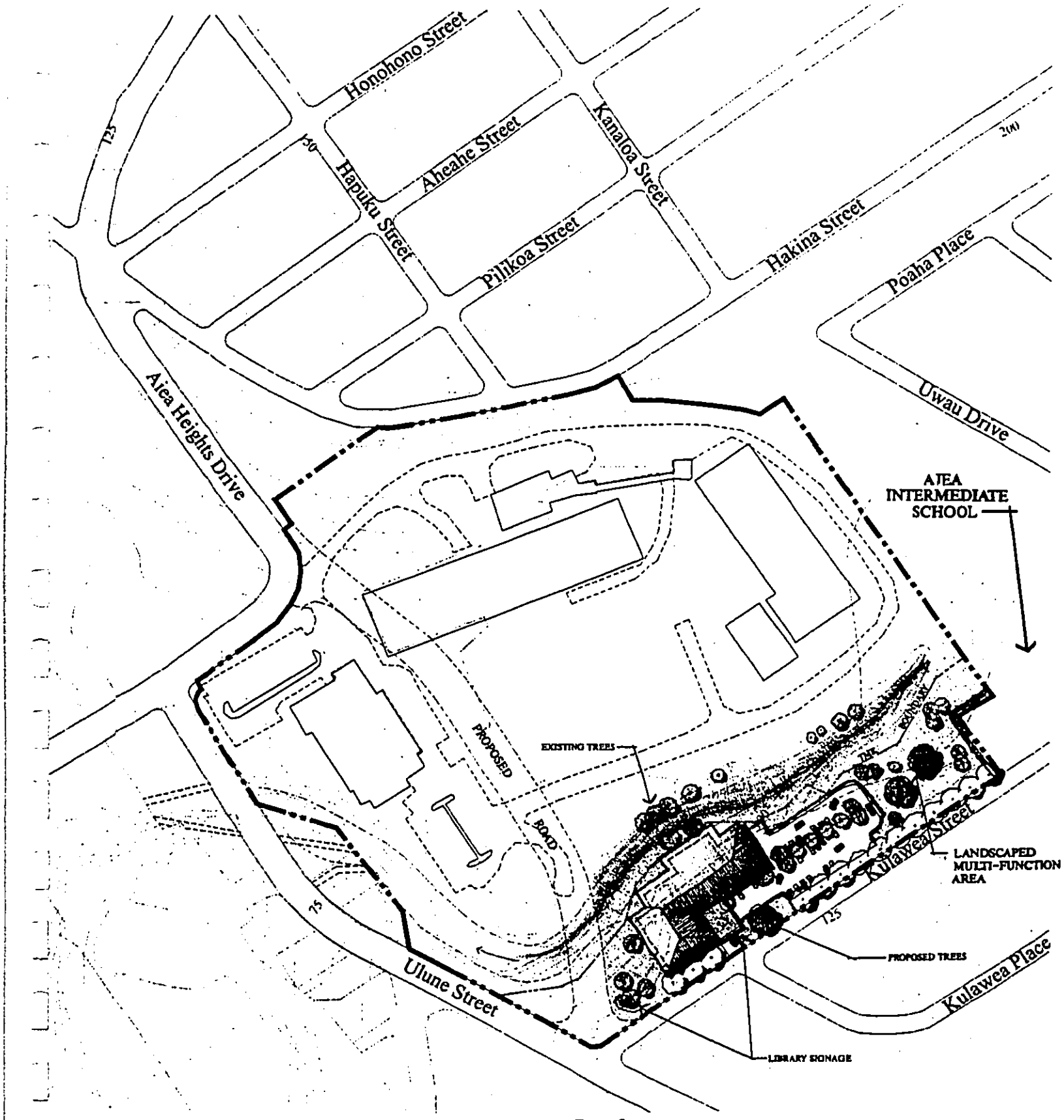

Figure 3
CONCEPTUAL SITE PLAN

Aiea Public Library

Department of Accounting & General Services — July 1998

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8) Staff requirements
   - Work room with partitions
   - Office
   - A janitor's supply and storage room with a sink
   - Book storage rooms for library and Friend's books
   - Delivery area with a garage
   - Periodicals and Navy document storage room
   - Staff room with a kitchenette
   - Staff restrooms with entry from the hallway
   - Air-conditioning equipment storage
   - Yard cleaning equipment storage

Exterior Design Elements. Building architecture will be a low rise and integrated into the surrounding neighborhood and existing topography as follows:

1) Architecture
   - Complement the surrounding residential neighborhood.
   - Functionality responsive to Hawaii's climate.
   - Orienting the building toward Aiea Stream to maximize natural features of the site.
   - At the appropriate stage in the design process, the project architect will incorporate, where possible, the Office of Environmental Quality Control's Guidelines for Sustainable Building Design in Hawaii.

2) Landscape Architecture
   - Establish an entry statement along Kulawea Street to Aiea Intermediate School.
   - Define outdoor spaces especially along Aiea Stream using native plant materials.
   - Pedestrian circulation system (i.e., footbridges over Aiea Stream) creates linkages to development of Aiea Sugar Mill site as warranted in the future.
   - Paved parking (one stall/400 square feet = 50 stalls), concrete walkways, retaining walls, expanded drainage system, and utility connections.
   - Incorporate larger existing trees into the landscape design or relocate the existing trees on-site as appropriate.

In addition, the project must comply with the Americans with Disabilities Act Accessibility Guidelines. Pathways to the parking lot and main street will be accessible. Facilities will also be provided to accommodate the Handi-Van paratransit service vehicles.

According to the Land Use Ordinance (Table 21-6.1), a parking ratio of 1 parking stall/400 square feet is required. This equates to approximately 50 parking stalls (20,000 sq./400 sq. = 50 stalls) based on a 20,000 square foot building. The parking area shown on the

Conceptual Site Plan (Figure 3) is also based on a maximum building size of 20,000 square feet and depicts a parking area consisting of 48 stalls and 3 handicap stalls.

In addition, Section 21-6.10 of the LUO states, "Parking standards are not intended to satisfy maximum parking demand." Therefore, special event parking has not been included in the conceptual design. However, it is likely that additional parking at Aiea Intermediate School could be arranged for the rare instances where additional parking would be required for special events.

2.1.7 Construction Activities

The proposed project will require the use of approximately 2.5 acres of land area consisting of the entire parcel on the Honolulu side of Aiea Stream. Best management construction practices will assure minimal impacts from wind and water borne soil erosion on the surrounding school buildings and neighborhood, and Aiea Stream. Wind patterns will be considered to minimize impacts from fugitive dust during the construction phases.

2.1.8 Development Costs and Timetable

Preliminary cost for the construction of the new Aiea Public Library is estimated to be approximately $4 - 6 million excluding land costs. Site preparation costs would also include dismantling the existing water tower and closing the two on-site water wells. Although this will add to the overall development costs for the project, greater site improvement costs for dismantling existing buildings and transportation access improvements would likely be associated with development across Aiea Stream on the old sugar mill site.

Regarding the costs for the project, the current landowner is marketing lots in the proposed industrial subdivision for $31/square foot. Based on a library site of 2 - 3 acres as preferred by the Hawaii State Public Library System, the cost to acquire improved industrial zoned land would be approximately $2.7 to $4.0 million. This compares to unimproved residential land (proposed by landowner for the library site) of approximately $1.4 million (12 lots/$120,000/lot). Consequently, selection of a site on the Old Sugar Mill site would result in land costs approximately 2 - 3 times higher than on the selected site. As indicated in the Draft Environmental Assessment, development costs are estimated at approximately $4 - 6 million (20,000 sq. ft. x 200/sq. ft. = $4 million) on either site. Land acquisition and site improvement costs on the proposed library site would be approximately $2 million. It should be noted that acquisition of the private property will require Land Board approval and a Level 1 Hazardous Waste Evaluation Report (according to a letter by DLNR dated June 8, 1999). In addition, DAGS will verify the satisfactory resolution of the removal of petroleum contaminated soil from the proposed library site prior to purchasing the property (Department of Health, October 13, 1999).

The new facility will require approximately 15 months to design and construct after completing the environmental review process and obtaining funding.

2.2 ECONOMIC CHARACTERISTICS

The project is expected to generate increased short-term direct and indirect employment during construction, as well as some new long-term employment associated with the operation of the new library. However, if the existing Aiea Public Library employees are transferred to the new facility, the additional operational employment created by the project would be minimal.

2.3 SOCIAL CHARACTERISTICS

2.3.1 Population

According to the 1990 Census (1997 Data Book, DBED&T) the population of Aiea was 32,648 persons. Based on the Department of Planning and Permitting estimates, population growth in Aiea is generally stable with resident population projections to the year 2010 estimated to be 32,753 persons, a 1% increase.

This compares to a city-wide population growth from 762,565 residents in 1980 and 838,231 residents in 1990. This equates to a 9.7 percent increase over the 1980 population. Since 1990, the population of the City and County of Honolulu exhibited relatively strong growth which is expected to continue. Residential population projections for the years 2000 and 2010 are projected by the City to be 904,000 and 944,000 residents respectively. Much of this island-wide growth has occurred in Ewa and Central Oahu. Areas already fully developed, such as Aiea, are expected to have achieved relatively less residential growth do to the lack of newly developed residential areas or vacant developable areas.

The implementation of the proposed project is not expected to generate increased population growth in the area, but will help meet the needs of the existing population by providing enhanced public library services for the entire community.

2.3.2 Other Community Facilities and Services

The proposed project is not expected to significantly affect other community facilities and services such as health care, police and fire protection. Rather, these existing services continue at current levels, but will be redirected to providing these services at the proposed site. The existing Aiea Public Library building will remain, but be converted to other community-based uses (i.e., a community center, meeting facility, etc.) as determined by the community.

2.4 CULTURAL AND HISTORIC CHARACTERISTICS

According to the *"Final Environmental Impact Statement for Aiea Sugar Mill Commercial Development, Aiea, Oahu, June 6, 1997,"* the Aiea Sugar Mill was originally organized in

1898 as the Halawa Plantation Company consisting of approximately 4,000 acres extending from Pearl Harbor to an elevation of approximately 650 feet. The growth of Aiea Town was a direct result of the prosperity of the mill and the plantation. By 1920, equipment was installed at the mill to allow production of refined sugar. By 1935, the demand for land for military operations, roads, commercial, and residential development began to consume land needed for the plantation and mill operations. Finally, in 1947 the Halawa Plantation Company discontinued its plantation operations and the refining portion of the operation was taken over by C&H. These operations continued for 47 years until the refinery operation was discontinued in 1994. In 1994, C&H built a smaller liquid sugar refinery behind the old mill to meet the state's local demand. This facility ceased operations in 1996.

The Aiea Sugar Mill was placed on the National Register of Historic Places in January 1996. Prior to demolition or major renovation, the State had a 90-day period in which it had the right to investigate whether it desired to purchase the property or to use it for public or preservation purposes. If the State chose not to purchase the property within this period, it had no power to implement these uses. Because no action was taken by the State to acquire the Aiea Sugar Mill, the current owners of the property demolished the mill in 1997.

Prior to demolition of the Aiea Sugar Mill, there were a series of community meetings on the issue. The overwhelming majority of community attendees expressed a strong desire in preserving the mill for its historic and cultural value, and to use the site for public purposes such as the proposed public library.

2.5 ENVIRONMENTAL CHARACTERISTICS

According to the *"Final Environmental Impact Statement for Aiea Sugar Mill Commercial Development, Aiea, Oahu, June 6, 1997,"* there are no environmentally unique characteristics associated with the subject property. The site is not located in an environmentally sensitive zone such as a tsunami zone, erosion prone area, geologically hazardous land, estuary, potable groundwater recharge area, or area of a sensitive flora and fauna habitat.

Vegetation on the project site consists primarily of scrub vegetation, grasses, and monkeypod trees. Birds and mammals common to the project site are typical of species found in urbanized areas. Feral mammals which may occur include cats, rats, mice, and mongoose. Exotic species of birds common to the area include the Northern Cardinal, Common Mynah, Golden Plover, Spotted Dove, and House Finch. There are no known endangered plant or animal species or their habitats located on the subject property.

The construction of the Aiea Public Library site is expected to add a total of approximately 23,010 square feet of impermeable surfaces in the form of roofs and hardened parking lots. The increase in runoff will be intercepted and conveyed to an on-site retention areas

to permit percolation into the ground. The existing drainage patterns of the site will be maintained and no potential wetland areas associated with Aiea Stream modified.

The calculations regarding the impermeable surfaces was prepared by PBR Hawaii based on the *Conceptual* Site Plan, Figure 3. The actual architectural plans, building footprint, and areas with impermeable surfaces will likely be much different once the design-development phases of the project are competed. Consequently, it is premature to identify and size retention areas at this level of planning. However, the likely location for a retention area could be located between the parking lot and the Aiea Intermediate School property.

Similarly, there has been no formal wetland delineation prepared for the project at this level of planning. However, the location of the proposed library is approximately 20 feet above the Aiea Stream in the area of the existing water tank and wells. In this area, there are no wetland species, hydric soils, or standing water. Consequently, this site has been selected to ensure that no wetland areas are impacted.

Should the proposed industrial development proceed as planned by the current landowner, Aiea Stream and the existing wetlands will be dramatically altered compared to the current condition.

3.0 SUMMARY DESCRIPTION OF THE ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

3.1 CLIMATE

Weather in Honolulu and Aiea is generally constant and relatively dry during the entire year. The temperature range varies between an average low of 18 degrees Celsius in January and a average high of 31 degrees Celsius in August. June through August are historically the warmer months of the year, while the cooler months are January through March.

The average rainfall is approximately 30 inches per year, with most of the rainfall occurring between October and March.

The prevailing northeasterly trade winds blow generally constant throughout the year. In the absence of trade winds and of nearby storms, winds may become light and variable.

Potential Impacts and Mitigative Features.

Design of the Aiea Public Library will be typical for a tropical climate. The proposed project will have no effect on climatic conditions. No mitigation measures are proposed.

3.2 TOPOGRAPHY

The topography of the Aiea Public Library site is impacted primarily by the influence of Aiea Stream (Figures 4 and 5). With project development, the topography of the site will remain essentially unchanged except for the portion of the site that will be graded and partially filled on the proposed library portion of the property. None of the land area within the flood way will be altered or filled. The flood hazard zone that may be impacted in the flood fringe as depicted by Figure 9, the Generalized Slope Map-Figure 5, and the Conceptual Site Plan Figure 3. As shown, approximately 25 percent of the building footprint shown for conceptual purposes is located within the Flood fringe district "AE" where base flood elevations have been determined. The Flood way districts are depicted with a "hatched line" pattern on the Flood Insurance Rate Maps.

Within the Flood fringe district, the proposed library is permitted by the underlying zoning provided that the capacity of the flood way or regulatory flood elevation is not affected by the project as determined by a registered professional architect or engineer. Specifically, Section 21-9.10-6(7) of the LUO states, *"Within the flood fringe district, the top of the lowest floor shall be at or above the regulatory flood, except for nonresidential flood proof structures."* In addition, any fill that would divert flood flows can be mitigated by creating a larger flood fringe area located elsewhere on the property. Consequently, the proposed

Figure 4
TOPOGRAPHIC MAP

Aiea Public Library

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July 1999

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Color	Layer
	0–5 %
	5–10%
	10–15%
	15–20%
	20% and <

Figure 5
GENERALIZED SLOPE MAP

Department of Accounting & General Services July 1999

N

0 100 200
FEET

KAJIOKA
YAMACHI
ARCHITECTS

PBR HAWAII

library would be designed to conform with these standards as determined by a registered engineer.

Initial excavation for building foundation and grading for the parking lot are the only foreseeable changes to the topography. Footings within the flood boundary may be required to support a portion of the planned library structure on posts. However, flood flows during intense storms will not be obstructed.

Potential Impacts and Mitigative Measures

At this level of planning, the quantities of cut and fill cannot be determined. However, once the construction plans are completed an accurate calculation of cut and fill quantities will be provided when plans are submitted for the appropriate grading permits.

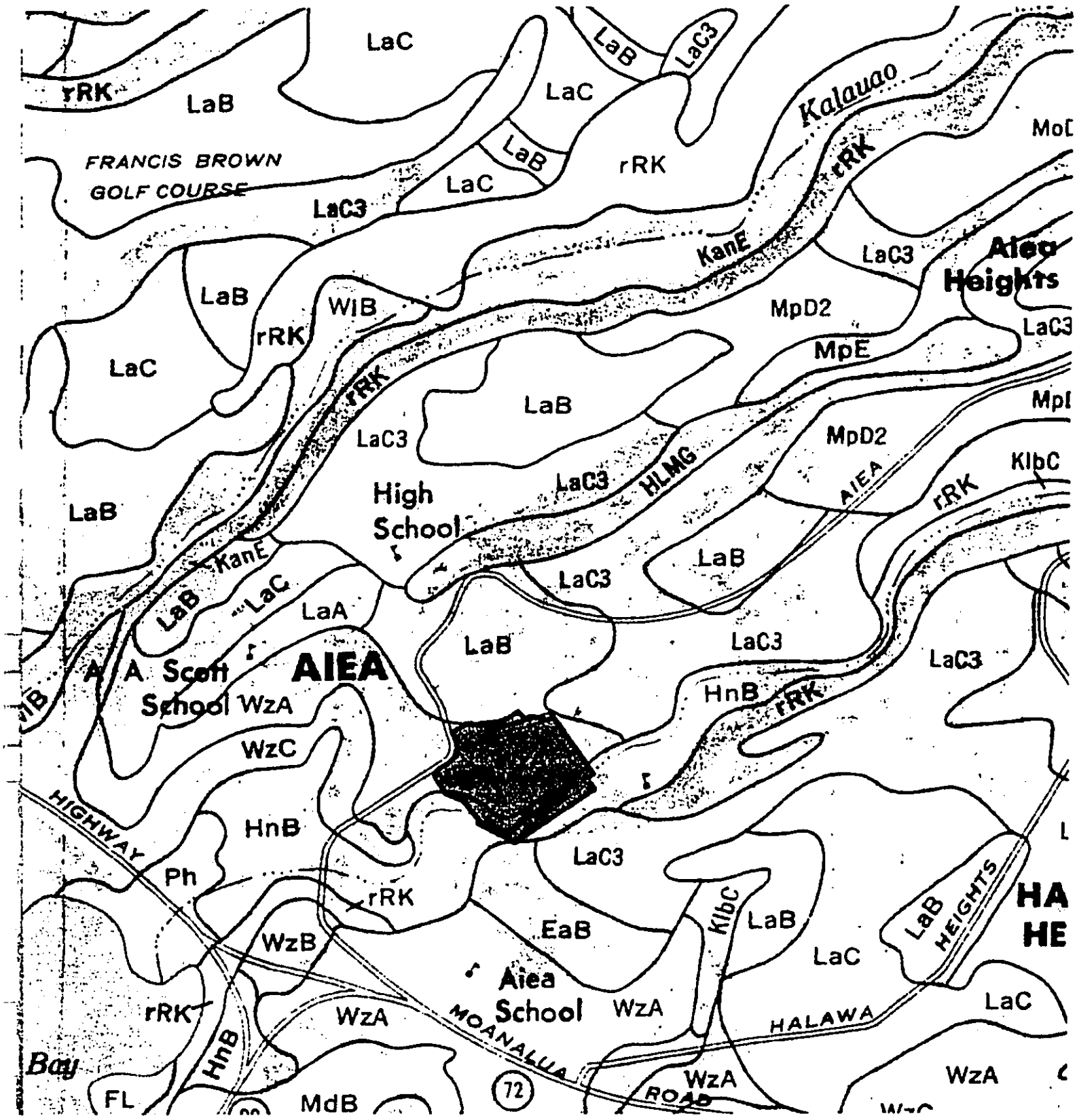
To mitigate potential impact to the existing topography, the design of the proposed library will respect the natural stream banks and utilize outdoor spaces and the site's natural amenities for library activities to the extent possible. The library building is proposed for a portion of the site with relatively minor slopes in order to minimize extensive excavation and grading. The proposed outdoor activities will be landscaped to incorporate existing topography. Should any portion of the flood hazard zone be modified, the grading plan will be designed to ensure that the capacity of the flood zone is not impacted by development of the proposed library.

3.3 SOILS

There have been three soil suitability studies prepared for Hawaii whose principal focuses have been to describe the physical attributes of land and the relative productivity of different land types for agricultural production. These are: 1) U.S. Department of Agriculture Soil Conservation Service (SCS) Soil Survey; 2) Land Study Bureau Detailed Land Classification; and 3) Agricultural Lands of Importance to the State of Hawaii (ALISH).

The Soil Conservation Service Soil Survey (1972) series for each island was prepared by the U.S. Department of Agriculture Soil Conservation Service ("SCS") and the University of Hawaii Agricultural Experiment Station (Figure 6). Soil types are ranked according to their suitability for most kinds of crops. Also provided are listings of crops commonly grown on the soil types and their expected productivity under present management.

The Aiea Public Library site primarily contains Waipahu silty clays (WzA) (0 to 2% slope) and Hanalei silty clays (0 to 6% slope) as defined by the U.S.D.A. Soil Conservation Service. Waipahu silty clays are well-drained soils which have been developed by old alluvium derived from basic igneous rock. The typical soil profile for Waipahu silty clay is 12 inches of grayish-brown silt followed by about 60 inches of dark brown silty clay that has



LEGEND

WzA — Waipahu silty clay, 15 to 35% slopes

HnB — Hanalei silty clay, 2 to 6% slopes

LaB — Lahaina silty clay, 3 to 7% slopes

EaB — Ewa silty clay loam, 3 to 6% slopes

— Project Area

Source: US Department of Agriculture Natural Resources Conservation Service (Soil Conservation Service)

Figure 6
SOIL CONSERVATION SERVICE SOIL SURVEY

Aiea Public Library

Department of Accounting & General Services — July 1989

N

0 500 1000 FEET

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prismatic structure. This soil series is slightly acidic and permeability is moderately slow. This soil series is primarily used for sugar cane irrigation or for building foundation material.

The Hanalei silty clay series (HnB) has also been developed from basic igneous rock and is characterized as somewhat poorly drained soils, primarily appearing on stream bottoms and flood plains. Permeability from Hanalei silty clay is moderate and runoff is slow. A minimum erosion hazard is also identified. The Hanalei silty clay series is primarily used for agricultural purposes.

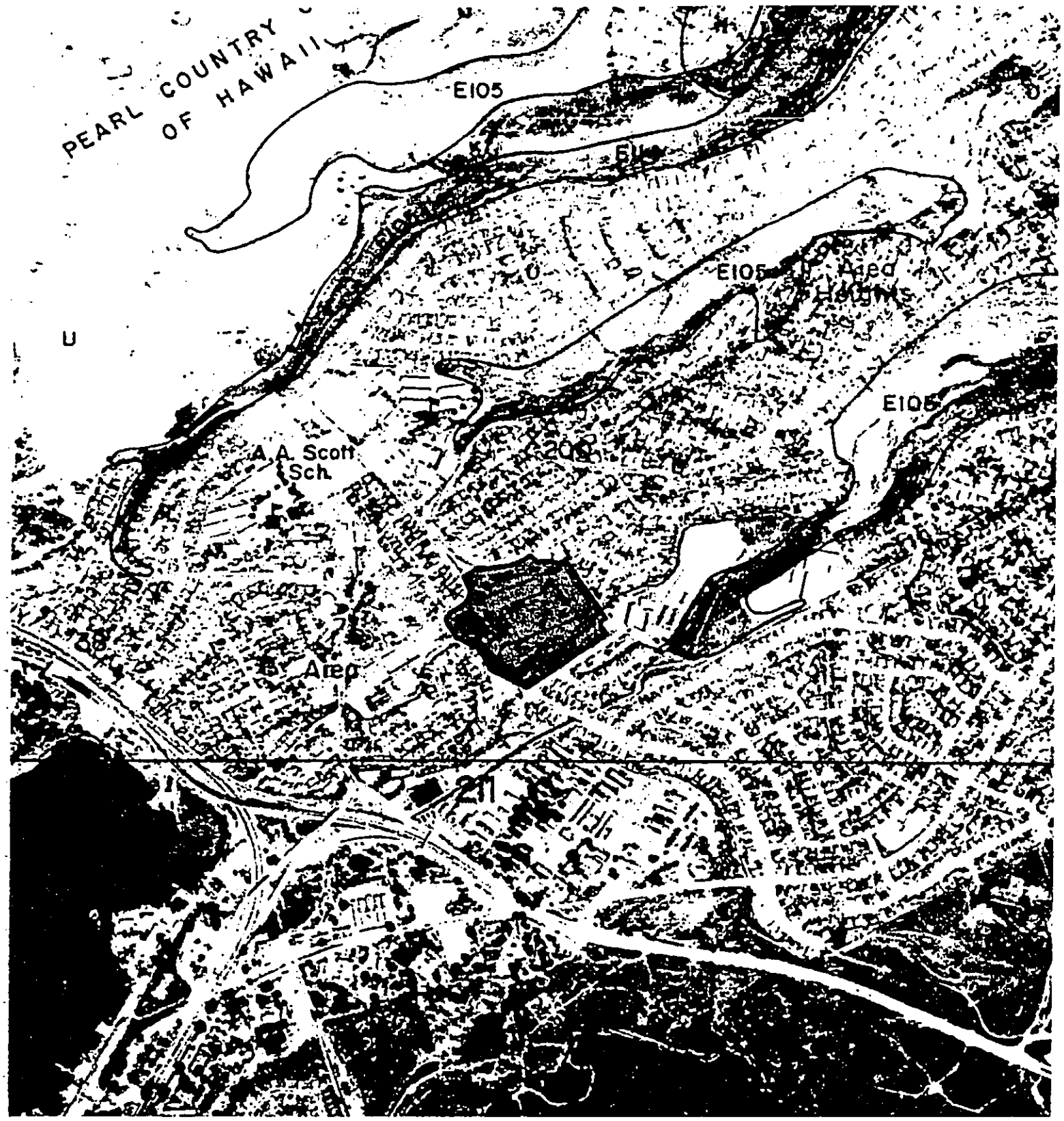
The Detailed Land Classification (1965 through 1972) series was produced by the Land Study Bureau ("LSB") of the University of Hawaii for each island. The intent of this series of reports was to develop a land inventory and productivity evaluation based on statewide "standards" of crop *yields and levels of management*.

The LSB land classification is a synthesis of the information found in the 1955 Soil Survey for the Territory of Hawaii as well as several other sources for data on geology, topography, climate, water resources and crops. The LSB classification system groups lands into homogeneous units called Land Types, describes their condition and environment, delineates the areas on aerial photo base maps, rates the lands on their overall quality (productivity) in relation to other land, and appraises their performance under selected alternative agricultural crops. The productivity evaluations were based on statewide standards of crop yields and levels of management at the time the classification was made.

According to Section 205-4.5 of the *Hawaii Revised Statues*, the LSB studies also define the areas in the State Agricultural District wherein specific agricultural uses are permitted and where restrictions relating to the disposition of the land are applicable. Because the subject property is classified as "Urban", this Section is not applicable to the project.

A five-class productivity rating is applied using the letters A, B, C, D and E, with A representing the class of highest productivity and E the lowest. As depicted on Figure 7, the soils on the subject property have not been rated by the LSB due to their prior and current urban land use.

The Agricultural Lands of Importance to the State of Hawaii ("ALISH") (1977) system was also prepared for the entire state. The ALISH system consists of the mapped identification of three broad classes of agricultural land based, in part, on the criteria established by the Soil Conservation Service. "Prime Agricultural Land" is defined as "...land best suited for the production of food, feed, forage, and fiber crops. This class of land has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed (including water management) according to modern farming methods. Prime agricultural land gives the highest yields with the lowest inputs of energy or money and with the least damage to the environment." The two other classes of the ALISH are "Unique Agricultural Land" and "Other Important Agricultural Land". Both describe successively less productive soils.



LEGEND

— Project Area

Figure 7
LAND STUDY BUREAU DETAILED LAND CLASSIFICATION

N

0 500 1000
FEET

RAJOKA YAMACHI ARCHITECTS

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Potential Impacts and Mitigative Measures

Because this property has long been planned and uses for urban purposes, the use of the subject property for agricultural purposes is no longer feasible from both an environmental and economic perspective (Figure 8). Therefore, the subject property has not been classified for agricultural purposes by the ALISH system. However, the soils found on the site are generally suited for building construction. Short term impacts during construction, such as wind and water erosion could occur, but can be mitigated with implementation of appropriate erosion control measures such as wind screens, frequent watering, and establishment of landscaping soon after grading is completed.

3.4 HAZARDOUS WASTE CLEAN-UP

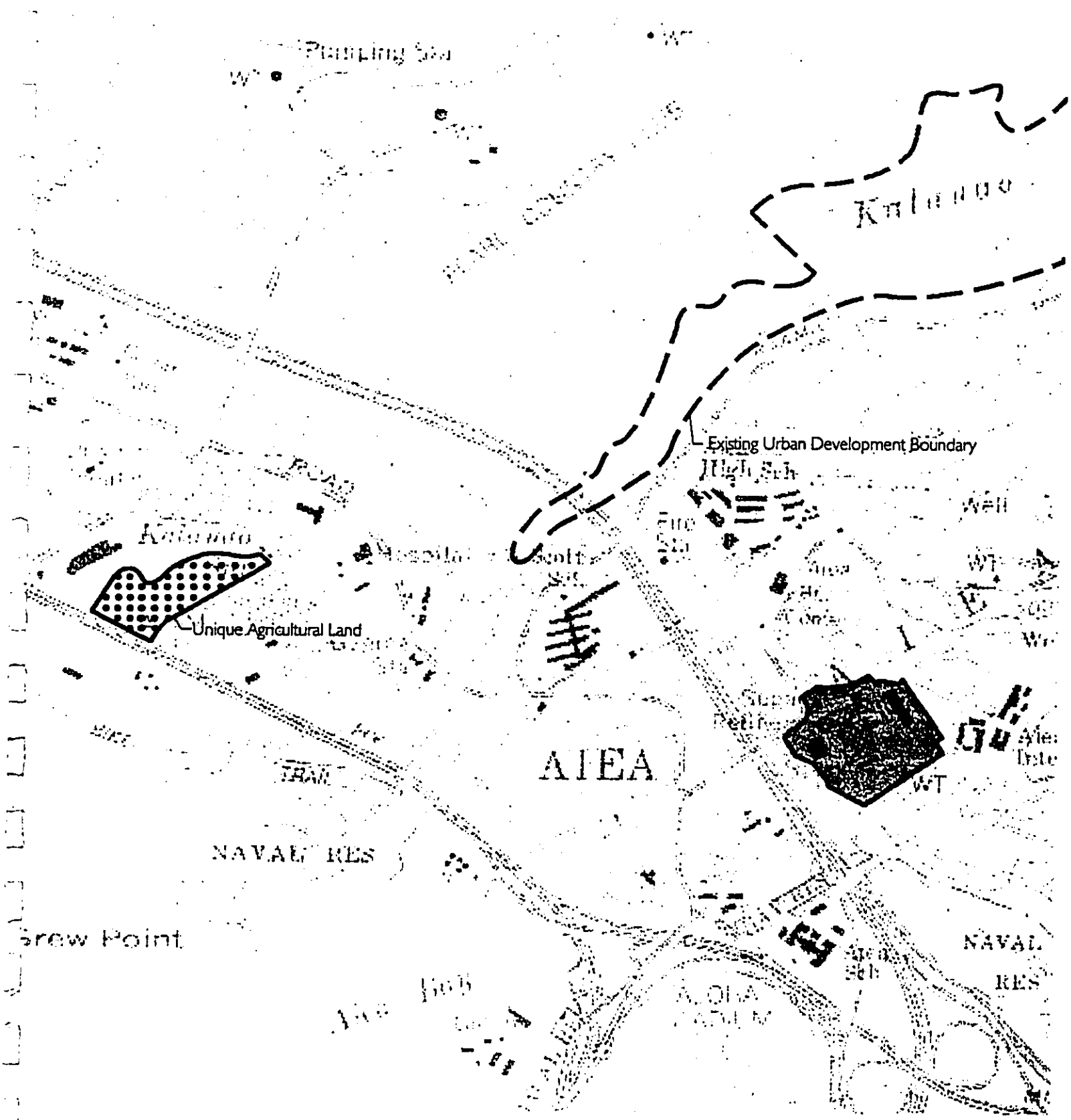
To identify potential hazardous wastes that may have been left on the subject property after the closure of the Aiea sugar Mill, the *"Final Environmental Impact Statement for Aiea Sugar Mill Commercial Development, Aiea, Oahu, June 6, 1997,"* indicates that a Phase 1 Environmental Assessment was performed by Muranaka Environmental Consultants in February 1993, and by Harding Lawson Associates in November 1994.

Since these Phase 1 Environmental Assessments were conducted, however, the landowner has completed the removal of all but two buildings previously associated with the Old Aiea Sugar Mill. According to the State Department of Health, two Underground Storage Tanks(UST's) were also closed in 1976 and 1988.

According to the "Final Environmental Impact Statement for Aiea Sugar Mill Commercial Development, Aiea, Oahu, June 6, 1997," the following was discovered on the Old Sugar Mill site on the northwestern side of Aiea Stream, *"oil was observed on the floors and pipes in the old refinery building, as well as asbestos containing material in the air-conditioning ducts, insulation of boiler pipes, valve, tanks, equipment, and roof insulation. Lead paint was observed on all the older buildings. This site has been cleaned except for the exterior lead paint, and asbestos containing material in the window glazing compound and under steel plates in the five char furnaces."*

At the old sugar refinery, *"oil was observed in ground near the above-ground fuel-oil tanks and on the concrete pad of the sludge and used oil open storage areas, and in an unlined drainage trench near the maintenance shop."*

Regarding the proposed library site, *"two Underground Storage Tanks (UST's) were removed, petroleum contaminated soil removed, and the soil replaced pursuant to a Soil Replacement Former Tank Site Report prepared by Harding Lawson Associates dated June 14, 1995."*



LEGEND

- Unique Agricultural Land
- Existing Urban Development
- Project Area

Source: Department of Agriculture - State of Hawaii, 1977

Figure 8
AGRICULTURAL LANDS OF IMPORTANCE
TO THE STATE OF HAWAII, ALISH

N

0 500 1000
FEET

KAJIOKA YAMACHI ARCHITECTS

PBR HAWAII

Mitigation measures identified in the FEIS are as follows:

"The mitigation steps proposed or already completed include Phase 1 remediation work, UST removal, and general clean-up. The appropriate parties have already committed to perform the required work. A large majority of the required work has already been successfully completed. With respect to the disposal of the identified asbestos and lead paint materials, the Nanakuli Landfill can accept these materials.

It is also the obligation of the owner/operator to report releases of hazardous substance to the State of Hawaii hazard Evaluation and Emergency Response Office. In addition, the project must file an Asbestos Renovation/Renovation Notification with the State Department of Health."

Based on the environmental studies cited above and the clean-up already performed, the selected library site should not have any significant hazardous materials that would impact the project.

3.5 DRAINAGE AND HYDROLOGY

3.5.1 Drainage Features

Aiea Stream flows generally along an alignment parallel to the boundary shared by the two previous TMK parcels: TMK's: 9-9-05: 10 and 25. As depicted on the Visual Analysis (Figures 11 - 11d) and Slope Map (Figure 5), the site is relatively level with steeper slopes of at least 10 percent along the Aiea Stream. Elevations range between 100 and 125 feet. In places, the stream channel banks are approximately seven to fifteen feet high in vertical elevation above the channel. Within TMK: 9-9-05: 25 (old sugar mill site), the average slopes are less than 2 percent. A portion of the proposed library may be supported on poles with subsurface spot footings within the designated flood hazard area. However, if any alterations to the flood hazard zone are made, the building will be designed to ensure that the current capacity of Aiea Stream is not impacted.

The current landowner has prepared plans to realign or clean-out a portion of Aiea Stream if the property is to be redeveloped for industrial uses. A preliminary plat has been prepared that shows the stream improvements and the subject property is for sale.

The existing drainage channel is a natural channel that contains manmade improvements established over the last decades made in conjunction with sugar mill operations. Currently, concrete piers and piles exist in portions of the stream. There are also stream crossings used to transmit water from the existing water wells on the property to the prior sugar mill operations.

The Aiea Stream drainage basin is approximately 1.05 square miles and can generate a 100-year peak discharge of 2,140 cfs based on the most recent Flood Insurance Rate

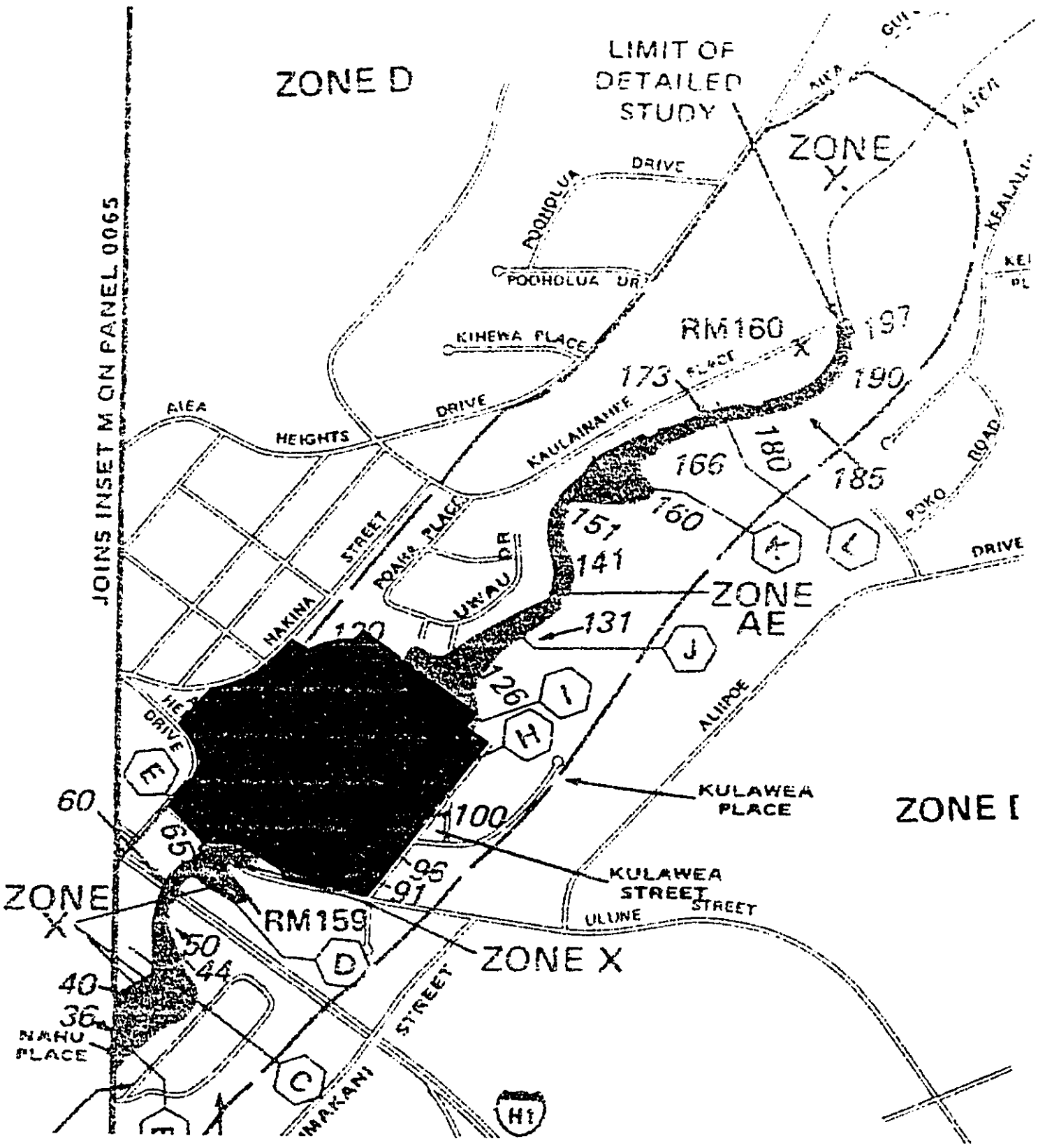
Study for the City & County of Honolulu, as administered by the Federal Emergency Management Agency (FEMA). The City and County of Honolulu drainage standard predicts a slightly higher peak discharge of 2,500 cfs for the Aiea Stream channel passing through the property. For the purpose of evaluating drainage impacts under improved conditions, the higher of the two preceding values has been utilized.

According to the Flood Insurance Rate Map (FEMA 1990) and DLNR (by letter dated June 8, 1999), the entire project is located in Flood Zone X, which is identified as an area within the 500-year flood plain (Figure 9). The Aiea Stream channel is further defined in the Flood Insurance Rate Maps (FIRM) as administered by the Federal Emergency Management Agency (FEMA), as flood hazard zone "AE" where elevations of flooding have been determined based on hydrologic and topographic (aerial) studies.

The definition of the "AE" flood Hazard Zone is further defined by the City's Land Use Ordinance (LUO) as a *Flood fringe district*. The definition in the LUO states; *"Flood fringe district means the district consisting of the area of the flood fringe as delineated on the flood maps as the colored or shaded area and designated Zones AE, AO, and AH on the flood insurance rate maps."* This flood hazard zone is depicted by Figure 9, the Generalized Slope Map - Figure 5, and the Conceptual Site Plan - Figure 3. As shown, approximately 25 percent of the building footprint shown for conceptual purposes is located within the Flood fringe district. This is *not* the flood way district which is depicted with a "hatched line" pattern on the Flood Insurance Rate Maps.

Within the Flood fringe district, the proposed library is permitted by the underlying zoning provided that the capacity of the flood way or regulatory flood elevation is not affected by the project as determined by a registered professional architect or engineer. Specifically, Section 21-9.10-6(7) of the LUO states, *"Within the flood fringe district, the top of the lowest floor shall be at or above the regulatory flood, except for nonresidential flood proof structures."* In addition, any fill that would divert flood flows can be mitigated by creating a larger flood fringe area located elsewhere on the property. Consequently, the proposed library would be designed to conform with these standards as determined by a registered engineer.

The existing drainage channel is a natural channel that contains manmade improvements through use over the last decade in conjunction with the sugar mill operations. Currently, concrete piers and piles exist in portions of the stream and there are stream crossings related to water transmission pipes from the existing water wells on the property. A more detailed study prepared in 1997 by the current owners determined that Aiea Stream passes through the subject property has a drainage basin of 1.05 square miles and can generate a 100-year peak discharge of 2140 cfs. Although the proposed library site borders Aiea Stream, the proposed development of the library will not increase the amount of runoff entering the stream. All drainage flows from impermeable surfaces can be retained on-site. There are no plans to channelize or realign Aiea Stream for the proposed library.



LEGEND

— Project Area

Figure 9
FLOOD INSURANCE RATE MAP

Aiea Public Library

Department of Accounting & General Services — July 1999

0 250 500 FEET

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There is a grade change of approximately 18-feet between the front and rear of the conceptual building footprint as depicted on Figure 3. This differential would be considered during the design phase and could be addressed by a retaining wall, post/beam construction, or use of a split level design for the library. The flood elevation at the rear of the proposed library building is approximately 100' msl, or 20' lower than the approximate floor elevation of 120' msl along Kulawea Street.

3.5.2 Hydrology

All surface water runoff on the property generally flows to Aiea Stream. While the property was improved with the Aiea Sugar Mill and associated structures (located on TMK: 9-9-05: 25) , *a runoff generation for a 10-year and 50-year storm is estimated at 5.4 cfs/acre and* 6.6 cfs/acre, respectively, based on the City and County of Honolulu Drainage Standards. However, with the recent removal of the Aiea Sugar Mill building, the square footage of impermeable surfaces on the subject property has since been reduced by approximately 26,000 square feet. This compares to the proposed Aiea Public Library which is expected to result in a building footprint and impermeable surfaces of approximately 23,000 square feet. Thus, development of the proposed public library will not significantly add to onsite surface runoff nor impact the capacity of Aiea Stream.

Potential Impacts and Mitigative Measures

Because the net impact of runoff entering Aiea Stream from the proposed library is slightly less than that previously generated by the Aiea Sugar Mill, the drainage impact of the proposed project will not be significant. Retention areas can be established during project construction to control and hold surface water onsite in order to permit greater infiltration of surface water into the ground. This will also mitigate potential soil erosion by allowing sedimentation of soils suspended in runoff during the construction period.

With respect to construction-related activities, the Aiea Public Library project will required a grading permit from the City and County of Honolulu Department of Planning and Permitting. During the review of the permit, erosion control measures will be proposed for the City to review. The primary purpose of the permit is to detail the special features that will be used to minimize erosion during construction and protect receiving waters after construction. These methods are specifically defined as "Best Management Practices" (BMP's) and typically consist of the establishment of groundcover and landscaping, silt curtains, silt berms, and sedimentation basins. Other features that can be used for permanent BMP's include on-site retention facilities.

3.6 NATURAL HAZARDS

The Aiea Stream channel has been defined by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps as flood hazard zone "AE" where elevations of flooding have been determined based on hydrologic and topographic studies. The

remainder of the property which constitutes the proposed Aiea Public Library and the old Aiea Sugar Mill site are each identified as Zone X, an area outside of the 500-year flood zone.

The State of Hawaii has been affected twice since 1982 by devastating hurricanes, Iwa in 1982 and Iniki in 1992. While it is difficult to predict these natural disasters, it is reasonable to assume that future occurrences are possible. However, the project area is no more or less vulnerable to the destructive winds and torrential rains associated with hurricanes than other areas of the island. All structures will be constructed for protection from hurricanes in accordance with the Uniform Building Codes adopted by the County.

The project site is also located outside of significant lava-flow and other volcanic event hazard areas.

Potential Impacts and Mitigation Measures

The project will not exacerbate any hazard conditions. The potential impact of destructive winds and torrential rainfall of a tropical hurricane and cyclones on proposed structures will be mitigated by compliance with the Uniform Building Code adopted by the City. Similarly, all structures will be designed in accordance with the Uniform Building Code to withstand earthquake and wind. Portions of the proposed library that may extend into the flood hazard zone would consist of posts supporting the library structure. All applicable requirements of the City regarding development within the flood hazard zone will be followed.

3.7 FLORA AND FAUNA

Existing Conditions

Since the development of the Aiea Sugar Mill, the subject property has existed in a developed state for approximately the last century. Consequently, a majority of the subject property has been paved or improved with various sugar mill related structures. Therefore, the vegetation that does exist is generally representative of introduced species consisting of grassed over areas dotted with monkeypod trees. The trees are young and range in size from saplings to 30 feet in height.

To identify flora and fauna resources within those areas that have been only slightly modified, a Flora and Fauna Survey was conducted in March, 1997 (Appendix A) for the channel area of Aiea Stream and the parcel proposed for the new Aiea Public Library.

As described in Appendix A, Guinea grass *(Panicum maximum)* dominates the riparian vegetation and most of the library parcel. California grass is prominent in local areas. Within the stream bed or close the stream, umbrella sedge and primrose will are locally abundant. Where shade from trees discourages tall grass, dayflower *(Commelina diffusa)*

and coral berry *(Rivina humilis)* occur. Monkeypod or rain trees *(Samanea saman)* and 'opiuma trees *(Pithecellobium dulce)* are conspicuous throughout the area.

A number of typical lowland, exotic species were observed associated with Aiea Stream including the guppy *(Poecilia reticulata)*, adults and tadpoles of the neotropical toad *(Bufo marinus)*, crayfish *(Procambarus clarki)*, and a pond snail *(Lymnaea sp.)*. A single dragonfly was also observed at a distance the near the stream. Birds and mammals common to the project site are typical of species found in the urbanized Honolulu area. Feral mammals found in the area include cats, rats, mice, and mongoose. Exotic species of birds common to the area include the Northern Cardinal, Common Mynah, Golden Plover, Spotted Dove, and House Finch. There are no known rare, endangered, or threatened species of wildlife on the project site.

Potential Impact and Mitigative Measures

Appendix A concludes that Aiea Stream has minimal aquatic resource value. Plants observed close to the stream and those within the proposed library site are dominated by introduced species. Of 65 recorded species, only one is native. Many are rederal weeds or plants characteristic of disturbed areas. No endangered plant or animal species are known to exist in the subject property.

Animals observed are all common, lowland, introduced species and abundances are low. Therefore, development of the proposed Aiea Public Library will have no impact on the existing fauna.

Construction of the Aiea Public Library will require the removal of some existing trees and scrub vegetation. As appropriate, the trees that are removed will be relocated to open areas of the proposed library site. New landscaping will introduce a more diverse mixture of plant materials onto the property compared to the current condition. The landscape design could also be designed to establish an entry along Kulawea Street leading to the Aiea Intermediate School. Other landscaping behind the library could be designed to spatially define outdoor reading areas, gathering spaces, and establish interpretive species with signage for educational purposes.

3.8 ARCHAEOLOGICAL AND HISTORIC RESOURCES

The Aiea Public Library site has been developed for industrial uses for many decades. Consequently, any archaeological sites that may have existed, have been significantly altered or destroyed. Therefore, no archaeological surface features are known to exist on the subject property and no negative impacts are anticipated. This assessment is supported by a review of State Historic Preservation Division Records which shows that there are no known archaeological sites on the subject property.

Potential Impact and Mitigative Measures

According to the May 27, 1999 Chapter 6E-8 Historic Preservation Review received from the State Historic Preservation Division, the proposed project will have "no effect" on significant historic sites. To ensure that no archaeological sites will be impacted by the proposed library development, an archaeological survey of the subject property will be conducted once the property is acquired and prior to design and construction.

Should any archaeological resources be present, appropriate mitigation measures will be employed in accordance with the State Historic Preservation Office. Should sub-surface artifacts or human remains be uncovered during the site preparation stage of development for the proposed library, the State Historic Preservation Division will be contacted and work stopped in the area. All applicable rules and regulations of the State Historic Preservation Division will be followed.

3.9 NOISE

The Aiea Public Library site historically impacted the surrounding residential neighborhood with noise impacts associated with the Aiea Sugar Mill. Noise sources were primarily from the two onsite water well pumps (when in operation), old refinery boiler, steam venting, 29-ton sugar trucks transporting raw sugar to the plant, and liquid sugar tankers. Since the closure of the mill operations, noise levels have generally declined especially along the residential collector streets that no longer receive mill related traffic.

Potential Impacts and Mitigative Measures

Noise levels associated with the proposed Aiea Public Library will be generally lower compared to sugar mill noise levels. The primary noise events will occur during construction and from traffic entering the library site after construction. However, overall noise levels will be significantly less than during operations of the mill.

Short-term construction noise levels will occur with demolition of the existing water tower and pumps, and during construction. Those areas that may be most significantly impacted include the residential areas opposite Kulawea Street and potentially at the Aiea Intermediate School.

To ensure that the impact of construction related noise is mitigated, noise reduction measures typical of construction activities will be implemented. All development must comply with the State of Hawaii Department of Health rules related to "community noise control" (Chapter 11-46, Hawaii Administrative Rules) as follows:

a. The contractor must obtain a noise permit if the noise levels from the construction activities are expected to exceed the maximum permissible sound levels of the regulations as stated in Section 11-46-6(a).

b. Construction equipment and on site vehicles requiring an exhaust of gas or air must be equipped with mufflers as stated in Section 11-46-6(b)(1)(A).

c. The contractor must comply with the conditions issued with the permit as stated in Section 11-46-7(d)(4).

3.10 AIR QUALITY

Both Federal and State standards have been established to control ambient air quality. At present, six parameters are regulated including: 1) particulate matter; 2) sulphur dioxide; 3) nitrogen dioxide; 4) carbon monoxide; 5) ozone; and 6) lead. Hawaii's standards are more stringent than comparable national limits except for sulphur dioxide. Regional and local climate, together with the type and amount of human activity, generally dictate the air quality at a given location. Fugitive dust from human activities and emissions from vehicular traffic represent the only sources of potential air quality potentially impacting the subject property at the present time.

While the Aiea Sugar Mill was in operation, electricity was produced on-site from two boilers. A permit from the State of Hawaii Clean Air Branch governing emissions from the boilers was needed to operate these boilers. Consequently, ambient air modeling was included in each one of the Clean Air Permits. This baseline air quality information established that existing ambient levels of air pollutants were substantially below State and Federal air quality standards. Ambient air quality is estimated to be good primarily due to the predominant northeast trade winds at the present time.

Potential Impacts and Mitigative Measures

Short-term impacts will include fugitive dust and exhaust emissions produced by construction equipment and vehicles, and site works such as grading will generate airborne particulates. However, all future construction activity will maintain strict compliance with State of Hawaii air pollution control regulations. Fugitive dust generated during construction will be mitigated through a combination of measures such as watering exposed soils, minimizing the amount of disturbed area, and installation of wind screens as appropriate. Impacts from exhaust emissions of construction vehicles will usually be mitigated by the effect of the winds.

With development of the proposed Aiea Public Library, the only potentially significant source of air emissions associated with the project will be from motorized vehicles entering the library property. Vehicular emissions will increase from construction equipment during the short-term construction period and over the long-term from passenger vehicles accessing the library site. However, State and Federal air quality standards will not be exceeded and no significant adverse impacts are anticipated. In addition, the close proximity of residential development to the proposed library is likely to encourage many pedestrian or bicycle users as an alternative to vehicular transportation.

3.11 VISUAL RESOURCES

The town of Aiea grew around the sugar mill which once anchored the historic core of the town. However, with the demolition of the sugar mill, there is only one actively utilized building remaining on the site that is operated by the Hawaii Agricultural Research Center (HARC) (Figure 10). Consequently, the majority of the property is now comprised of abandoned buildings, open space, and scrub vegetation.

The two parcels that comprised the Aiea Sugar Mill property are surrounded by Aiea Heights Drive, Ulune Street, Hakina Street, and Kulawea Street. Therefore, most public views of the project area are available from these roadway corridors. Within the site, the most significant views are looking toward Aiea Stream and the open space area preserved by the floodway area. Views to Koolau Mountains and the ocean are restricted by the existing residential areas and other developed land uses surrounding the site (Figures 11 - 11d).

Potential Impacts and Mitigative Measures

The proposed library site located along Kulawea Street, will not obstruct any mountain-ocean (northeast-southwest) view corridors or ridge line views from outside or within the project boundaries. Similarly, no views of significant landmarks or natural resources will be impacted with the development of the new Library. To mitigate those visual impacts to do occur, the proposed library structure will be limited to one story and architecturally designed to complement the surrounding residential and educational land uses. The project will also be extensively landscaped throughout the entire parcel. This should lessen the impact of the proposed library upon the views of Aiea Stream from Kulawea Street and establish a landscaped entry statement for the Aiea Intermediate School.

All applicable City and County of Honolulu height and setback requirements will be complied with to ensure adequate open space, facilitate maintenance of view corridors, and establish appropriate densities. The visual character of the project site will be changed from its present natural open space appearance to a more formalized landscape that would be consistent with Library developments in similar areas. This change in visual character of the site poses no long-term negative visual impacts, but will visually enhance the property compared to its past industrial land uses.

3.12 SOCIAL AND EMPLOYMENT CHARACTERISTICS

During the project construction stage, the number of construction jobs on Oahu will remain the same or slightly increase. With expanded facilities and services offered with the new library, there may also be several new full-time and part-time operational jobs created in addition to the positions transferred from the old Aiea Public Library.

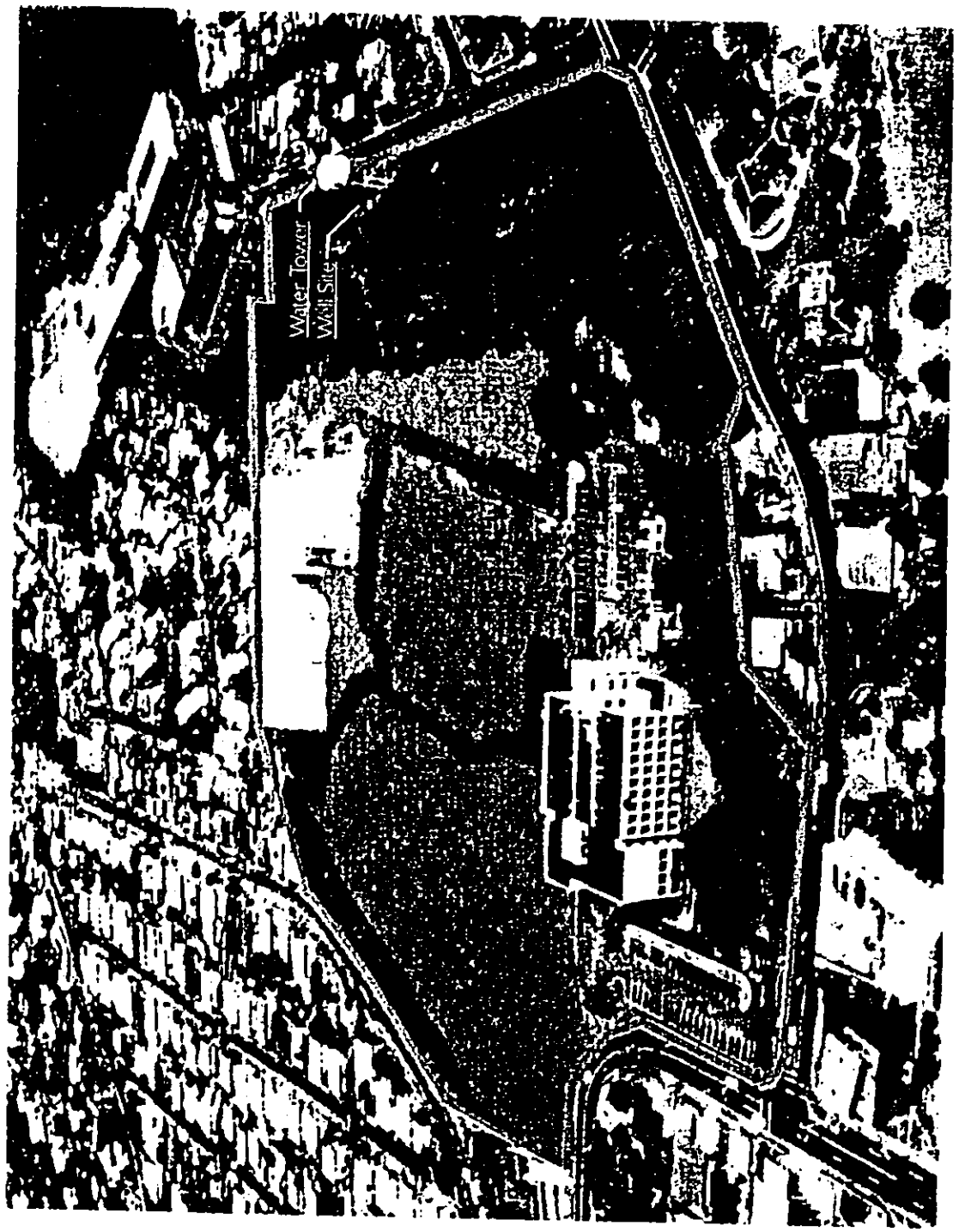

Figure 10
EXISTING CONDITIONS

Aiea Public Library

Department of Accounting & General Services

July 1999

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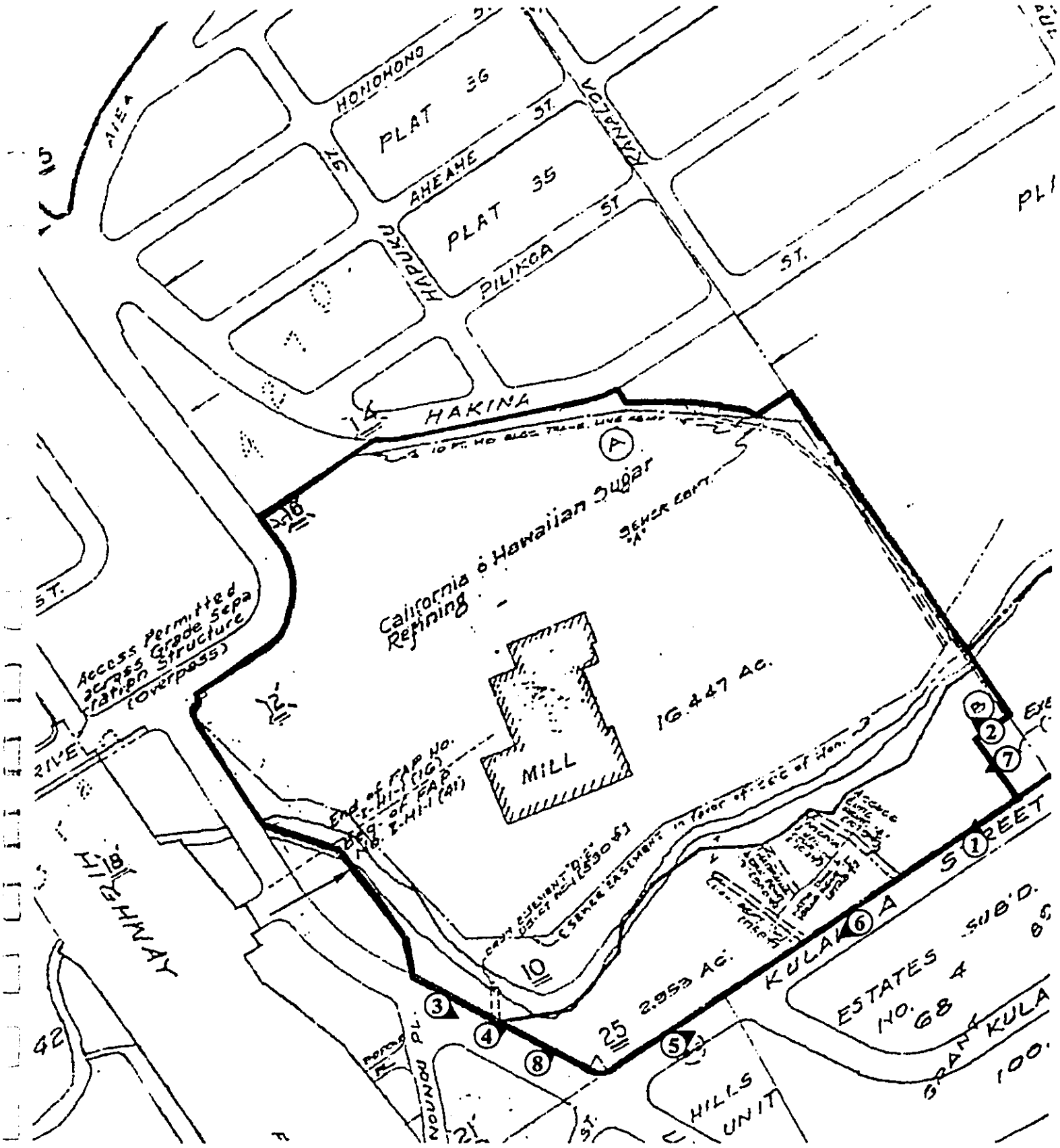

Figure 11
VISUAL ANALYSIS KEY MAP

Aiea Public Library

Department of Accounting & General Services — July 1999

KAJIOKA YAMACHI ARCHITECTS

PBR HAWAII

1. View from Kulawea Street looking toward the Aiea Intermediate School parking lot and buildings previously used by the Aiea Sugar Mill. Note the height of the retaining wall and Aiea Stream in the background.

2. This existing culvert crossing is located along the mauka edge of the subject property. This was the primary internal connection between TMK's: 9-9-05:25 and 10 while the Aiea Sugar Mill was in operation.

Figure 11a
VISUAL ANALYSIS

Aiea Public Library

Department of Accounting & General Services

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KAJIOKA YAMAOKA ARCHITECTS

PBR HAWAII

3. Intersection of Ulune Street and Kulawea Street. Note the lack of sidewalks and surrounding residential character of the neighborhood. Realignment of this road to Aiea Heights Drive is proposed by the Primary Urban Center Public Facilities Map.

4. The water tower depicted above is the approximate location of the proposed library. Note the surrounding residential neighborhood and steep slopes proximate to Aiea Stream. The library site is located on a small hill well above Aiea Stream.

Figure 11b
VISUAL ANALYSIS

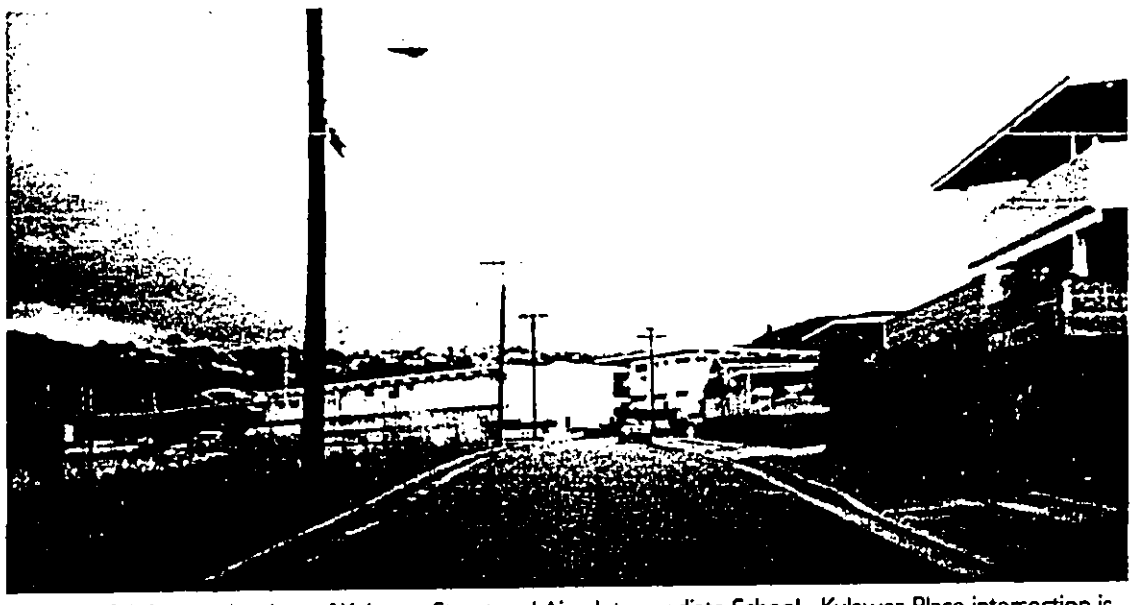
Aiea Public Library

Department of Accounting & General Services

July 1998

RAINOLA YAMACHI ARCHITECTS

PBR HAWAII



5. Existing mauka view of Kulawea Street and Aiea Intermediate School. Kulawea Place intersection is on the right and the proposed Aiea Public Library site is on the left.. Planned landscaping would establish strong entry statement for the school while establishing a buffer between the residential uses and the future development of the Old Aiea Sugar Mill property.

6. Makai view of Kulawea Street and the proposed library site in the area below the water tower. The only major site constraints consist of the water tower, two water wells, and Aiea Stream.

Figure 11c
VISUAL ANALYSIS

Aiea Public Library

Department of Accounting & General Services

July 1998

SAKIMA YAMACHI ARCHITECTS

PBR HAWAII

7. This makai view was taken from the Aiea Intermediate School parking lot toward the proposed library site. Note the location of Kulawea Street, site topography, and location of Aiea Stream. The two wells are located at the base of the water tower. The proposed parking lot and library building would be located along the upper edge of the site adjacent to Kulawea Street.

8. This mauka view of the library site from Ulune Street depicts the site topography and surrounding residential land uses. The flood hazard zone is generally located where the steep slopes begin and previous erosion is visible. Buildings on the old Aiea Sugar Mill property are depicted to the left of the image.

Figure 11d
VISUAL ANALYSIS

Aiea Public Library

Department of Accounting & General Services

April 1998

PBR HAWAII

In addition to the new employment that would be potentially generated by the project construction and operation, the greatest social impact affecting the community will be expansion of a high quality library made available to the community. Presently, library patrons and staff at the existing Aiea Public Library are inconvenienced by the lack of parking (25 stalls), poor lighting, shortage of electrical outlets, inadequate disability accessibility, small meeting rooms and the close proximity of commercial activity surrounding the library. This inconvenience affects the library's ability to service its immediate community effectively. Due to poor access and inadequate facilities, many potential patrons are discouraged to utilizing the library.

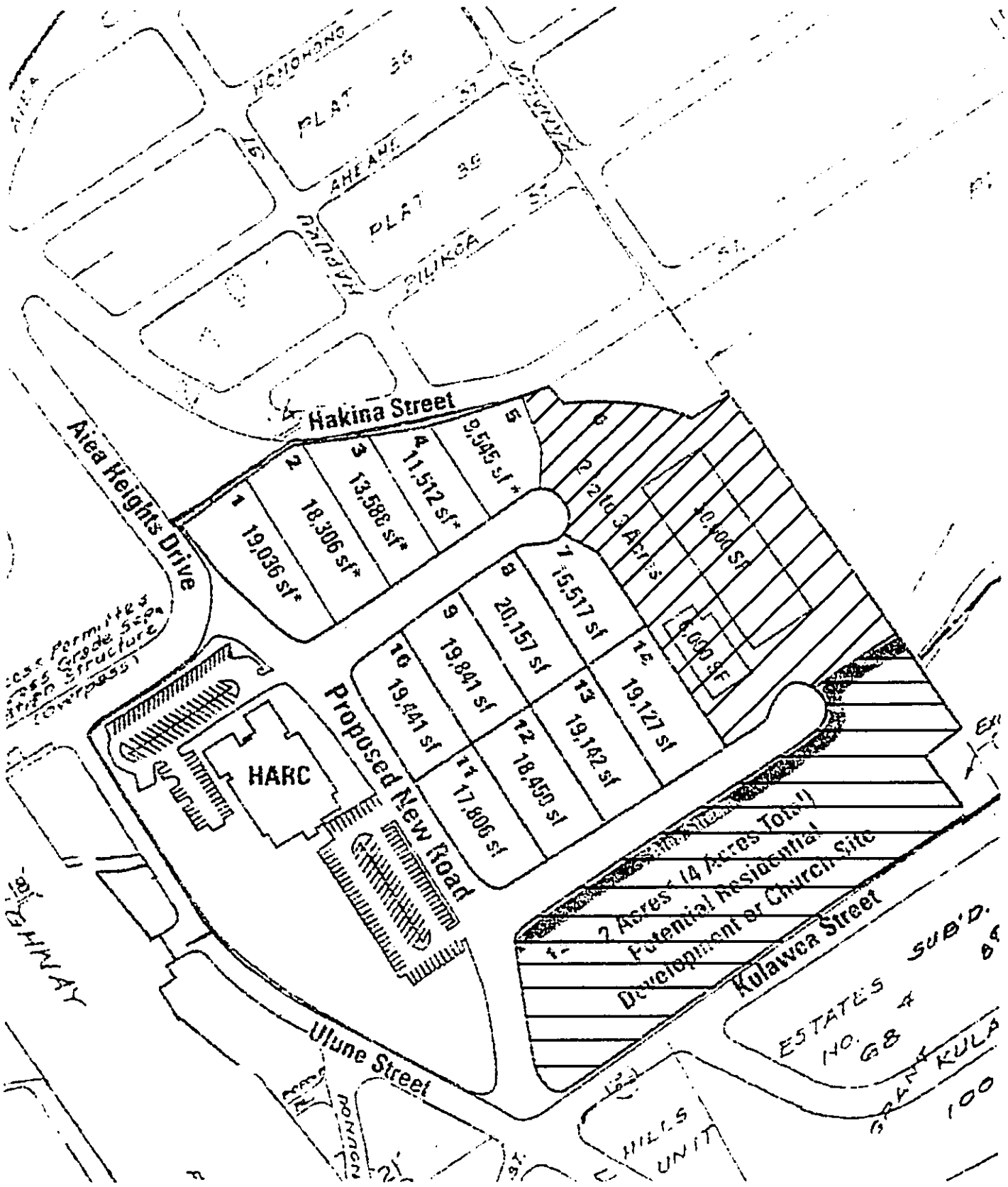
Potential Impacts and Mitigative Measures

The socioeconomic impacts associated with the proposed project are all generally positive and will not require mitigation. The proposed library will facilitate the community's need and demand for an adequate public library facility. More books, reference materials and computer multimedia applications are planned for the new library that would expand the knowledge base and educational opportunities of the community. New support facilities such as parking (51 stalls vs. the current 25 stalls), reading rooms, and shelf space for new books would also be provided.

3.13 CHARACTER OF THE COMMUNITY

The architectural design of the new Aiea Public Library will reflect the residential low density of the neighborhood and institutional architecture of the Aiea Intermediate School. The building will be low-rise (one story) as viewed from Kulawea Street. Open space areas surrounding the library building will also be landscaped to reflect a park-like setting. Landscaping can also be used to establish buffers between residential areas, Aiea Intermediate School, and Aiea Stream, and to create outdoor multi-purpose gathering spaces. Along Kulawea Street, landscaping will also define the entry into Aiea Intermediate School. Adults and children will be able to access the proposed library's expanded collection and upgraded services without the inconveniences of the existing library.

By utilizing building architecture and landscape architecture to integrate the project into the surrounding neighborhood, the character of the community will be preserved and enhanced by development of the proposed project. The architecture of the proposed library should complement the surrounding structures and character of the community, however, most of the former sugar mill buildings have been demolished (Figure 12). It is unlikely that either the institutional architecture of the Aiea Intermediate School or the industrial architecture of the sugar mill would be an appropriate model for the library architecture. The actual building architecture, which has not been determined at this level of planning, will be identified once a project architect has been selected.



LEGEND

- Lot 6
- Project Site

Figure 12
AIEA BUSINESS AND INDUSTRIAL PARK

Aiea Public Library

Department of Accounting & General Services — July 1999

0 100 200 FEET

KAJIOKA YAMACHI ARCHITECTS

PBR HAWAII

In the future, the larger land parcel opposite Aiea Stream could still be redeveloped into community facilities. Land uses suggested from the community as envisioned by the Aiea Empowerment Zone Strategic Plan (AEZSP) included a Heritage Museum, Performing Arts Center, Community Center, Biotech Training Center, Community Gardens, and Elderly Day Care/Housing. This plan evolved out of the Aiea Community Association and Community Initiating Group which was organized to formulate the AEZSP.

Pedestrian linkages from the new library and Aiea Intermediate School to the community center area could also be established by a footbridge traversing Aiea Stream or along a re-aligned Aiea Heights Street.

3.14 INFRASTRUCTURE

3.14.1 Roadways and Traffic

Access to the proposed Aiea Public Library site is from Kulawea Street along the southeastern boundary of the property. The proposed library site is presently serviced by TheBus, Route No. 11, which is along Aiea Heights Drive. According to the Traffic Impact Assessment Report (Appendix B), the Aiea Heights Drive/Ulune Street intersection operates at LOS F in the morning peak hour largely because of land closure impacts from the construction project on the Aiea Heights Drive bridge. The restoration of the exclusive right turn lane on Aiea Heights Drive, northeast-bound will improve intersection operations.

The driveway into the parking lot is opposite Kulawea Place (See Figure 3). The dashed line in the area of the building entry depicts an entry driveway under a covered entry structure to serve as a drop-off area. According to the Unilateral Agreement (Ordinance No. 4320 and DLU File 73/Z-46) enacted when the subject property was zoned for industrial uses, the Unilateral Agreement states under condition 2(b) "access for *industrial uses* (emphasis added) shall be limited to access only off Aiea Heights Drive on the Ewa side of the site." Consequently, it appears that access must be made from the proposed realigned of Aiea Heights Drive and Ulune Street only if accessing industrial uses. Since the proposed library is a public use and not an industrial use, access into the library from Kulawea Street should be permissible.

Parking would be provided in a parking lot with approximately 51 stalls (based on a 20,000 square foot building) designed in accordance with requirements of the City's Land Use Ordinance. The new Library will also include 3 handicap stalls (included in the 51 stalls) to comply with the Americans with Disabilities Act (ADA) requirements. DAGS will comply with any City ordinance that requires installation of sidewalks and shoulder improvements along the length of Kulawea Street. A loading ramp for service vehicles and delivery trucks will be designed so that the reversing of larger vehicles is done off Kulawea Street to enhance public safety (vehicular and pedestrian).

Potential Impacts and Mitigative Measures

According to Appendix B, implementation of the proposed project will generate increased traffic along Kulawea Street and at the intersection of Kulawea Street and Ulune Street. However, the level of increased traffic is not sufficient to warrant major transportation improvements. Only modifications to existing traffic signals may be necessary. The maximum projected increase in average vehicle delay will be 1.0 seconds/vehicle at the intersection of Aiea Heights Drive/Ulune Street. Appendix B concludes:

> *"The relocated library is not projected to significantly change these levels of service, and the overall impact of the proposed development of the adjacent intersections is minimal. The current library does not open until 9:00 a.m. which minimizes the traffic impacts in the morning peak hour. In the afternoon peak hour, the Aiea Intermediate School is closed and traffic on Kulawea street is low.*
>
> *The relocated library does not interfere with the potential future schemes to realign Ulune Street and its generated traffic should not interfere with the operation of a reconfigured roadway layout."*

As indicated on Table 2 of the Traffic Study, the library will generate 19 trips during the AM peak hour and 121 trips during the PM peak hour. To incorporate future industrial development of the property, annual growth rates to account for future development were taken from the Traffic Impact Assessment Report for the Aiea Sugar Mill Development Plan Amendment, dated May 1997. As stated on page 17 of the Traffic Study; *"All approaches to the intersection of Ulune Street and Kulawea Street are projected to experience no change in level of service but is projected to experience a slight increase in average delay with or without the proposed library." "The increase in overall average vehicle delay is 1.4 seconds/vehicle, and is attributed to the slight increase in traffic headed to the library."*

The greatest impact to traffic would likely occur in the future when the Old Aiea Sugar Mill parcel is eventually development for public facilities or commercial purposes. According to the Primary Urban Center Development Plan and a recently approved Preliminary Subdivision, the current landowner is proposing the construction and realignment of Aiea Heights Drive and Ulune Street. The potential development of this roadway was considered in the Draft Environmental Assessment (EA) as depicted on Figures 1, 3, 4, and 5, and Figure 2 of the Traffic Study.

Moanalua Road is approximately 1/4 miles from the proposed library site on the southwestern side of the H-1 Freeway. Consequently, the new library will not significantly impact the transportation project. However, the relatively close proximity of the library to this major transportation corridor will enhance the accessibility of the facility for residents of the surrounding Aiea community.

In their review of the Draft EA, the City and County of Honolulu, Department of Transportation Services stated that the proposed site for the Aiea Public Library appears to be adequate for a public library from a traffic operations perspective (July 6, 1999).

No other major mitigation measures applicable to the Aiea Public Library development are warranted at this time.

Construction plans for any work within the public road right of way and construction traffic control plans will be submitted to the City for review and approval as applicable.

3.14.2 Water Supply

The subject property is located within the Waimalu Water Management Area which is divided into two aquifers. The higher aquifer(fresh water floating on brackish water) is referred to as a "cap rock coral aquifer" and receives its recharge from surface water drainage and is not a potable drinking water source. The higher quality aquifer is a basaltic Koolau volcanic series.

Within TMK 9-9-05: 25, there are currently two wells (Water Commission ID Nos. 2255-35 and 2255-36) and a water tower which provided non potable water to the Aiea Sugar Mill by tapping into the Waimalu basaltic aquifer. These two basal water wells helped to meet C&H refinery production needs as well as on-site fire protection. Typical pumpage under complete mill production was 1.5 MGD prior to 1994. Presently, the on-site fire protection capability of the two wells does not meet commercial and/or subdivision standards for future use.

In addition, the Board of Water Supply's (BWS) comments of May 27, 1999 indicates that there is an existing 4-inch and 1.5-inch water meter serving the proposed library parcel and the existing water system is adequate to accommodate the proposed library. As requested by BWS, development of the site will require removal of the existing storage tank and capping of the existing wells.

Should the subject property be redeveloped for the proposed Aiea Public Library, there will be no need for water withdrawal from the two on-site basal water wells. According to the Final Environmental Impact Statement for the Aiea Sugar Mill Commercial Development, the owner of the wells, Alexander & Baldwin (A&B), is considering transferring the water rights to another well location on the Ewa Plain. To complete this transfer, a need must be established and approved by the State Water Commission. The current permits for the two wells on the Aiea Sugar Mill property contain a requirement that if the wells remain dormant for a period of four years, they may be capped and their allocations removed.

In response to the request for comments on the Draft Environmental Impact Statement for the Aiea Sugar Mill Commercial Development, the Commission on Water Resource Management indicated that transfer of water rights will require a permit modification. They have also indicated that redesignation of land use may be grounds for permit revocation.

Potential Impacts and Mitigative Measures

With respect to ground water resources, the site selected for development of the new Aiea Public Library is directly over the existing non-potable wells. Consequently, development of the proposed project will require that the wells be closed and capped, and that the existing water tower be dismantled. No negative impacts on ground water resources will result from closure of the two wells.

The impact of the project on potable water demand should also be minimal. DAGS will coordinate with DLNR regarding the required water allocation for the proposed project. Additionally, as more information becomes available, DAGS will also provide DLNR with the calculations to determine the estimated potable and irrigation water use for the proposed new library operations. Presently, the Aiea Public Library is connected to the Board of Water Supply system for potable water purposes. Therefore, the net difference of potable water demand between the existing and proposed facilities should not be significant. In addition, development of the Aiea Public Library will not stimulate new population growth in the area, but will respond to the library needs of the existing population. Therefore, the new library will not generate significant new demand for potable water. According to the BWS comments of May 27, 1999, the existing potable water system is presently adequate to accommodate the proposed library.

Based on BWS standards and the number of water fixtures planned, the proposed Library will require approximately 2,000 gallons per day (gpd) for domestic use and an estimated 15,000 to 25,000 gpd for landscape irrigation. A final Board of Water Supply (BWS) commitment is subject to several but standard conditions. These include construction plan approval verifying system adequacy and fire protection requirements and payment of water system facilities fees.

Water availability will be confirmed when the building permit application is submitted for BWS review and approval. DAGS will also pay any Water System Facilities Charge that may apply and will obtain all applicable permits and the necessary potable water allocation (as required by DLNR). According to BWS, the proposed project is subject to BWS cross-connection control requirements prior to the issuance of the Building Permit. On-site fire protection requirements will be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department and designed in accordance with City standards.

If a 3-inch or larger meter is required, construction drawings showing the installation of the meter will be submitted for BWS review and approval.

3.14.3 Wastewater Treatment and Disposal

While the Aiea Sugar Mill was in operation, it had direct connections to the City & County of Honolulu wastewater system where wastewater discharge to the city's system was limited to 150,000 gallons per day under agreement with the City and County of Honolulu. Presently, a wastewater collection line runs generally parallel to Aiea Stream. These prior

volumes compare with the projected wastewater flows of the proposed library at approximately 2,000+ gallons of wastewater per day. Clearly, with the closing of the Aiea Sugar Mill and the reduced quantities of wastewater generated from the property, the City wastewater collection, treatment, and disposal system can accommodate the proposed Aiea Public Library.

Potential Impacts and Mitigative Measures

According to the City, the wastewater collection line located adjacent to Aiea Stream has been undermined due to the stream erosion. Portions of this collection line may need to be relocated in the future by the City to ensure that stream erosion does not threaten the viability of the line. The HSPLS will work with the City to ensure that the library's future connection to this line will comply with all applicable sewer connection regulations.

3.14.4 Drainage Facilities

Existing surface runoff is conveyed to Aiea Stream through the natural topography of the site and various diversion structures that transfer surface runoff into the stream.

Potential Impacts and Mitigative Measures

New drainage system improvements consisting of rain gutters, drain lines, manholes, and an underground perforated drainage system will be constructed to control runoff from the library roof, parking, and other impermeable surfaces. Rain gutters designed to capture runoff from the library roof will relay surface water to underground perforated drainage systems. On-site retention areas may also be used to collect surface water and allow additional time for infiltration and groundwater recharge. No significant alterations to existing topography or alterations to drainage improvements will be required in support of project development.

3.14.5 Solid Waste Disposal

On Oahu, residential and commercial wastes are hauled to landfills, the incinerator, or transfer stations. A waste-to-energy combuster, H-POWER (Honolulu Program of Waste Energy Recovery) located at the Campbell Industrial Park, began full commercial operation May 21, 1990. Solid waste generated by the Aiea Public Library both during and after construction, will be disposed at the City's H-POWER Plant and/or the City operated landfill at Waimanalo Gulch.

The H-POWER facility is designed to process about 2,000 tons per day and its gross generating capacity is 57 megawatts of electricity. About 1,800 tons per day are incinerated, producing between 100 and 400 tons of ash and non-processibles that are transported to Waimanalo Gulch Landfill and buried. The electricity generated is bought

under a purchase power agreement with Hawaiian Electric. Currently, the H-POWER facility receives all the residential and commercial packer truck wastes on the island.

Waimanalo Gulch Landfill, which opened in 1989, is located on the western side of Oahu. The land is owned by the City operated by Waste Management, Inc. The site accepts residential, commercial, and nonhazardous industrial solid wastes, demolition debris, and ash and residue from the H-POWER waste-to-energy facility. Wastewater treatment sludges, septic tank wastes, and cesspool pumpings are accepted, provided such disposal is in accordance with the landfill's operating guidelines. The site handles special wastes such as spent lime, contaminated foods, and asbestos, all of which require special handling. The current fill rate is 1,200 tons per day. The estimate landfill capacity of this permitted site is approximately to be 5 - 7 years.

Since these two sites accept all of the island-wide solid waste that is generated, the actual impacts on landfill capacity is dependent on island-wide population growth rather than where the population growth occurs.

Potential Impacts and Mitigative Measures

Solid waste generated by the project during the construction phase will consist primarily of discarded construction materials and will be disposed of at the approved disposal facilities. Solid waste generated during the operation of the Library will be collected by the City or private contractor. The HSPLS will ensure that the project conforms to the program goals and objectives of the Integrated Solid Waste Management Act, Chapter 342G, Hawaii Revised Statues, and the County's approved integrated solid waste management plans in accordance with a schedule and time frame satisfactory to the Department of Health.

3.14.6 Electrical/Communication

The proposed Aiea Public Library site is serviced by Hawaiian Electric Company ("HECO") and GTE Hawaiian Telephone. Cable television lines are provided by Oceanic Cable Company.

Potential Impacts and Mitigative Measures

Based on the size and uses proposed for the new library, approximately 243 kW of power will be required on a daily basis. Based on availability of present service capabilities and planned improvements in electrical facilities, significant impacts are not expected to result from the proposed action. Likewise the proposed action should produce no significant impacts to telephone service. Cumulative impacts generated by this and other projects on an island-wide basis will impact future needs, however, no significant negative impacts on utility systems are expected to result from the construction of the proposed project. The project architects will work with Hawaiian Electric Company in determining the specific

transmission, distribution, and substation requirements of the project. All necessary easements will be provided to accommodate transmission lines and associated improvements.

3.15 PUBLIC SERVICES

3.15.1 Police and Fire

The Honolulu Police Department provides service for the project area from its Pearl City Station on Waimano Home Road. Fire protection for the project area is provided by the Aiea and Waiau engine companies and ladder service is available from Waiau. According to the Police and Fire Departments, their service capability in the area is adequate and no significant impacts on operations were expected.

Potential Impacts and Mitigative Measures

As with any new development, there will be an occasional and unavoidable demand for police and fire protection services. In their review of the Draft EA, the Aiea Public Library staff noted that there is a need for increased security personnel and coverage. However, appropriate lighting, security fencing, and other security devices and management practices will be coordinated with the assistance of the Honolulu Police Department. Security personnel could also be utilized within the library property to augment police protection from the Honolulu Police Department as warranted.

Fire protection apparatus, water supply and building construction will be in conformance with applicable codes. On-site fire protection requirements will be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department and designed in accordance with City standards. No new fire or police protection facilities will be required as a result of project development.

3.15.2 Schools

The State Department of Education operates three schools in Aiea consisting of the Webling Elementary School, Aiea Elementary School, Aiea Intermediate, and Aiea High School. Aiea Elementary acts as a feeder school to Aiea Intermediate. Aiea Intermediate school consists of grades six to eight, whose students later move onto Aiea High School. Public school students in grades nine through twelve attend Aiea High School.

The proposed Aiea Public Library borders the Aiea Intermediate School campus on Kulawea Street and will be located approximately one mile from Aiea High School.

Potential Impacts and Mitigation Measures

Due to the close proximity of Webling Elementary School and Aiea Intermediate School, the proposed library will likely attract large numbers of school-aged users. While this is desirable from an educational perspective, the library should not become a defacto day-care center. Consequently, management of the library will require that students must be actively utilizing library facilities and services while in the library. Overall, the new library will efficiently provide library services to more students and positively affect the community as a whole.

3.15.3 Recreational Facilities

The Aiea region has a wide range of recreational facilities that generally serve the appropriate recreational needs of the Aiea residents and residential areas of the island. The following recreational facilities are located within approximately 1.5 miles of the subject property.

- Keaiwa Heiau State Recreation Area
- Pearl Country Club Golf Course
- Halawa District Park
- Salt Lake District Park
- Pearl Ridge Community Park
- Aiea Recreation Center
- Napuanani Park
- Aliamanu Playground
- Moanalua Golf Course

Potential Impacts and Mitigation Measures

The proposed project will not result in any loss of existing recreational space or increase the demand for new recreational facilities. The proposed site is planned to be extensively landscaped which would facilitate passive recreation within this area. However, the site is not intended to be used for active recreational purposes. In their review of the Draft EA, the City and County of Honolulu, Department of Parks and Recreation wrote that the project will have no impact on City recreation programs or facilities.

3.15.4 Medical Facilities

Pali Momi Medical Center, a major medical facility on the island, services the Aiea region. General and emergency care services are provided by the facility which is located on Moanalua Road. Several Aiea clinics, and dental and medical offices provide local health care services for Aiea residents and visitors. The Aiea Medical Building contains several dental and medical offices and is located on Aiea Heights Drive.

Potential Impacts and Mitigation Measures

The proposed project is not anticipated to result in an increase in demand for medical facilities.

3.16 OVERALL SHORT-TERM AND LONG-TERM MITIGATION MEASURES

As previously described, very few adverse impacts are expected to result from implementation of the project. Short-term construction impacts will result due to the limited on-site grading, building construction, and movement of vehicles within the project site. These activities will generate localized noise and dust during construction periods. *Mitigation measures to minimize* adverse air quality would include frequent watering of construction areas, dust screens, mulching and planting of ground cover and other vegetation as soon as possible after construction. Construction activities would comply with all applicable regulations of the County and State Department of Health.

Long-term impacts from the development are not expected to be significant. Traffic will moderately increase, thereby producing some long-term noise and air quality impacts. Drainage improvements will ensure that the quantities of off-site surface flows will not increase above current levels. Safety measures will be implemented to clearly define pedestrian cross-walks. The proposed project is not expected to have any impact on the micro climate of the project area or region. The new facility will produce generally positive social and cultural impacts.

Recommended mitigation measures include the following:

Short term:

- Major construction which would generate dust and noise that would impact Aiea Intermediate School should be scheduled to occur over the summer months to reduce soil erosion and noise.
- Frequent watering during construction to help maintain dust control.
- Establish groundcover, landscaping, and hard services as soon as practicable once grading has been completed to reduce the amount of exposed soils.
- Utilize wind screens during construction, as appropriate, to limit fugitive dust.
- Restrict use of heavy construction equipment to 8:00 AM to 5:00 PM during weekdays.

Long term:

- Building design should maintain low roof forms as viewed from Kulawea Street. Architecture should reflect the surrounding residential neighborhood and Aiea Intermediate School.
- Establish landscaping to maintain long-term air quality and aesthetically integrate the project into surrounding neighborhood.
- Use of appropriate engineering, design and construction measures to ensure adequate drainage of the site.
- Incorporate pedestrian cross-walks to facilitate safe movement of pedestrians

3.17 SUMMARY OF ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

As with any development, there will likely be instances during the construction period where soil erosion from wind and rain will occur and visual impacts will be altered from the current vacant scrub vegetation. Noise levels will also increase above current conditions due to the added traffic levels on the property, human activity, and the addition of mechanical equipment such as air conditioners, trucks backing up, and vehicular noise. Solid waste, energy consumption, water use levels, and waste water will all increase above current levels associated with the vacant property. However, based on the relative size of the proposed project, no significant long-term adverse environmental effects are anticipated

3.18 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The implementation of the proposed project would result in the irreversible and irretrievable commitment of the land resource and require use of fiscal resources from the State of Hawaii. Major resource commitments include the land on which the proposed project is located and the financial commitment for construction materials, manpower and energy required for the project's completion.

In addition to the on-site physical improvements to be provided by the State, development of the subject property will result in the increased use of public infrastructure. This commitment to new infrastructure includes transportation improvements, solid waste facilities, water, and wastewater collection and treatment.

In addition to the physical resources described, labor and materials which are mostly non-renewable and irretrievable will also be necessary during the construction phase. After

project completion, continued use of irrigation systems and petroleum-generated electricity will be utilized which also represents irretrievable commitments of resources.

The impacts reflected by the commitment of these resources, should be weighed against the positive social benefits that could be derived from the project versus the consequences of either taking no action or pursuing another less beneficial use of the property. Consumption of these resources will be replaced by enhancing the community's accessibility to information and social interaction. As such, significant enhancement to existing and future life-styles will result from the project compared to limited benefits derived from a "no-build" alternative.

The proposed project will further implement the Aiea Empowerment Zone Strategic Plan by the Aiea Community Association for the Aiea Sugar mill and Heritage and Town Center. Although existing open space will be reduced, the benefits of the new Aiea Public Library outweigh the loss of the open space.

No other significant irreversible and irretrievable commitments of resources have been identified in connection with the proposed action.

4.0 ALTERNATIVES TO THE PROPOSED ACTION

In compliance with the provisions of Title 11, Department of Health, Chapter 200, Environmental Impact Statement Rules, Section 11-200-10(6), the summary of impacts and alternatives considered to the proposed project are limited to those that would allow the objectives of the project to be met, while minimizing potential adverse environmental impacts. The feasible alternatives must also realistically address the project's economic limitations while also responding to the surrounding land uses that will be impacted by the project.

Therefore, alternatives to the proposed project have been considered to 1) assess the appropriate site on the Old Aiea Sugar Mill property appropriate for development of the library, and 2) evaluate alternative sites in Aiea.

4.1 The Selected Alternative

To evaluate the suitability of the subject property for establishment of the new Aiea Public Library, three portions of the Old Aiea Sugar Mill property were examined to determine the areas "best" suited for development of the project. Each of the alternative sites comprise approximately two to three acres of land within the 19-acre study area. Adequate space, ease of access, frontage visibility, proximity to residential areas and traffic circulation were the criteria used in evaluating the subject property.

Each alternative site is herein described in relation to its attributes and ability to meet the planning and development objectives for the library. The service area of the proposed Library as determined by HSPLS also reflect the land area boundaries for Aiea as follows:

West -	Kaahumanu Street
East -	Halawa Stream
North -	Koolau Mountain Range
South -	Pearl Harbor

The selected alternative site is located on the southeastern boundary of the project site along Kulawea Street on TMK: 9-9-05: 25 and is separated from the main mill site by the Aiea Stream. There are two wells and a water tower on the parcel that are owned by Alexander and Baldwin Inc., however, the majority of the site is currently owned by Crazy Shirts Inc. Although use of this parcel would require demolition of the water tower and closure of the two wells, this site was selected over other the balance of the property because the larger structures would also require demolition, unknown constraints may exist (i.e., building foundations, wastes), and access problems that may trigger development of the Aiea Heights extension.

These considerations are summarized as follows:

Location

The selected alternative site is separated physically by Aiea Stream from the Old Aiea Sugar Mill. This separation would allow the library development to proceed without requiring further subdivision or otherwise affecting future development on the Old Aiea Sugar Mill site. The location of the library on this parcel would also provide a logical transition between the future mill site development and the residential area along Kalawea Street. The development of the parcel could also utilize the existing Aiea stream as an interesting setting for library related activities and potential interpretive facilities (i.e., signage, native plants, botanical garden, etc). A future pedestrian connection across Aiea Stream could link Aiea Intermediate School and the Aiea Public Library to the public facilities or commercial development envisioned for the Old Aiea Sugar Mill site in the future.

Entry/Circulation

The selected alternative will also provide an entry feature leading to the Aiea Intermediate School. Tree plantings along Kulawea Street leading to the Aiea Intermediate School would enhance the entrance onto the campus. Potential may also exist for pedestrian paths or bikeways between Ulune Street and Aiea Intermediate School. The selected site also offers access that is suitable to the proposed library uses. For example, the proposed entry into the library parking lot would be located opposite Kalawea Place. This would minimize intersections along Kalawea Street thereby reducing potential pedestrian/ vehicular conflicts.

Another traffic related consideration, is in reference to the City's planned roadway realignment of Aiea Heights Drive that would traverse parallel to TMK's 10 and 25. This realignment, as identified on the Primary Urban Center Public Facility Map, would essentially straighten Ulune Street as shown on Figure 14 between Aiea Heights Drive and the intersection of Ulune Street and Kulawea Street. Consequently, the site selected for the new library is well northeast of the future realignment and will not impact its future development. As indicated in the Traffic Impact Assessment Report (Appendix A) the development of the library does not warrant the realignment of this roadway.

Site Considerations

The following site considerations also weigh in favor of the selected alternative site:

- The parcel envisioned for the library within the proposed industrial subdivision has two large existing buildings to demolish and there are two water wells and the water tower that must be dismantled on the selected site. However, the cost for demolition and grading of the industrial site will not be borne by the current landowner, but passed on to the future lot purchasers. Consequently, it should be more cost effective for the State to purchase unimproved land and develop the

necessary improvements, and not pay for industrial infrastructure improvements that are unnecessary for library development.

- Vehicular and pedestrian access and visibility would be easily available from Ulune and Kulawea Streets. Bus service is available from Aiea Heights Drive.

- The site is proximate to the Aiea Intermediate school. While this may also be a concern for HSPLS, however, a location anywhere within the mill site will be of relatively close proximity to the school.

- A portion of the proposed library structure may infringe upon the designated *flood hazard district as delineated* on the Flood Insurance Rate Maps. However, as previously described, the current landowner may modify Aiea Stream and the existing flood boundaries with development of the proposed industrial development. In addition, the proposed library can be developed within the Flood fringe with approval by a registered engineer without significantly impacting the existing Flood Hazard Zone. Use of the selected library site will require significantly less alteration to Aiea Stream than the proposed industrial or residential development for this property.

- By building on a slope, the library structure would appear to be one story from Kulawea Street, but could be designed as a split level structure. By developing a split level structure along the hillside, the profile of the building would be reduced and integrated into existing landforms and extensively landscaped. Retention of the natural and undisturbed state of Aiea Stream is also an important consideration in selecting the selected library site. A split-level design would incur additional costs for at least one elevator and two fire-rated egress stairways.

- The size of the parcel and its relatively undisturbed condition lends itself toward establishment of landscaped open space areas. The property could also function as a visual buffer between residential development along Kulawea Street and future development of the Aiea Sugar Mill site.

4.2 Aiea Heritage and Town Center Alternative

The Aiea Sugar Mill and Heritage and Town Center alternative would locate the proposed library at the mauka end of TMK: 9-9-05:25 and utilize approximately 3.5 acres of the 15.6 acre TMK parcel. (Note: Use of a 3.5 acre parcel would exceed the land areas requirements of the HSPLS.)

The Aiea Sugar Mill and Town Center concept evolved out of the Aiea Empowerment Zone Strategic Plan organized by the Aiea Community Association. Under this concept, the library would be an important element of a "Heritage and Town Center" which would also include an Aiea Heritage Museum, Performing Arts Center, Community Center, Biotech

Training Center, Elderly Day Care or Housing, Community Gardens, Biotech Gardens and the existing Hawaii Agricultural Research Center (HARC).

The current landowner has removed all but two structures and cleaned the site of any potentially hazardous materials that may have existed on the property. By comparing the historical use of each parcel, it appears that the selected site where the existing water tank and pumps are located was relatively less likely to have been exposed to hazardous waste disposal.

The Aiea Heritage and Town Center site (now being developed as an industrial subdivision), was rejected because costs associated with demolition of the two remaining buildings would be costly, library and industrial land uses are not compatible (if the Aiea Heritage and Town Center plan is not implemented) , access would be limited to internal industrial access roads and the costs for construction of the planned Aiea Heights Drive extension or other transportation improvements would be passed on to the HSPLS. In addition, the close proximity of the selected alternative to Aiea Intermediate School and the potential to create a landscaped entry feature and open space area are not characteristics on this site.

If the Heritage and Town Center plan is developed at some point in the future (and not the industrial subdivision as currently being developed), the site identified for the "Elderly Day Care" facility could be moved to the 3.5 acre site designated on the Aiea Sugar Mill and Heritage and Town Center Plan for the library. This may be a more appropriate alternative than having elderly day care adjacent to a large intermediate school

4.3 Navy Laundry Site Alternative

The possibility of relocating the library to the "Navy Laundry Site" was explored in the early 1990's in response to inquiries by Aiea community members since it appeared vacant at the time. However, the HSPLS has indicated that this alternative was rejected because the release of land by the federal government was not possible.

4.4 HARC Building Alternative

Representative Tom Okamura and Senator Norman Mizuguchi explored the possibility of purchasing the HARC building, which is currently on the Old Aiea Sugar Mill site, and converting it to a library. This alternative was rejected because the conversion of the existing building would involve shoring up the floors to withstand the weight of the books and the conversion was deemed too costly. (Sunday Star Bulletin & Advertiser, 6/28/96, A6).

4.5 No-Action Alternative

The "no-action" alternative was rejected because it would leave the Aiea community with an inadequate public library. Continued use of the current facility would not correct the lack of adequate parking, provide additional public meeting locations for the community, or improve accessibility in accordance with American with Disability Requirements. The no-action alternative will continue the present high level of use and extreme strain on existing facilities and its personnel which impacts the public's use of the library. Consequently, the no-action alternative would not be consistent with the goal of the project to provide efficient and productive public library facilities to the community.

4.6 Summary Evaluation of Feasible Alternatives

A summary evaluation of the Feasible Alternatives are presented in Table 1. An evaluation of the Navy Laundry Site was not conducted because the release of this land by the Federal government was not possible.

TABLE 1: SUMMARY EVALUATION OF FEASIBLE

SITE SELECTION CRITERIA	Hawaii Agricultural Research Center (HARC) Building Alternative	Aiea Heritage and Town Center Alternative
COMPATIBILITY* Note: All sites should be inspected to determine potential presence of hazardous substances (i.e. lead paint and petroleum products) .	HARC is currently used as a laboratory facility and is not structurally compatible or the interiors functionally suitable for library operations and book storage. Existing building has approximately five times the floor area required for library operations (approximately 100,000 sq. ft. vs. 20,000 sq. ft. required by HSPLS). HARC will be surrounded by warehouse structures and industrial land uses that are not compatible with library operations. HARC facilities would have to be purchased and their operations relocated by the State. At this time, it is not desirable for HSPLS to displace HARC's operations.	Library would be surrounded by compatible facilitie plans for an industrial park are revised to incorpor facility civic center uses. Proposed 3-acre site with incompatible warehous too large for library operations. Warehouse structures are incompatible with libra would not provide adequate protection of books a materials. Because the site is vacant, no relocation of existi would be required.
INFRASTRUCTURE AVAILABILITY	Required infrastructure is currently available through Ulune Street.	Aiea Heights Drive extension road and related in be constructed prior to construction of the propos Public Library. Access loop road from Aiea Heights Drive exten related infrastructure must also be constructed a others prior to construction of the proposed new Library. Infrastructure is currently being constructed for i
ANTICIPATED DEVELOPMENT COSTS	Must purchase land and existing buildings which contains excessive land and building space for library needs. Must structurally improve and renovate interior of existing HARC building to function as a library and leave balance vacant. Renovations would include room layout, lighting system, air conditioning, electrical system, and replacement of furnishings/fixtures. Grading and site work costs would be minimal since most of the roadway access and utility system infrastructure connections would remain.	Must purchase land and existing buildings whic excessive land and building space for library ne Must renovate existing warehouse structures fo demolish and construct new library building. Infrastructure for this area will be developed for Therefore, the infrastructure purchased for the oversized and excessively expensive relative t Grading and related site work could be substar warehouses need to be demolished and a new constructed.
ACCESSIBILITY	HARC is currently accessed through Aiea Heights Drive. However, this is not desirable due to site distance limitations associated with the curve in the roadway alignment.	The construction of the Aiea Heights extensior will need to be completed before construction Aiea Public library begins. Development of this site is not feasible until ac library is constructed by others.

ON OF FEASIBLE ALTERNATIVES

and Town Center Alternative	The Selected Alternative
e surrounded by compatible facilities if current lustrial park are revised to incorporate other public ter uses. e site with incompatible warehouse structures is rary operations. uctures are incompatible with library operations and de adequate protection of books and related library te is vacant, no relocation of existing occupants ed.	Site is close to Aiea Intermediate School and is surrounded by residential land uses which are compatible with library functions and operations. Demolition of existing water tower and capping two existing wells is required. Aiea Stream separates industrial subdivision developments from this site. Because the site is currently unoccupied, it is more readily available for HSPLS development.
rive extension road and related infrastructure must prior to construction of the proposed new Aiea ad from Aiea Heights Drive extension road and ucture must also be constructed and paid for by construction of the proposed new Aiea Public s currently being constructed for industrial users.	Infrastructure is currently available through Ulune Street and Kulawea Street. If required, additional utility system infrastructure will be available from the future development of the Aiea Heights Drive extension. Infrastructure for this area will be developed for library uses only. Therefore, the infrastructure developed for the library would be sized correctly relative to library needs.
land and existing buildings which contains and building space for library needs. existing warehouse structures for library use or construct new library building. or this area will be developed for industrial uses. infrastructure purchased for the library would be excessively expensive relative to library needs. lated site work could be substantial if the ed to be demolished and a new library building is	Must purchase land and water tower and existing wells. Land area is appropriate for library, but water system improvements are not necessary for library operations. Demolition of existing water tower and capping two existing wells is estimated to cost less than the demolition of the two major warehouse structures. Grading, grubbing, and related site work would not be significant since only that portion of the site planned for the library improvements would be used.
on of the Aiea Heights extension and access roads completed before construction of the proposed new ary begins. of this site is not feasible until access to the public ructed by others.	The site can be accessed off Kulawea Street and would also be accessible through the Aiea Heights Drive extension road when constructed. Development of this site is feasible since access is currently available off Kulawea Street according to the City Department of Transportation Services.

5.0 RELATIONSHIP OF THE PROPOSED ACTION TO EXISTING PUBLIC PLANS, POLICIES, AND CONTROLS

5.1 Federal

There are no known Federal controls affecting development of the proposed project site.

5.2 State Land Use

The project site is within the State Land Use Commission's Urban District. As such, development of the proposed library facilities conforms to Chapter 205, HRS, and the State of Hawaii Land Use Commission Rules.

As provided for in the Land Use Commission Rules, Section 15-15-24, "Permissible Uses" within the Urban District include any and all uses permitted by the counties, either by ordinances or rules subject to any conditions imposed by the Land Use Commission pursuant to Section 205-4, HRS. Because the proposed library would conform to the existing SLUC and County Zoning designations, the project would comply with all applicable provisions of Chapter 205, HRS, and is consistent with the State Urban Land Use District Boundary designation.

5.3 Hawaii State Plan

According to the Hawaii State Plan (Chapter 226, Hawaii Revised Statutes), the purpose of the Plan is to serve as a guide for the future long-range development of the State; identify the goals, objectives; policies, and priorities for the State; provide a basis for determining priorities and allocating limited resources, such as public funds, services, human resources, land, energy, water, and other resources; improve coordination of federal, state, and county plans, policies, programs, projects, and regulatory activities; and to establish a system for plan formulation and program coordination to provide for an integration of all major state and county activities.

The Plan is divided into three parts. Part I (Overall Theme, Goals, Objectives and Policies); Part II (Planning, Coordination and Implementation); and Part III (Priority Guidelines). Part II elements of the State Plan pertain primarily to the administrative structure and implementation process of the State Planning process. As such, project specific comments regarding the applicability of Part II (Section 226-52(a) and 226-52(b) - Statewide planning system) do not directly pertain to the proposed project.

The applicability of specific sections of the Hawaii State Plan relative to the development of the Aiea Public Library is discussed below. The cumulative impact of the proposed project is also considered in terms of Hawaii State Plan implementation and the attainment of state-wide planning goals and aspirations.

Hawaii State Plan

Section 226-5 (b) (3) Promote increased opportunities for Hawaii's people to pursue their socio-economic aspirations throughout the islands.

Section 226-6 (a) (1) Increased and diversified employment opportunities to achieve full employment, increased income and jobs, and improved living standards for Hawaii's people.

Discussion: The proposed project will generally increase employment and economic opportunities for Hawaii's people both during and after project construction. With implementation of the proposed plan, the project development will offer short-term (construction-related) and long-term operational employment by contributing to the overall level of construction activity. Permanent operational employment will directly and indirectly increase employment throughout the community.

Overall living standards and lifestyles will also be enhanced by living, working, and utilizing readily available public facilities within the Aiea community.

Section 226-11 (a) (2) Effective protection of Hawaii's unique and fragile environmental resources.

Section 226-11 (b) (2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.

Section 226-11 (b) (3) Take into account the physical attributes of areas when planning and designing activities and facilities.

Section 226-11 (b) (6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawaii.

Section 226-11 (b) (8) Pursue compatible relationships among activities, facilities, and natural resources.

Discussion: Physical and environmental attributes of the property were surveyed prior to preparation of the proposed plan. Site features such as slope, soil stability, drainage characteristics were incorporated into the design as applicable. Provisions for existing services and infrastructure are also considered to assure more efficient use of existing facilities. Most natural features on the subject property have been modified in the past by previous activities.

Implementation of proposed mitigation measures for the project will ensure continued protection of the land through control of runoff and erosion. There are no known unique or fragile environmental resources associated with the subject property.

Section 226-12 (a) Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawaii's scenic assets, natural beauty, and multicultural/historic resources.

Section 226-12 (b)(1) Promote the preservation and restoration of significant natural and historic resources.

Section 226-12 (b)(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.

Section 226-12 (b)(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawaii's ethnic and cultural heritage.

Section 226-12 (b)(5) Encourage the design of developments and activities that complement the natural beauty of the islands.

Discussion: The proposed project is generally consistent with the City's Development Plan and current zoning. Planning for the project has been based on available site attributes suitable for the uses proposed and opportunities for integration into surrounding urban development patterns. This planning concept was adopted to maintain and/or enhance the natural features of the subject property.

Although no archaeological sites have been identified, the protection or preservation of any sites uncovered during the construction period will be undertaken in accordance with applicable state regulations. Should any subsurface archaeological features be identified during construction, the Historic Preservation Division of the Department of Land and Natural Resources will be notified in accordance with State requirements.

Section 226-13 (b) (2) Promote the proper management of Hawaii's land and water resources.

Section 226-13 (b) (3) Promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters.

Section 226-13 (b) (5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.

Section 226-13 (b) (6) Encourage design and construction practices that enhance the physical qualities of Hawaii's communities.

Discussion: The existing potential flood hazard impacting a portion of the property will be mitigated by locating the proposed facilities outside of the flood hazard area. The project

will also comply with City drainage regulations to ensure that the quantity of off-site drainage does not increase. Hazards from hurricanes, earthquakes, and volcanic eruptions may exist, but are no more likely to affect the subject property than at any other location on Oahu.

Section 226-13 (b) (7) Encourage urban developments in close proximity to existing services and facilities.

Discussion: All proposed infrastructure will be sized and engineered to accommodate the proposed project. All necessary infrastructure either exists or will be provided as the project is developed. The subject project has been planned and designed in an environmentally compatible and beneficial manner that would foster the recognition, importance, and value of the area's land, air and water resources. Design of the library will take advantage of the existing aesthetic and environmental qualities of the area.

(226-52) Statewide planning system.

(a)(2) The priority guidelines established in this chapter shall provide guidelines for decision-making by the State and the counties for the immediate future and set priorities for the allocation of resources. The formulation and amendment of state functional plans shall be in conformance with the priority guidelines.

(b)(2)(D) Land use decision-making processes of state agencies. Land use decisions made by state agencies shall be in conformance with the overall theme, goals, objectives and policies, and shall utilize as guidelines the priority guidelines contained within this chapter, and the state functional plans adopted pursuant to this chapter. The rules adopted by appropriate state agencies to govern land use decision-making shall be in conformance with the overall theme, goals, objectives, and policies contained within this chapter.

Discussion: The proposed project complies with the guidelines established by the Hawaii State Plan and Functional Plans regarding the Statewide planning system and the land use decision-making process. Appropriate land use entitlement approvals from and the City of Honolulu will be required to ensure the project's adherence to applicable land use policies and regulations.

(226-104) Population growth and land resources

(b)(1) Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures and away from areas where other

important benefits are present, such as protection of important agricultural land or preservation of lifestyles.

Discussion: The development of the Aiea Public Library will accommodate the library service needs of the projected population at a location where adequate public facilities are available or can be provided. Preservation of lifestyles will be reinforced through the addition of new public facilities in the neighborhood.

(b) (12) ***Utilize Hawaii's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.***

Discussion: Existing services and infrastructure have been incorporated into the design of the project to efficiently utilize already existing infrastructure facilities. No development which could negatively impact shorelines, conservation lands, or other limited resources is proposed.

Approval of the proposed project will provide new public facilities necessary to accommodate the needs of the community while ensuring the protection of the environment.

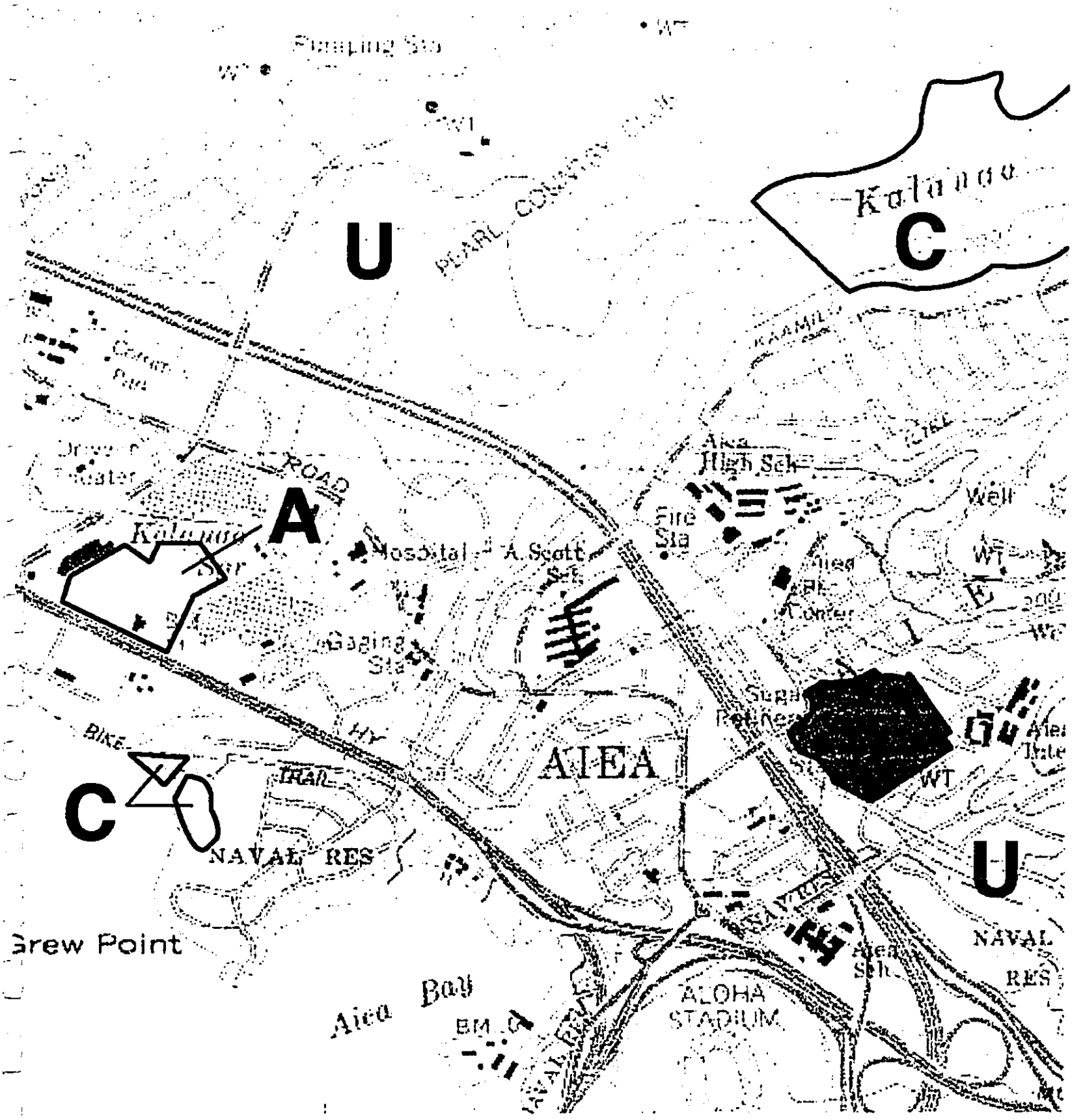
5.4 Chapter 205, Hawaii Revised Statutes

Chapter 205, Hawaii Revised Statutes (HRS), establishes the State Land Use Commission (LUC) and gives this body the authority to designate all lands in the State as Urban, Rural, Agricultural, or Conservation District lands. Land use decisions within Urban District lands are generally left to the counties to control in accordance with local General Plans and zoning ordinances.

Discussion: The entire subject property is located within the State Urban District and land uses on the property are controlled by the City and County of Honolulu (Figure 13). Consequently, no action from the State Land Use Commission is required to implement the proposed project.

5.5 City and County of Honolulu General Plan

As required by the City Charter, the General Plan for the City and County of Honolulu serves two purposes. The first is a statement of the long-range social, economic, environmental and design objectives for the general welfare and prosperity of the people of Oahu. Second, the General Plan is a statement of broad policies which facilitate the attainment of the objectives of the plan.



LEGEND

- A — Agriculture
- C — Conservation
- U — Urban
- Project Area

Source: Land Use Commission

Figure 13
STATE LAND USE MAP

Aiea Public Library

Department of Accounting & General Services — July 1999

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The following General Plan Objectives and Policies are applicable to the proposed Aiea Public Library.

Natural Environment

Objective A, Policy 4: Require development projects to give due consideration to natural features such as slope, flood and erosion hazards, water-recharge areas, distinctive land forms, and existing vegetation.

Discussion: The existing land use patterns adjoining the subject property are compatible with the proposed project. The only potential hazards that may exist are associated with potential flooding on a portion of the subject property during intense storms. The proposed project improvements will incorporate drainage control measures to mitigate the potential flood hazard and control of off-site drainage flows. There are no slope hazards, distinctive land forms, or extensive vegetation characteristic to the property.

Objective D, Policy 5: Require the installation of underground utility lines wherever feasible.

Discussion: With development of the proposed project, all new utility lines and necessary improvements servicing the project will be placed underground where feasible.

Physical Development and Urban Design

Objective A, Policy 5: Provide for more compact development and intensive use of urban lands where compatible with the physical and social character of existing communities.

Discussion: According to the Department of Planning and Permitting, the previous TMK: 9-9-5: 25 is currently being developed for industrial purposes and *not* community facilities. Therefore, it seems feasible from a land use perspective to locate the library proximate to the community facilities that do exist (Aiea Intermediate School and Webling Elementary School), rather than surrounded by future industrial land uses. The HSPLS has indicated that they oppose development of the library adjacent to commercial or high intensity land uses. The selected site will also provide an open space buffer between existing residential neighborhoods and the industrial area.

All of the necessary on-site infrastructure intended to directly serve the proposed project will be funded by the State. In addition, development of the proposed project will more efficiently utilize existing infrastructure and create a new public facility compatible with the physical and social conditions of the region.

Objective E, Policy 3: Encourage distinctive community identities for both new and existing districts and neighborhoods.

Objective E, Policy 5: Require new developments in stable, established communities and rural areas to be compatible with the existing communities and areas.

Discussion: The architecture of the proposed library will be designed to be compatible with the surrounding residential character of the neighborhood. Landscaping will also visually enhance the existing vacant property while establishing a distinctive entry for Aiea Intermediate School.

Public Safety

Objective B, Policy 2: Require all developments in areas subject to floods and tsunamis to be located and constructed in a manner that will not create any health or safety hazard.

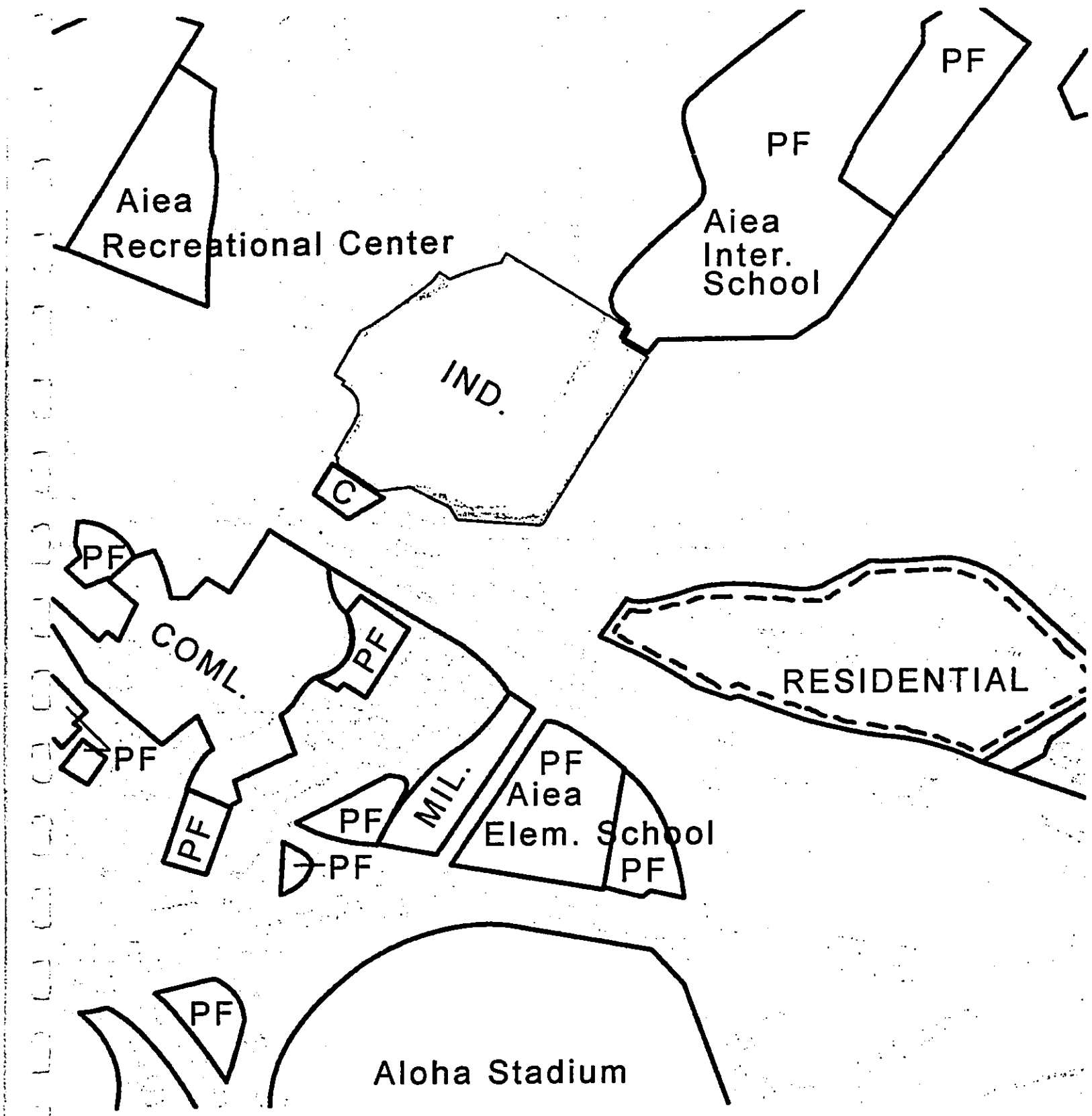
Discussion: Although the subject property is not subject to tsunamis, portions are presently subject to flooding during intense storms. However, with development of the drainage improvements planned for the project and by locating the library well above the flood hazard elevation, storm water runoff impacting the project area will be managed to mitigate all potential health and/or safety hazards. Storm water flows will be controlled to limit off-site discharges and to permit on-site detention and recharge of storm water.

5.5.1 Primary Urban Center Development Plan

As depicted by Figure 14, the subject property has been designated as "Industrial" by the Primary Urban Center Development Plan. This designation is consistent with the historical use of the subject property for the old Aiea Sugar Mill. Surrounding Development Plan land use designations are Public Facility (Aiea Intermediate School), Residential, and Commercial.

5.5.2 Primary Urban Center Development Plan Public Facilities Map

As depicted by Figure 15, the only planned public facilities improvements impacting the subject property is the planned realignment of Aiea Heights Drive and Ulune Street. This proposed roadway re-alignment would improve access into the proposed industrial subdivision and is a requirement imposed by the City for development of this parcel. However, a new bridge crossing Aiea Stream would also be required to allow for the roadway re-alignment. Therefore, the costs associated with this re-alignment and the new stream crossing would be passed on to future purchasers of the industrial lots making development of the new Aiea Public Library within the proposed industrial subdivision un-feasible from an economic perspective.



LEGEND

- Project Area
- **IND** — Industrial
- **C** — Commercial
- **PF** — Public Facilities
- **MIL** — Military
- **COML** — Commercial

Source: Department of General Planning, City and County of Honolulu

Figure 14
PRIMARY URBAN CENTER DEVELOPMENT PLAN
LAND USE MAP

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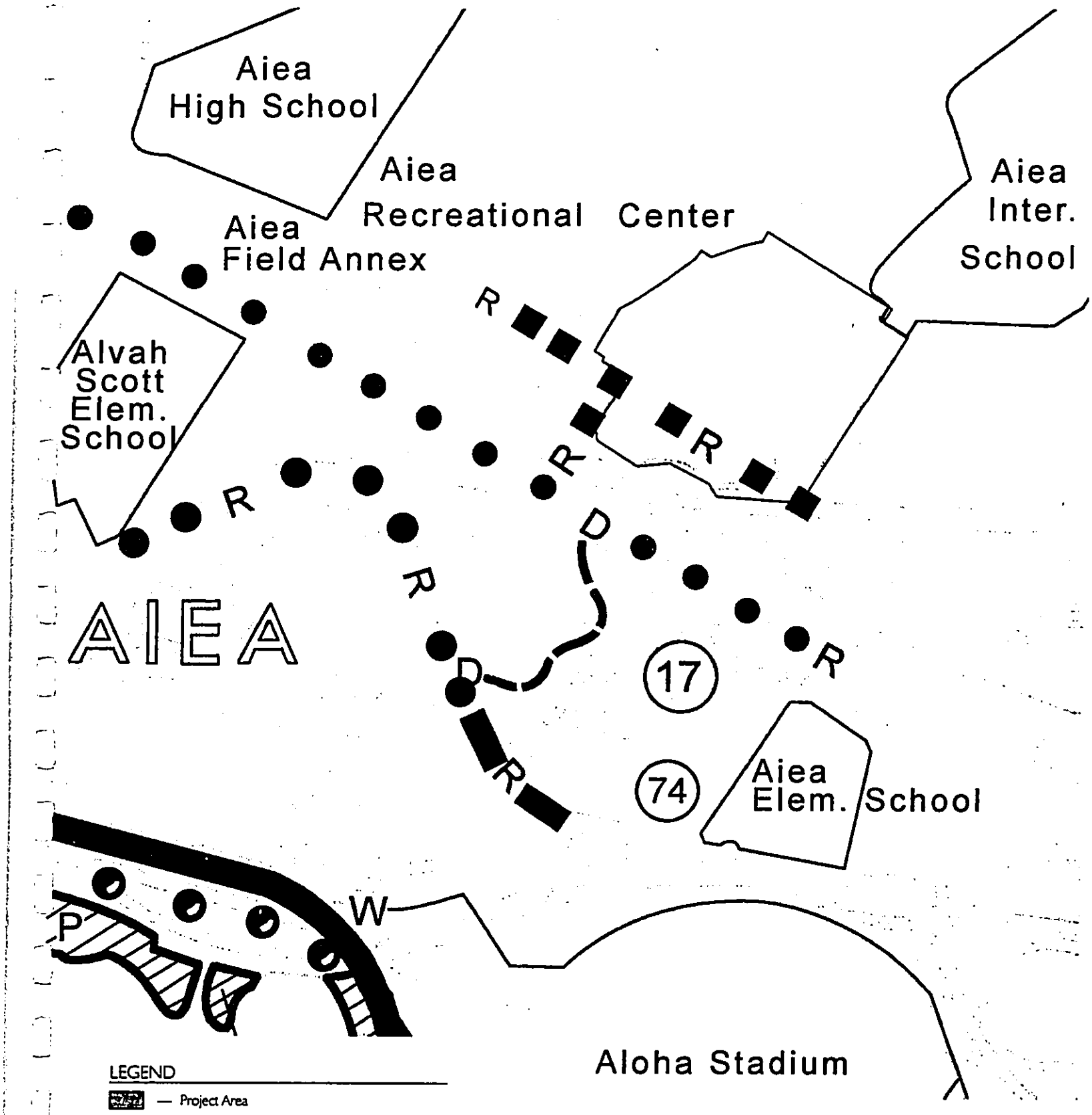

LEGEND

- Project Area
- R ■ R — Additional Right of Way and New Streets
- R ■ R — Improvements Within Existing Right of Way
- D ■ D — Drainage System
- W — W — Water System
- P — Parks and Recreation
- (17) — Add Park and Ride; Dec. 17, 1987; Ord. No. 87-125

Source: Department of General Planning,
City and County of Honolulu, May 10, 1983

Figure 15
PRIMARY URBAN CENTER DEVELOPMENT PLAN
PUBLIC FACILITY MAP

Aiea Public Library

Department of Accounting & General Services — July 1989

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5.6 City and County of Honolulu Land Use Ordinance

The subject property is presently zoned as I-2 Intensive Industrial by the City and County of Honolulu Land Use Ordinance (Figure 16). This zoning designation was established by Ordinance No. 4320 May, 1974 which rezoned the property from Residential to Light Industrial. According to the Unilateral Agreement adopted with the rezoning, the following condition No. 2 could be applicable to the site assessment for the proposed Aiea Public Library:

> *"The Declarant agrees to the imposition of the following conditions on the land described in Exhibit "A", to-wit: (a) a requirement of heavily landscaped buffer areas to be landscaped in accordance with landscaping plans subject to reasonable approval by the Director of Land Utilization for boundaries adjacent to residential neighbors; and (b) access for industrial uses shall be limited to access only off Aiea Heights Drive on the Ewa side of the site."*

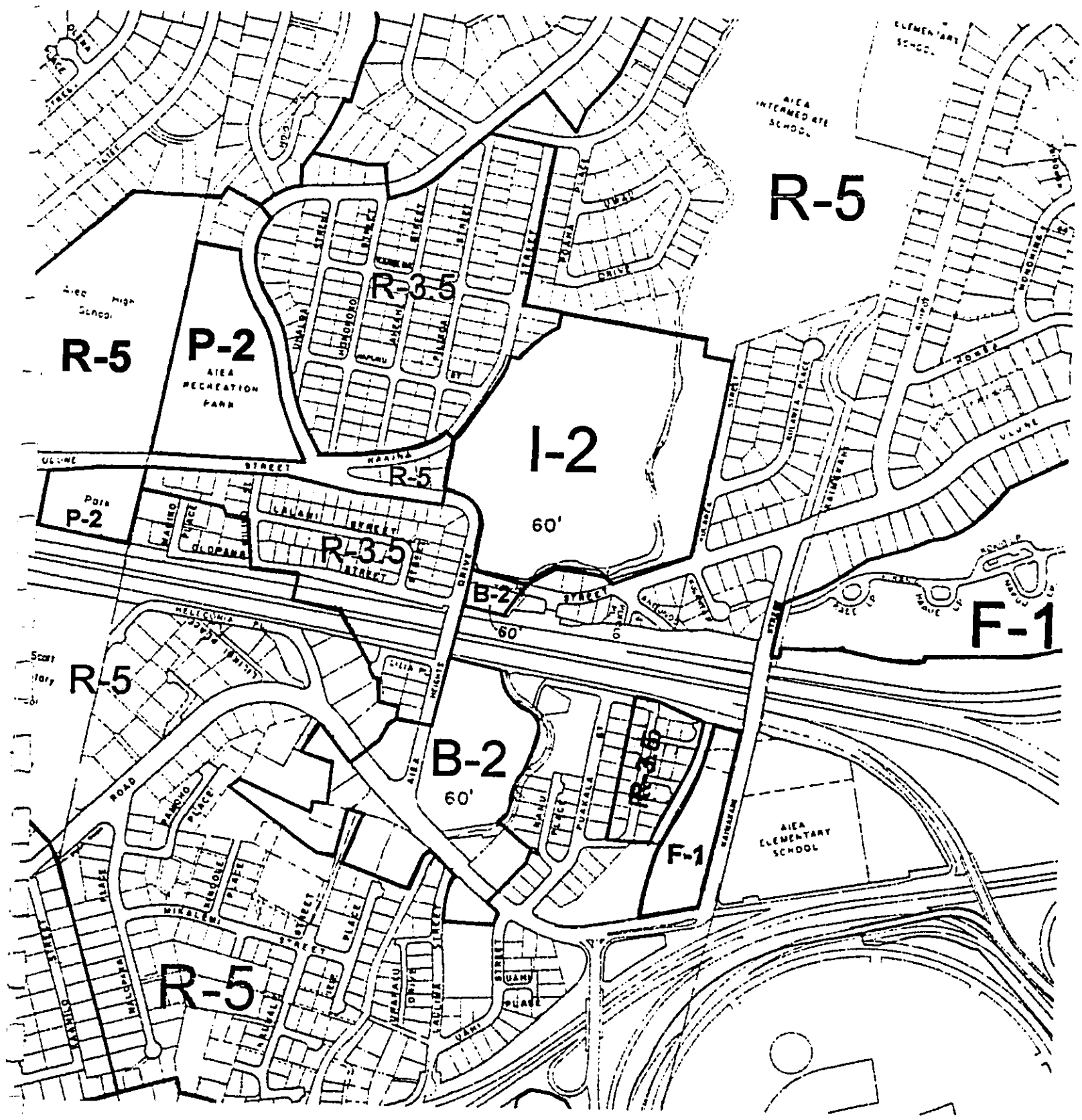
According to the above condition *"a"*, the landscape buffer will be established along Kulawea Street and Ulune Street. Condition *"b"* is not applicable since the proposed library use is not defined as "industrial". However, as a public facility, the proposed Aiea Public Library is a permitted use within the current zoning I-2 Intensive Industrial zoning classification.

5.7 The Aiea Empowerment Zone Strategic Plan

The Aiea Empowerment Zone Strategic Plan was recently prepared (September, 1998) in response to a community-based planning effort organized by the Aiea Community Association (ACA). A Community Initiating Group (CIG) was formed by the ACA in response to the Oahu Empowerment Zone Initiative and its potential to "rejuvenate" communities through community-based planning. The strategic plan was designed to embody economic opportunity, sustainable community development, Community-based partnerships and Strategic vision for change. The CIG's initial purpose was to advocate for the preservation of the Aiea Sugar Mill and most recently to take charge of Aiea's future.

An important element of the Aiea Empowerment Zone Strategic Plan, was an expanded and improved library facility within a "Town Center" to be developed at the old Aiea Sugar Mill site. This concept was based on the adoption of four key principles defined as:

- Economic Opportunity
- Sustainable Community Development
- Community-based Partnerships
- Strategic Vision for Change



LEGEND: ZONING DISTRICTS

P-2	— General Preservation	R-5	— Residential
F-1	— Military & Federal Preservation	R-3.5	— Residential
B-2	— Community Business	I-2	— Intensive Industrial
URBAN FOCUS	— Project Area		

Source: Zoning Map No. 7, Halawa to Pearl City, 10-22-86
Department of Land Utilization, City and County of Honolulu

Figure 16
CITY AND COUNTY OF HONOLULU
LAND USE ORDINANCE ZONING MAP

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The specific land use elements identified by the Aiea Empowerment Zone Strategic Plan for the Old Aiea Sugar Mill site includes the establishment of a "Heritage and Town Center" which would include an Aiea Heritage Museum, Aiea Public Library (3.5 acres), Performing Arts Center, Commons, Community Center, Biotech Training Center, Elderly Day Care or Housing, Community Gardens, Biotech Gardens and the existing Hawaii Agricultural Research Center (HARC). Funding to implement the Aiea Empowerment Zone Strategic Plan, however, has not been available.

According the Aiea Empowerment Zone Strategic Plan, the parcel selected for the proposed Aiea Public Library was planned for Elderly Day Care/Housing (adjacent to Aiea Intermediate School), Community Gardens, and Biotech Gardens. Consequently, the essential difference between the two concepts is to replace the Elderly Day Care/Housing with the proposed library. Establishment of the other uses, such as the Community and Biotech Gardens, is not intended to be part of the proposed action. However, the development of the library on this site does not necessarily preclude the establishment of these uses in the future.

From a planning perspective, the proposed library site may also be a more appropriate use than the elderly Day Care facility due to the proximity to the Aiea Intermediate School and less potential for noise conflicts.

Therefore, it seems feasible from a land use perspective to locate the library proximate to the community facilities that do exist (Aiea Intermediate School and Webling Elementary School), rather than surrounded by future industrial land uses. The HSPLS has indicated that they oppose development of the library adjacent to commercial or high intensity land uses. The selected site will also provide an open space buffer between existing residential neighborhoods and the industrial area.

An Elderly Day Care facility surrounded by industrial development, an intermediate school, and residential dwellings does not seem compatible from a land use perspective. Elderly persons may be more noise sensitive to traffic noise and the sounds of children entering or leaving school, or playing. Traffic may also be worse since the elderly would be dropped off during peak traffic hours compared to a library which is open throughout the day. It is also likely that more outdoor activities will be desired by the elderly patrons of the day care facility as compared to outdoor activities desired by users of the library. Similarly, library and educational land uses are highly compatible and often designed within the same campus setting or building. Libraries properly designed and integrated into residential neighborhoods, however, can provide a highly valued contribution to residential neighborhoods and the community.

6.0 SIGNIFICANCE CRITERIA

According to the Department of Health Rules (11-200-12), an applicant or agency must determine whether an action may have a significant impact on the environment, including all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects, and its short and long-term effects. In making the determination, the Rules establish "Significance Criteria" to be used as a basis for identifying whether significant environmental impact will occur. According to the Rules, an action shall be determined to have a significant impacts on the environment if it meets any one of the following criteria:

- **Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;**

  Comment: The proposed project will not significantly impact scenic views of the ocean or any ridge lines from heavily traveled roadways in the area. The project's architecture will reflect the surrounding land forms and other existing architecture in Aiea by respecting existing topographic patterns and limiting the height of the library to one story or a split level. If the use of posts in building architecture does not "reflect the surrounding land forms" they will not be used. The building plan used and described in the Draft EA is only conceptual.

  The visual character of the area will change from the current vacant condition to landscaped urban uses compatible with surrounding residential land uses. Presently, the subject property is not landscaped or otherwise improved.

  Development of the project drainage system will follow design standards of the City to ensure controlled conveyance and discharge of storm runoff, and control of soil erosion to ensure the protection of water quality. The property is not subject to coastal-related flooding and is located outside of the City's Special Management Area (SMA). As such, no significant coastal resources or views are impacted by development of the property.

  As previously noted, no significant archaeological or historical sites are known to exist on the subject property, and none will be impacted by the proposed project. Should any archaeologically significant artifacts, bones, or other indicators of previous on-site activity be uncovered during the construction phases of development, their treatment will be conducted in strict compliance with the requirements of the Department of Land and Natural Resources.

- **Curtails the range of beneficial uses of the environment;**

  Comment: Although the subject property was previously used for industrial purposes within the State Urban District, the development of the Aiea Sugar Mill

property (with construction of the proposed library) will curtail the use of the property for any future industrial or business purposes. However, the actual "natural environment" that may have been associated with the property has already been curtailed by many years of urban activity. Consequently, returning the site to a natural environmental condition is not practical from a planning, environmental, or economic perspective.

- **Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;**

  Comment: Development of the proposed Aiea Public Library is consistent with the Environmental Policies established in Chapter 344, HRS. These guidelines promote developments that do not negatively impact the environment, nor conflict with the State's environmental goals.

- **Substantially affects the economic or social welfare of the community or State;**

  Comment: The proposed project will significantly contribute to the social welfare of Aiea residents by providing the community with an expanded library facility. Surrounding land use patterns will not be negatively or significantly altered, nor will unplanned population growth or its distribution be stimulated. Compared to the current vacant condition of the property, the visual impact from the project will enhance views and the character of the neighborhood.

  Consequently, development of the project will provide residents with a high quality living environment, complemented with an adequate library facility. This harmonious relationship between residential area and the provision of adequate public facilities will significantly improve the quality of life for many residents, establishing positive economic and social impacts for the surrounding community.

- **Substantially affects public health;**

  Comment: Although nearby residential area may potentially be affected by air, noise, and water quality impacts, the impact on public health that could occur will be insignificant or not detectable. These considerations are especially important when weighed against the positive social, and quality of life aspects associated with the new library facility.

- **Involves substantial secondary impacts, such as population changes or effects on public facilities;**

  Comment: The existing Aiea residential areas are well established with little potential for population growth. However, as with any community, the provision of adequate public facilities are a primary component of a viable community. The proposed project responds to the need for public facilities and may indirectly create new employment opportunities during construction. Permanent operational employment for staff, management, and maintenance personnel will be transferred from the existing library to the proposed library.

  Because the proposed library represents an infill development in a developed urban area, the required infrastructure is in place or available.

- **Involves a substantial degradation of environmental quality;**

  Comment: The proposed Aiea Public Library will replace the existing vacant condition of the property with the "urban" structures and landscaping associated with the library. This will mitigate the visual impact of the development as viewed from outside the site while the overall design will complement surrounding land uses. There will be no substantial degradation of environmental quality, but the existing environmental setting will change from the present condition.

- **Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;**

  Comment: By planning now to meet the needs of the community, the proposed Aiea Public Library is consistent with the existing and planned urban character of the neighborhood. None of the proposed uses will obstruct existing views or be visually incompatible with the surrounding character of existing and planned development.

  The development of the proposed library would require the acquisition of land from an existing urban and industrially zoned property. It does not require other lands on the opposite side of Aiea Stream and cannot control the land uses that may be developed there. As such, the library project cannot dictate whether the balance of the property is to be used for industrial purposes or the land uses as envisioned by the Sugar Mill Heritage and Town Center plan. Consequently, only the cumulative impact of the library was assessed in the Draft EA and not the land uses proposed for the Old Aiea Sugar Mill parcel. Specifically, cumulative impacts were addressed in terms of the need for the project, traffic, water, wastewater, and visual impacts. Re-use of the existing library structure and site would not achieve the goals for the project as described in Sections 2.1.2 and 2.1.5 of the Draft EA.

- **Substantially affects a rare, threatened or endangered species, or its habitat;**

  Comment: There are no known rare, threatened or endangered species or habitats associated with the subject property. The diversity of the existing habitat will be enhanced with urban landscaping as compared to the low habitat diversity now associated with the property.

- **Detrimentally affects air or water quality or ambient noise levels;**

  Comment: The quality of surface runoff will be maintained by the establishment of on-site retention basins during the construction phases of development to permit the retention of silt that could be suspended in surface runoff. After development, retention areas will serve the same function to control runoff and facilitate recharge of groundwater. Protection of groundwater resources will be enhanced by a centralized sewage collection, treatment, and disposal system.

  Similarly, air quality will be controlled during construction by frequent watering, establishment of ground cover, and wind screens as applicable. After construction, soils will not be exposed, thereby reducing the potential soil erosion from wind.

  Ambient noise levels will increase relative to the present vacant condition due to the sounds of people talking, vehicles, and sounds associated with library activities. However, this change in noise level is not harmful or unusual since it is typical of most residential and urban land use development.

- **Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.**

  Comment: Development of the proposed Aiea Public Library will not affect an environmentally sensitive area, such as a flood plain, tsunami zone, erosion prone area, geologically hazardous land, estuary, freshwater area, or coastal waters. Development of the property is compatible with the above criteria by implementing a critical element of the community's social support system on a site suitable for the library uses proposed. The physical character of the subject property has been previously disturbed by industrial activities associated with sugar production and urban land uses associated with the development of Aiea. As such, the property no longer reflects a "natural environment".

  Library development on the selected site could impact a small portion of the flood hazard zone, but only in conformance with applicable City building standards and codes. However, the use of the flood hazard zone would only occur if Aiea Stream is not altered by the construction of the proposed industrial subdivision. If this occurs, the flood hazard boundaries could be altered dramatically.

In addition, the use of flood hazard areas is not unusual or necessarily hazardous if proper design and engineering controls are implemented. For example, a large portion of Waikiki is also located within the same AE Flood Zone.

If the use of posts or retaining walls used in the building architecture is determined to affect an environmentally sensitive area such as the flood hazard area, alternatives previously discussed are available to mitigate potential impacts. The building plan and description used in the Draft EA is only conceptual at this level of planning. No architect has been selected and the building design has not been determined at this time. All architectural designs, however, will incorporate mitigation measures to ensure that the flood fringe district is not significantly altered and that downstream property owners are not impacted.

- **Substantially affects scenic vistas and viewplanes identified in county or state plans or studies; or,**

  Comment: None of the subject property is defined as a scenic vista or located within a viewplane as identified in county or state plans or studies.

- **Requires substantial energy consumption.**

  Comment: No architect has be selected for the project at this stage in the planning and design process, nor has the architectural design phase begun. Therefore, it is difficult to determine the level of energy consumption at this time, although the amount of energy should not be "substantial." To ensure that the proposed structure does not require substantial energy consumption, the "Guidelines for Sustainable Building Design in Hawaii" provided by the Office of Environmental Quality Control will be provided to the project architect for their use as applicable. In addition, the site selected is located within an existing residential neighborhood and adjacent to Aiea Intermediate School. Consequently, many library patrons will be able to walk or ride bicycles to the facility.

7.0 DETERMINATION

The location of the subject property reflects a logical location for development of a library in a residential area. In addition, infrastructure connections are readily available. Therefore, the size, scale, and location of the project adjacent to existing residential land uses will not significantly impact the surrounding community, but provide a critical public facility for the Aiea community. Consequently, the applicant has determined that no significant environmental affects will result from development of the proposed project and that preparation of an Environmental Impact Statement (EIS) will not be required.

8.0 LIST OF REQUIRED APPROVALS AND PERMITS

During the implementation stages of the project, the applicant will be working with the State and County review agencies for examination and approval of project plans and specifications. The community will also have the opportunity to provide input into the process during the Legislative process and through the Neighborhood Board review procedures. Prior to any processing of required approvals and permits, the State must gain development rights or fee simple interest in the property prior to development.

Permit/Approval	**Responsible Agency**
Grading/Building Permits	Department of Planning and Permitting

9.0 REFERENCES

Armstrong, R. W. ed. *Atlas of Hawaii.* 2nd edition. Honolulu: University of Hawaii Press, 1983.

Baker, H.I. et al. Detailed Land Classification. L.S. Land Study Bureau, University of Hawaii, 1972

Hawaii State Department of Agriculture. *Agricultural Lands of Importance to the State of Hawaii.* Honolulu, Hawaii, 1977.

Hawaii, State of. Department of Business and Economic Development and Tourism. *The Data Book.* Honolulu, Hawaii.

Hawaii State Office of State Planning. *The Hawaii State Plan.* Honolulu, Hawaii, 1989.

United States Department of Agriculture Soil Conservation Service. *Islands of Kauai, Oahu, Maui, Molokai, and Lanai,* State of Hawaii, 1972.

United States Federal Emergency Management Agency. 1989. *Flood Insurance Rate Map, Panel Number 150003 0265 C, September 6, 1989.*

10.0 COMMENTS AND RESPONSES

The public comment period as required by Chapter 343, Hawaii Revised Statutes, on the Draft EA resulted in the following responses from governmental agencies, community organizations and individuals. The comments and our responses are included in this section.

10.1 COMMENTS RECEIVED ON THE DRAFT EA

State of Hawaii

Department of Education
Department of Health
Department of Land and Natural Resources
Department of Land and Natural Resources - Historic Preservation Division
Hawaii State Public Library System
Office of Environmental Quality Control

City and County of Honolulu

Board of Water Supply
Department of Parks and Recreation
Department of Design and Construction
Department of Planning and Permitting
Department of Transportation Services
Office of the Mayor

Community

Aiea Community Association
Senator Norman Mizuguchi

10.2 DRAFT EA COMMENT LETTERS AND THE APPLICANT'S RESPONSES

The following section includes letters responding to the Draft EA and the Applicant's responses.

BENJAMIN J. CAYETANO
GOVERNOR

PAUL G. LeMAHIEU, Ph.D.
SUPERINTENDENT

RECEIVED - DAGS
DIV. OF PUBLIC WORKS
1999 MAY 28 A 10:03

STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

May 20, 1999

MEMO TO: Mr. Raymond Sato, Comptroller
Department of Accounting and General Services

A T T N: Mr. Ralph Morita, Engineer
Planning Branch

F R O M: Paul G. LeMahieu, Ph.D., Superintendent
Department of Education

SUBJECT: Aiea Public Library - Site Feasibility Draft EA

The Department of Education has no comment on the subject draft environmental assessment.

Thank you for the opportunity to respond.

PLeM:SB:hy

cc: A. Suga, OBS
A. Hokama, CDO
The Hon. B. Cayetano, Governor
G. Yama, Kajioka Yamachi Architects, Inc./PBR Hawaii

MAY 28

Approval
Sign
Note
File
See me
Comments
Invest
Rec.

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P)1571.9

TO: The Honorable Paul G. LeMahieu, Superintendent
Department of Education

SUBJECT: Aiea Public Library Site Feasibility
Draft Environmental Assessment (EA)

Thank you for your correspondence of May 20, 1999, regarding the proposed Aiea Public Library Draft EA. Your letter indicating the Department of Education has no comment on the subject EA is acknowledged.

This response letter and your May 20, 1999, comment letter will be included in the Final EA. If you have any questions, please have your staff call Mr. Ralph Morita of the Public Works Division at 586-0486.

RAYMOND H. SATO
State Comptroller

c: Kajioka Yamachi Architects, Inc.

2nd Run 6/4/99

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
File:

June 4, 1999

93-005E/epo

Mr. Ralph Morita
Department of Accounting
and General Services
Kalanimoku Bldg., Rm. 430
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Morita:

Subject: Draft Environmental Assessment (DEA)
Aiea Public Library Site Feasibility
99-193 Aiea Heights Drive
Aiea, Hawaii
TMK: 9-9-5: 10 & 25

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

<u>Solid and Hazardous Waste Branch</u>

Underground Storage Tank (UST) Section

1. The Final Environmental Impact Statement for the Aiea Sugar Mill Commercial Development (June 6, 1994) stated that a release of petroleum to the environment at this site was discovered in 1993 or 1994, and that action was taken in 1995 to remove petroleum-contaminated soil from the property. However, to our knowledge, neither this petroleum release, nor the subsequent 1995 response action were reported to the Department of Health (DOH); therefore, the DOH cannot verify the adequacy of the action taken. Our branch recently learned of this release and forwarded this information to the DOH's Office of Hazard Evaluation and Emergency Response for action as appropriate (see enclosure). We recommend that the Department of Accounting and General Services verify the satisfactory resolution of this issue prior to purchasing the property.

2. For your information, our Underground Storage Tank

Section has records regarding two USTs formerly located at this property (Facility ID 9-200177). These USTs were closed in 1976 and 1988 and appear to be unrelated to the petroleum release mentioned in the *Final EIS*.

Should you have any questions regarding these comments, please contact Eric Sadoyama of our Underground Storage Tank Section at 586-4226.

Hazardous Waste Section

The proposed site for the new Aiea Public Library is the old Aiea Sugar Mill site bordered by Ulune Street, Kulawea Street and Aiea Heights Drive. The draft EA describes all aspects of the new library and its environmental and social impacts. However, there is no discussion on the environmental impacts that the old sugar mill may have had on the property. Specifically, because there has been hazardous substances and hazardous waste contaminations found at other sugar mill sites, it is reasonable to assume that there may have been hazardous materials released at the Aiea Sugar Mill. Examples of hazardous materials that may be on the property include heavy metals (lead) in the soil, asbestos, and waste oil.

The EA should review any site assessments that were conducted prior to, or after demolition of the sugar mill.

Should you have any questions on these comments, please contact Grace Simmons of the Hazardous Waste Section at 586-4226.

Sincerely,

Gary Gill
Deputy Director for
Environmental Health

2 Enclosures
1. SHWB memo
2. Aiea Sugar Mill
   Commercial Development FEIS

c: SHWB
   HEER

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

APR 8 1999 COPY

ENCLOSURE #1

LAWRENCE MIIKE
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

In reply, please refer to:
EMD/SHW

April 23, 1999

U04059EJS

To: Manager, Office of Hazard Evaluation and Emergency Response

From: Chief, Solid and Hazardous Waste Branch

Subject: Petroleum release at the 'Aiea Sugar Mill property

It has come to our attention that a release of petroleum to the environment at the 'Aiea Sugar Mill property was discovered in 1993 or 1994. For more details, please see the enclosed excerpt from the June 6, 1997, *'Aiea Sugar Mill Commercial Development Final Environmental Impact Statement*, prepared by Gray, Hong, Bills, & Associates.

According to the *Final EIS*, environmental assessments conducted in either 1993 or 1994 identified the presence of petroleum released to the ground, and action was taken in 1995 by Harding Lawson Associates to remove petroleum-contaminated soil from the property. To our knowledge, the discovery of this petroleum release was not reported to the Department of Health.

Since releases of petroleum to the environment are subject to the Hawaii Environmental Response Law (HRS 128D), and since the fuel storage areas mentioned in the EIS do not appear to be underground storage tanks (USTs), we are referring this discovery to you for your action as appropriate.

In addition, for your information, our Underground Storage Tank Section has a file regarding two USTs formerly located at this property (Facility ID 9-200177). These USTs were closed in 1976 and 1988 and appear to be unrelated to the petroleum release mentioned in the *Final EIS*.

Should you have any questions regarding this memo, please contact Eric Sadoyama of our Underground Storage Tank Section at (808) 586-4226.

Enclosure

VIA TELEPHONE FACSIMILE 586-7509 ENCLOSURE #1
TO: ERIC SADOYAMA, UST PROGRAM
FROM: LESLIE SEGUNDO, OEQC
SIX PAGES TOTAL
April 22, 1999
Hi Eric! Please find transmitted six pages including this one on the 'Aiea Sugar Mill project. In addition to the text I read to you, I also copied the references and DOH letter/response.

Hope this helps.

Les

AIEA SUGAR MILL COMMERCIAL DEVELOPMENT

FINAL ENVIRONMENTAL IMPACT STATEMENT

AIEA, OAHU, HAWAII

TMK: 9-9-05: POR. 10 AND 25

Prepared For

CRAZY SHIRTS, INC.
99-969 Iwaena Street
Aiea, Hawaii 96701

Prepared By

GRAY, HONG, BILLS & ASSOCIATES, INC.
119 Merchant Street, Suite 607
Honolulu, Hawaii 9813
Phone 521-0306 / Fax 531-8018

David B. Bills, Vice President

June 6, 1997

12. Recreation

There are no recreational experiences which currently exist on the Aiea Sugar Mill property. Under the proposed Commercial Development scheme, there will also be no recreational attractions.

Impacts - Due to the fact that there are no recreational experiences under the current setting and there will be no recreational experiences under the proposed setting, it is considered that there are no impacts on recreation.

Mitigation - No mitigation is proposed.

13. Environmental Clean-up Related to Sugar Mill Operations

The Aiea Sugar Mill site as shown on Figure 6 is divided into four areas for reference purposes. Site A is the location of the old mill and is owned by Crazy Shirts, Inc. Site C is the location of the liquid sugar refinery and C&H Sugar is in the process of closing its lease for return to the Lessor, Crazy Shirts, Inc. Site B is the portion of the property which is undeveloped and on the far side of Aiea Stream. The status of environmental work is as follows:

"Phase I Environmental Assessments were performed by Muranaka Environmental Consultants in February 1993, and by Harding Lawson Associates in November 1994. Regarding Site A, oil was observed on the floors and pipes in the old refinery building, as well as asbestos containing material in the air-conditioning ducts, insulation of boiler pipes, valve, tanks, equipment, and roof insulation. Lead paint was observed on all the older buildings. Site A has been cleaned except for the exterior lead paint, and asbestos containing material in the window glazing compound and under steel plates in the five char furnaces. Regarding Site C, oil was observed in ground near the above-ground fuel-oil tanks and on the concrete pad of the sludge and used oil open storage areas, and in an unlined drainage trench near the maintenance

shop. C & H Sugar, the Lessee of Site C, is required to provide evidence the site is clean upon termination of its lease. Regarding Site B, two UST's were removed, petroleum contaminated soil removed, and the soil replaced pursuant to a Soil Replacement Former Tank Site report prepared by Harding Lawson Associates dated June 14, 1995.[1]

Impacts - The previously described clean-up work must be successfully completed to ensure no "leaks" into the general environment. If this work is not completed, small amounts of toxins will be available for potential human exposure and general environmental degradation.

Mitigation - The mitigation steps proposed or already completed include Phase I remediation work, UST removal and general clean-up. The appropriate parties have already committed to perform the required work. A large majority of the required work has already been successfully completed. With respect to the disposal of the identified asbestos and lead paint materials, the Nanakuli Landfill can accept these materials.

It is also the obligation of the owner/operator to report releases of hazardous substance to the State of Hawaii Hazard Evaluation and Emergency Response (HEER) Office. In addition, the project must file an Asbestos Renovation/Renovation Notification with the State Department of Health.

B. MAN-MADE ENVIRONMENT

1. Housing

The current Aiea Sugar Mill site supports no housing. Under the proposed Commercial configuration, there is also no housing proposed. There will be no change in housing as a result of the subject project.

Impacts - There are no impacts identified with housing.

Mitigation - No mitigation measures are proposed.

BIBLIOGRAPHY

1. Aiea Sugar Mill - A Fee Simple Offering Marketing Study; A. Joel Criz & Associates, Inc. Ewert & Company, and CRS Investments, Inc.
2. Personal Communication; February 1997; Joel Criz, A. Joel Criz & Associates, Inc.
3. Personal Communication; John Kilpatrick; SMS Research, Inc.; March 17, 1997.
4. C & H Sugar Cubelot Press, Volume XVIII, No. 10; October 1978.
5. Ampersand; Alexander & Baldwin, Inc.; Fall 1993; "Liquid Assets," pg. 14.
6. City & County of Honolulu; Land Use Ordinance; April 1995; pg. 5-90.
7. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii, U.S. Department of Agriculture Soil Conservation Service; August 1972.
8. The State of Hawaii Data Book; Department of Business, Economic Development & Tourism; 1995.
9. Personal Communication; Randy Tamaye; C & H Sugar Manager; March 1997.
10. Hawaii Stream Assessment, A Preliminary Appraisal of Hawaii Stream Resources, State of Hawaii, Commission on Water Resource Management and National Park Service; December 1990.
11. Air Quality Permits, State of Hawaii, Department of Health, Clean Air Branch.
12. Personal Communication; Randy Tamaye; C & H Sugar Manager; March 1997.
13. Personal Communication; Paul Uyeda, MK Engineers, Ltd., Consulting Electrical Engineers; March 6 & 7, 1997.

STATE OF HAWAII
DEPARTMENT OF HEALTH
P O BOX 3378
HONOLULU, HAWAII 96801

March 20, 1997

93-005A/epo

Mr. David B. Bills
Gray, Hong, Bills & Associates, Inc.
119 Merchant Street, Suite 407
Honolulu, Hawaii 96813-4499

Dear Mr. Bills:

Subject: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISPN)
Project: Aiea Sugar Mill Project
Location: Aiea, Oahu, Hawaii
TMK: 9-9-05: Por. 10, 25

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

Control of Fugitive Dust:

The proposed Aiea Sugar Mill Project includes some construction activities where potential dust problems may arise during clearing and removal of debris, grading, excavation, and construction activities for this project. In addition to the soil characteristics and dry, hot climate of the area, construction activities for the parking lots, shopping center, and improvement of the roadways and drainage need to be considered for fugitive dust impacts. Implementation of adequate dust control measures during all phases of construction is warranted. Construction activities must comply with provisions of Hawaii Administrative Rules (HAR), Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33 on Fugitive Dust.

The contractor should provide adequate means to control dust from road areas and during the various phases of construction activities. These means include, but are not limited to:

a. planning the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potentially dusty equipment in areas of the least impact;

b. providing an adequate water source at the site prior to startup of construction activities;

c. landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;

d. controlling of dust from shoulders, project entrances, and access roads;

e. providing adequate dust control measures during weekends, after hours, and prior to daily startup of construction activities; and

f. controlling of dust from vehicles hauling debris away from project site.

If you have any questions regarding fugitive dust, please contact Ms. Crystal Peltier of the Clean Air Branch at 586-4200.

Hazard Evaluation & Emergency Response Office:

In general, sites which are proposed for redevelopment should be aware of the following requirements throughout the implementation of the proposed project.

1) If the facility and/or land is known to have had or possibly could have had releases of hazardous substances (including oil) at the site, then the Hawaii Environmental Response Law Chapter 128D, Hawaii Revised Statutes places the liability for clean-up of that property on, among others, the owner and/or operator. The owner and/or operator is required to notify the Department of Health's (DOH) Hazard Evaluation and Emergency Response (HEER) Office when a release of a hazardous substance into the environment has been found.

2) Additionally, if contamination is found during the course of construction, then the owner/operator (not the contractor) of the property/facility may be required to notify the HEER Office if the quantity exceeds the reportable quantity as defined in HAR, Chapter 11-451, "State Contingency Plan."

93-005A/cpo

If you have any questions regarding these comments, please contact Mr. Steven Armann, Acting Manager of the Hazard Evaluation and Emergency Response Office at 586-4249.

Sincerely,

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

c: CAB
HEER

Gray • Hong • Bills & Associates, Inc.
CONSULTING ENGINEERS

Brant L. Gray P.E.
Darrell S.C. Hong P.E.
David B. Bills P.E.
Roy T. Aoki P.E.
Beverly O. Ing P.E.
Aly D. Lee P.E.
Michael H. Nojima P.E.

119 Merchant Street, Suite 60
Honolulu, Hawaii 96813-4410
Telephone (808) 521-0306
Fax (808) 531-8018

June 4, 1997

Bruce Anderson, Ph.D.
Deputy Director for Environmental Health
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, HI 96801

SUBJECT: Aiea Sugar Mill Commercial Development
Draft Environmental Impact Statement

Dear Mr. Anderson:

Thank you for your comments regarding the subject project, dated March 20, 1997. These comments were intended to address the Environmental Impact Statement Preparation Notice, but were received too late for inclusion in the Draft Environmental Impact Statement. We are now including your letter as a draft review comment. We understand these comments have been received from your Clean Air Branch and your Hazard Evaluation and Emergency Response (HEER) Office. Your Clean Air Branch has primarily identified that there is a possibility of fugitive dust resulting from the project. The Clean Air Branch has further identified seven general methods in which fugitive dust can be controlled.

Due to the previous-developed characteristics of the Aiea Sugar Mill site, the grading operations are not anticipated to be significant on the project. Further, the Draft Environmental Impact Statement already identifies the current primary means to controlling fugitive dust. This will be by watering. The remainder of the seven items identified by the Clean Air Branch will be contained in the Final Environmental Impact Statement in the form of the comment letter.

The Hazard Evaluation and Emergency Response Office has identified that there is the potential for release of hazardous substance from the property due to its previous operations. The necessity to report releases of hazardous substances is also identified as a primary health requirement. It has further been identified that the HEER Office must be notified if during construction quantities of hazardous substances exceed certain quantities. The Final Environmental Impact Statement will include this reporting requirement under the "environmental clean-up related to sugar mill operations" section of the document.

Your comment letter as well as this response will be included in the Final Environmental Impact Statement for completion of the record. Should you have any questions regarding this matter, please contact our office.

Very truly yours,

GRAY, HONG, BILLS & ASSOCIATES, INC.

David B. Bills

DB:sc
2617-2

sugar mill once stood

Marino David of Geolabs inspects the Aiea property that used to be the site of the century-old sugar mill. The land is owned by Crazy Shirts, which gave up plans to renovate the mill and put its headquarters there.

DEBORAH BOOKER • The Honolulu Advertiser

Conflicting plans offered for Aiea mill site

State considers relocating library

By Scott Ishikawa
Advertiser Central Bureau

AIEA — The owner of the old Aiea Sugar Mill property wants part of the 19.4-acre parcel rezoned for residential use, but the state is considering relocating the Aiea Public Library there.

Crazy Shirts property consultant Joel Criz said the landowner is seeking rezoning of 4 acres bordering Aiea Stream and Kulawea Street from industrial to residential use. Criz said the 4 acres would hold about a dozen single-family homes. If the city approves the rezoning, Criz said, Crazy Shirts would market the property to residential developers.

The state has released a feasibility study considering the purchase of the same parcel off Aiea Heights Drive for use as a library site.

"We'd be willing to work with the state and the community on this one," said Criz, who estimated the asking price for the land at $1.6 million. "We plan to apply for the rezoning in the next few weeks because we do have to move ahead if nothing comes through. We have had some interest from churches and residential developers about the site."

State Sen. Norman Mizuguchi, (D-Kahili Valley, Aiea) who pushed for the library feasibility study, said yesterday he would work with the developer and the community to find the best possible location for the library.

The Aiea Neighborhood Board voted last month in support of Crazy Shirts' intention to apply for the residential rezoning.

As for the library, the state feasibility study and draft environmental assessment report released last month said the 10,724-square-foot Aiea Public Library at 99-143 Moanalua Road is in need of renovation but has little room for expansion. The community library is behind two Aiea shopping complexes.

Building a new library at the mill site would provide about 15,000 to 20,000 square feet of library service and book storage space, and more room for additional parking, the report said. The proposed library would be farther from Aiea's commercial district but closer to residential neighborhoods and schools.

Crazy Shirts bought the mill site in 1994 in hopes of converting the sugar factory into a company headquarters, but determined that the renovation costs would be too high. The company demolished the 100-year-old mill last year.

The remainder of the mill property is being graded to sell as fee-simple lots as part of a light industrial park. Criz said infrastructure for the planned industrial park is expected to be installed in the fall and completed in March.

"We're only going to allow light-industrial, clean businesses," he said. "Contrary to rumors, we're not allowing any bars or nightclubs, or storage sites for toxic chemicals."

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
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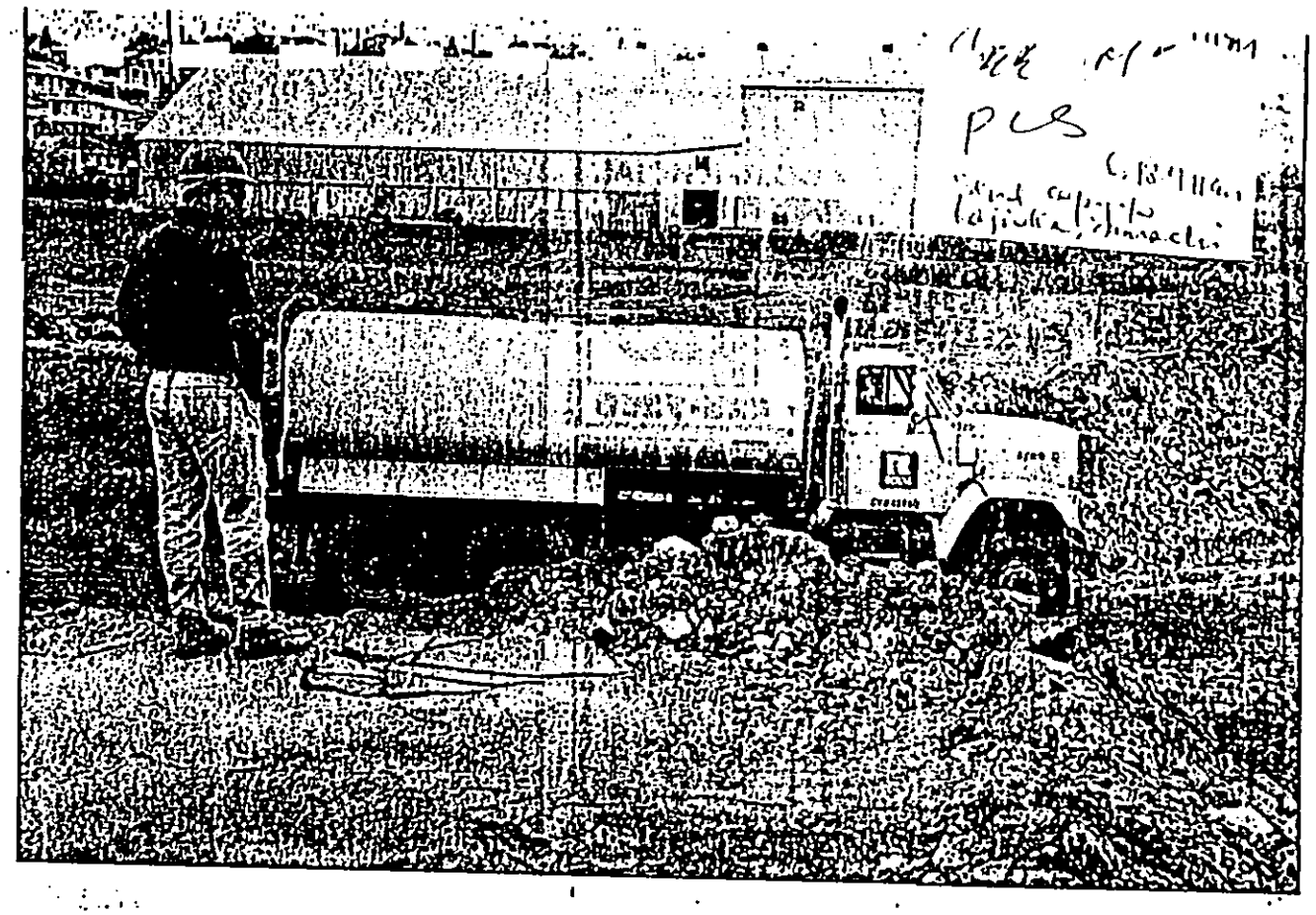

sugar mill once stood

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BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO. (P)1692.9

OCT 13 1999

TO: Mr. Gary Gill
Deputy Director for Environmental Health
Department of Health

SUBJECT: Aiea Public Library Site Feasibility
Draft Environmental Assessment (EA)

Thank you for your comments of June 4, 1999, regarding the proposed new Aiea Public Library draft EA. We have reviewed your remarks and offer the following response to each of your comments:

1. Solid and Hazardous Waste Branch.

The information regarding the release of petroleum that occurred in 1993 or 1994, and the action taken in 1995 to remove the petroleum-contaminated soil will be noted in the final EA. As you recommend, DAGS will verify the satisfactory resolution of this issue prior to purchasing the property. We will also note that the Final Environmental Impact Statement (FEIS) for the proposed Aiea Sugar Mill commercial development by Crazy Shirts indicated two Underground Storage Tanks were closed in 1976 and 1988. This information will also be disclosed in the Final Environmental Assessment for the proposed new Aiea Public Library project.

2. Hazardous Waste Section

Please be advised that the landowner has completed the removal of all but two buildings previously associated with the Old Aiea Sugar Mill operations. Consequently, much of the information contained in the FEIS for the proposed Aiea Sugar Mill commercial development is not current because of the recent consolidation and resubdivision of the subject properties. It is noted that the final EA has been revised to depict the new parcels TMK 9-9-5:10 and 25 (revised Figure 2) and it is uncertain at this time where the potentially contaminated soil may be located. It seems the proposed library will have this problem. However, the following information will be provided in the Final EA

as baseline data regarding the potential presence of hazardous wastes.

As indicated in the *"Final Environmental Impact Statement for Aiea Sugar Mill Commercial Development, Aiea, Oahu, June 6, 1997,"* a Phase 1 EA was conducted which identified some soil contaminated with petroleum. These soils have been cleaned and/or removed in accordance with DOH requirements by Harding Lawson Associates in 1995.

Regarding the Old Sugar Mill site on the Ewa side of Aiea Stream, *"oil was observed on the floors and pipes in the old refinery building, as well as asbestos containing material in the air-conditioning ducts, insulation of boiler pipes, valve, tanks, equipment, and roof insulation. Lead paint was observed on all the older buildings. This site has been cleaned except for the exterior lead paint, and asbestos containing material in the window glazing compound and under steel plates in the five char furnaces."*

At the old sugar refinery, *"oil was observed in ground near the above-ground fuel-oil tanks and on the concrete pad of the sludge and used oil open storage areas, and in an unlined drainage trench near the maintenance shop."*

Regarding the proposed library site, *"two Underground Storage Tanks (UST's) were removed, petroleum contaminated soil removed, and the soil replaced pursuant to a Soil Replacement Former Tank Site Report prepared by Harding Lawson Associates dated June 14, 1995."*

Mitigation measures identified in the FEIS are as follows:

"The mitigation steps proposed or already completed include Phase 1 remediation work, UST removal, and

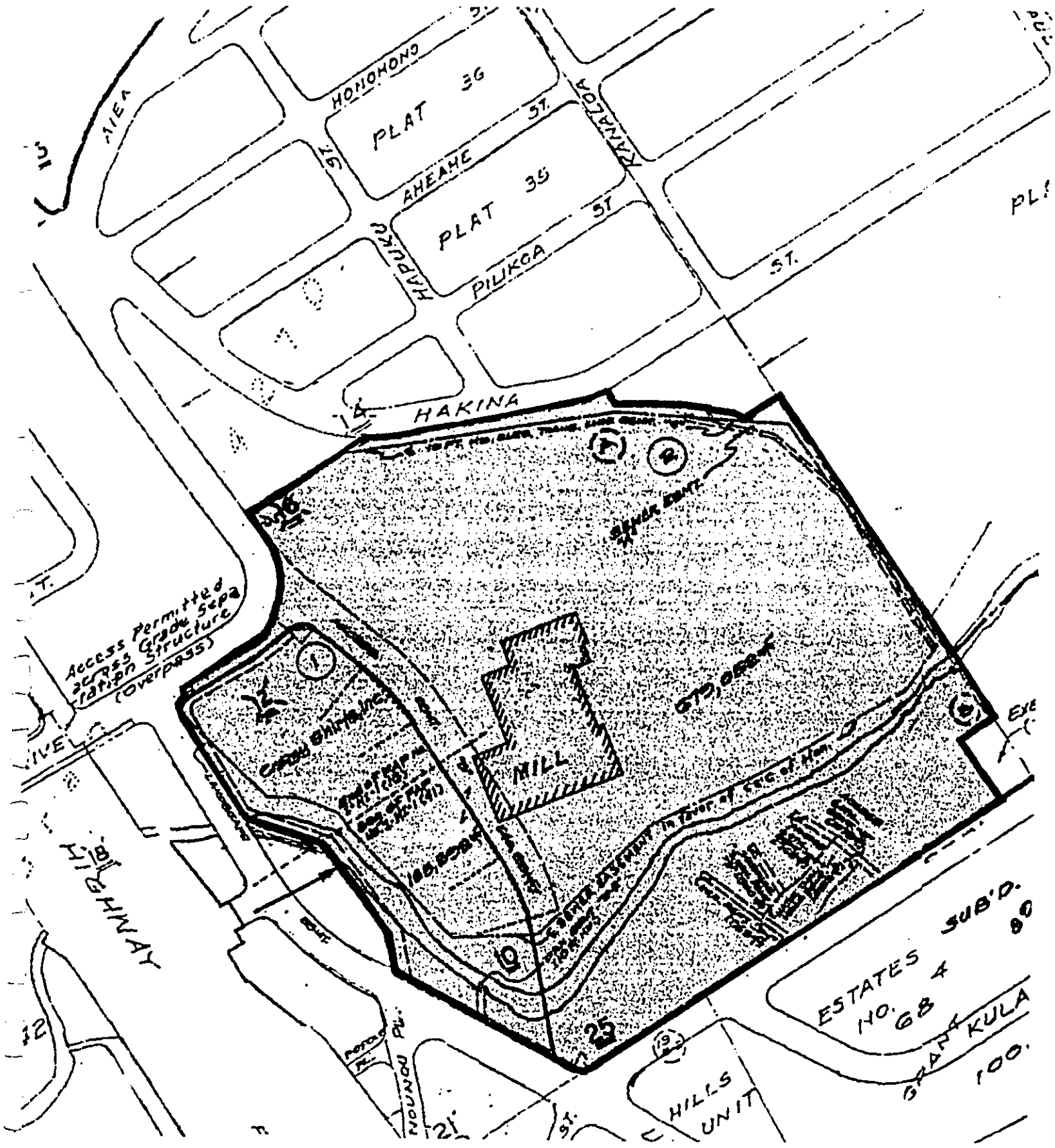
general clean-up. The appropriate parties have already committed to perform the required work. A large majority of the required work has already been successfully completed. With respect to the disposal of the identified asbestos and lead paint materials, the Nanakuli Landfill can accept these materials.

It is also the obligation of the owner/operator to report releases of hazardous substance to the State of Hawaii Hazard Evaluation and Emergency Response Office. In addition, the project must file an Asbestos Renovation/Renovation Notification with the State Department of Health."

This response letter and your June 4, 1999, comment letter will be included in the Final EA. Should you have any questions, please have your staff contact Mr. Ralph Morita of the Planning Branch at 586-0486.

GORDON MATSUOKA
Public Works Administrator

GC:mo
c: Kajioka Yamachi Architects, Inc./PBR Hawaii



FIRST DIVISION		
ZONE	SEC.	PLAT
9	9	05
CONTAINING		PARCELS
SCALE: 1 in. = 200 ft.		

Figure 2
TAX MAP KEY

Aiea Public Library

0 100 200 FEET

C. KM Ken 6/10/99

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

June 8, 1999

LD-NAV
Ref.:DAGSAPL.RCM

PSF\99-141

Mr. Ralph Morita
Department of Accounting &
General Services
1151 Punchbowl Street Room 430
Honolulu, Hawaii 96813

Dear Mr. Morita:

SUBJECT: Request for Comments - Draft Environmental Assessment
Aiea Public Library Site -- DAGS Job No. 12-36-6280
Tax Map Key 1st/ 9-9-05: 10 and 25

Thank you for allowing us the opportunity to review and comment on the proposed project.

DAGS will need to coordinate with DLNR the required water allocation for the new Aiea Public Library. DAGS should also provide the calculations to determine the estimated potable and irrigation water use for the new library.

The water demands for the new library will be included in the Water Master Plan for Oahu. The Water Master Plan is being prepared by Fukunaga and Associates for the Department of Land and Natural Resources.

For your information the proposed project site is located in Zone X. This is an area determined to be outside the 500-year flood plain.

Acquisition of private property will require Land Board approval and a level 1 Hazardous Waste Evaluation Report.

The Department of Land and Natural Resources has no other comment to offer on the subject matter at this time. Should you have any questions, please contact Nicholas Vaccaro of our Land Division Support Services Branch at 587-0438.

Very truly yours,

DEAN Y. UCHIDA
Administrator

c: Oahu District Land Office
Kajioka Yamachi Architects, Inc

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P)1751.9

NOV 3 - 1999

TO: Mr. Dean Uchida, Administrator
Department of Land and Natural Resources
Land Division

SUBJECT: Response to Comments Regarding
The Draft Environmental Assessment for
The Proposed New Aiea Public Library

Thank you for your June 8, 1999, comments regarding the proposed new Aiea Public Library Draft Environmental Assessment (EA). We have reviewed your remarks and offer the following responses.

Please be assured the DAGS will coordinate with DLNR regarding the required water allocation for the proposed project. Additionally, as more information becomes available, DAGS will also provide the calculations to determine the estimated potable and irrigation water use for the proposed new library operations.

We greatly appreciate the information that the proposed project is located within flood Zone X, an area outside of the 500 year flood plain, and will incorporate that information in the Final Environmental Assessment.

DAGS also understands that acquisition of the private property will require Land Board Approval and a Level 1 Hazardous Waste Evaluation Report.

This response letter and your June 8, 1999, comment letter will be included in the Final EA. Should you have any questions, please have your staff contact Mr. Ralph Morita of the Planning Branch at 586-0486.

GORDON MATSUOKA
Public Works Administrator

RM:mo
c: Kajioka, Yamachi Architects/PBR Hawaii

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
JANET E. KAWELO

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

May 27, 1999

Ralph Morita
Department of Accounting and General Services
Kalanimoku Bldg., Rm 430
1151 Punchbowl Street
Honolulu, Hawaii 96813

LOG NO: 23484 ✓
DOC NO: 9905EJ24

Dear Mr. Morita:

SUBJECT: **Chapter 6E-8 Historic Preservation Review -- Draft Environmental Assessment (DEA) Aiea Public Library Site Feasibility**
Aiea, 'Ewa, O'ahu
TMK: 9-9-005:010 & 025

Thank you for the opportunity to review the DEA for this project. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the subject parcel.

Formerly, the historic Aiea Sugar Mill (SIHP No. 50-80-09-9786) stood on this property but has recently been demolished. The remainder of the land has been extensively modified through industrial use; Aiea Stream has also been greatly altered by the installation of a concrete channel along its entire length on the property. Consequently, it is unlikely that significant historic sites are still present in the subject parcels. Therefore, we believe that this project will have "no effect" on significant historic sites.

However, in the unlikely event that historic sites, including human burials, are uncovered during routine construction activities, all work in the vicinity must stop and the State Historic Preservation Division must be contacted at 692-8015.

If you have any questions please call Elaine Jourdane at 692-8027.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Division

EJ:jk

RECEIVED
JUN 03 1999
KAJIOKA YAMACHI
ARCHITECTS, INC.

c: Governor, State of Hawaii, c/o Office of Environmental Quality Control, 235 S. Beretania St. Rm 702, Honolulu, HI 96813
✓ Garrick Yama, Kajioka Yamachi Architects, Inc./ PBR Hawaii, 934 Pumehana Street, Honolulu, HI 96826

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P)1569.9

AUG 11 1999

TO: Mr. Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natural Resources

SUBJECT: Aiea Public Library Site Feasibility
Draft Environmental Assessment (EA)

Thank you for your Chapter 6E-8 Historic Preservation Review of May 27, 1999, regarding the proposed Aiea Public Library Draft EA.

We have reviewed your remarks and concur that it is unlikely that significant historic sites are still present in the subject parcels and that the project will have "no effect" on significant historic sites.

In the event that historic sites, including human burials, are uncovered during routine construction activities, all work in the vicinity will stop and the State Historic Preservation Division would be contacted.

This response letter and your May 27, 1999, comment letter will be included in the Final EA. If you have any questions, please have your staff call Mr. Ralph Morita of the Planning Branch at 586-0486.

GORDON MATSUOKA
Public Works Administrator

GC:jk
c: Kajioka Yamachi Architects, Inc.

BENJAMIN J. CAYETANO
[redacted]
GOVERNOR

VIRGINIA LOWELL
[redacted]
STATE LIBRARIAN

RECEIVED - DAGS
DIV. OF PUBLIC WORKS
1999 APR 15 P 1:49

STATE OF HAWAII

DEPARTMENT OF EDUCATION
HAWAII STATE PUBLIC LIBRARY SYSTEM
ADMINISTRATIVE SERVICES BRANCH
KEKUANAOA BUILDING, ROOM B-1
465 SOUTH KING STREET
HONOLULU, HAWAII 96813

April 12, 1999

Mr. Ralph Morita
DAGS Planning Branch
1151 Punchbowl Street
Honolulu, HI 96813

Dear Ralph:

The Aiea Public Library staff has reviewed the **Aiea Public Library Site Feasibility Draft Environmental Assessment** report.

The report appropriately covers the site concerns; programmed spaces are practical; and potential problems with drainage and traffic flow appear appropriately addressed.

However, the library staff has some concerns:

1. The anticipated building size of 15,000 to 20,000 square feet is acceptable if the higher figure is used. A 15,000 square-foot library will be inadequate in the near future. A large facility to meet community needs is an expressed public expectation.

2. Would it be possible to include the need for increased security personnel and coverage under potential impacts on page 22?

3. Will the residents on Kulawea Place and the Aiea community have an opportunity voice their concerns and provide input directly?

APR 15 1999

Please call me at 586-3700 if you need further clarification. Thank you.

Sincerely,

Keith Fujio
Admin. Svcs. Officer

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P) 1325.9

MAY 7 1999

TO: Mr. John Penebacker
Special Assistant to the State Librarian
Hawaii State Public Library System

SUBJECT: Comments Regarding Aiea Public Library Site
Feasibility Draft Environmental Assessment (EA)

Thank you for your comments of April 12, 1999 regarding the Aiea Public Library Site Feasibility Draft Environmental Assessment. These comments were transmitted to our office for incorporation into the subject document. We provide the following responses to your comments:

1. For planning purposes:

   a. The 20,000 square foot size development has been used to approximate building footprint, parking and infrastructure requirements.

   b. Consequently, a facility of this size should be considered as the optimum and that a smaller library development could also be accommodated on the selected site.

   c. Presently, the project (which is defined as a public use) is permitted under the existing zoning and land use entitlement classifications.

2. Additional discussion regarding the need for increased security personnel will be included in the Draft and Final EA documents.

3. Community residents will have the opportunity to comment directly after the Draft EA is published in the OEQC monthly bulletin. However, it is noted that at this time (due to project funding constraints), community meetings and/or presentations to the Neighborhood Board have not been scheduled by the consultant.

Thank you for participating in the development of this important project. We will send you a copy of the Draft EA once it is published in the OEQC Environmental Notice and distributed for agency comments. Your comments and this response letter will be included in the Final Environmental Assessment.

GORDON MATSUOKA
Public Works Engineer

GC:jk
c: Kajioka Yamachi Architects, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

May 24, 1999

Mr. Raymond Sato, Comptroller
Department of Accounting and General Services
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Sato;

Subject: Draft Environmental Assessment for the New Aiea Public Library, Oahu

Thank you for the opportunity to review the subject document. We have the following comments and questions.

1. Please contact the Department of Health, Solid and Hazardous Waste Branch concerning any potential contamination on the site from underground fuel storage tanks. Please disclose whether there is any contamination on the site. If so, please describe the steps that will be taken to clean up the site.

2. Please describe whether there are any plans now or in the future to channelize Aiea Stream near the project site. OEQC recommends that the stream be kept in its natural state.

3. Please describe whether the new library site is on the City's bus route. If not, we recommend that HSPLS/DAGS request the City to provide bus service to this site. Bus service will improve public access to this site and help reduce traffic congestion in the area.

4. The City's proposed primary corridor transportation project will be on Moanalua Road. It is approximately one block from the proposed site. Please describe how the new library may impact the transportation project and vice versa.

5. Please consider applying sustainable building techniques as presented in the enclosed "Guidelines for Sustainable Building Design in Hawaii." In the final EA include a

description of any of the techniques you will implement.

6. Please discuss the findings and reasons for supporting the FONSI determination based on all 13 significant criteria listed in §11-200-12 of the EIS rules.

Should you have any questions, please call Jeyan Thirugnanam at 586-4185.

Sincerely,

Genevieve Salmonson
Director

Enclosure

c: Kajioka Yamachi Architects, Inc.

DRAFT

Guidelines for Sustainable Building Design in Hawaii

A planner's checklist OEQC May, 1999

Introduction:

What is a "sustainable" building?

A sustainable building is built to minimize energy use, expense, waste, and impact on the environment. It seeks to improve the region's sustainability by meeting the needs of Hawaii's residents and visitors today without compromising the needs of future generations. Compared to conventional projects, a resource-efficient building project will:

I. Use less energy for operation and maintenance
II. Contain less *embodied* energy (e.g. locally produced building products contain less *embodied* energy than imported products because they require less energy-consuming transportation.)
III. Protect the environment by preserving/conserving water and other natural resources and by minimizing impact on the site and ecosystems
IV. Minimize health risks to those who construct, maintain, and occupy the building
V. Minimize construction waste
VI. Recycle and reuse generated construction wastes
VII. Use resource-efficient building materials (e.g. materials with recycled content and low embodied energy, and materials that are recyclable, renewable, environmentally benign, non-toxic, low emitting, durable, and that give high life cycle value for the cost.)
VIII. Provide the highest quality product practical at competitive (affordable) first and life cycle costs.

Hawaii law calls for efforts to conserve natural resources, promote efficient use of water and energy and encourage recycling of waste products. To meet these goals, special care must be taken to plan a project from the very beginning to include sustainable design concepts.

The purpose of the state's environmental review law (HRS Ch. 343) is to encourage a full, accurate and complete analysis of proposed actions, promote public participation and support enlightened decision making by public officials. The Office of Environmental Quality Control offers the following guidelines for preparers of environmental reviews under the authority of HRS 343 to assist agencies and applicants in meeting these goals.

These guidelines do not constitute rules or law. They have been refined by staff and peer review to provide a helpful checklist of items that will help the design team to create projects that will

have a minimal effect on Hawaii's environment and make wise use of our natural resources. In a word, projects that are *sustainable*.

In order to avoid excessive overlapping of items, the checklist is designed to be read in totality, not just as individual sections. This checklist tries to address a range of project types, large scale as well as small scale. Please use items that are appropriate to the type and scale of the project.

Although this list will help promote careful and sensitive planning, mere compliance with this checklist does not confirm sustainability. Compliance and knowledge of current building codes by users of this checklist is also required.

TABLE OF CONTENTS

I. Pre Design

___1. Hold programming team meeting with client representative, Project Manager, planning consultant, architectural consultant, civil engineer, mechanical, electrical, plumbing (MEP) engineer, structural engineer, landscape architect, interior designer, sustainability consultant and other consultants as required by the project. Identify project and sustainability goals. Client representatives and consultants need to work together to ensure that project and environmental goals are met.

___2. Develop sustainable guideline goals to insert into outline specifications as part of the Schematic Design documents. Select goals from the following sections that are appropriate for the project.

___3. Use Cost-Benefit Method for economic analysis of the sustainability measures chosen. (Cost-Benefit Method is a method of evaluating project choices and investments by comparing the present and life cycle value of expected benefits to the present value and life cycle value of expected cost.)

___4. Include "Commissioning" in the project budget and schedule. (Building "Commissioning" is the process of ensuring that systems are designed, installed, functionally tested, and capable of being operated and maintained according to the owner's operational needs. It improves the performance of the building systems, resulting in energy efficiency and conservation, improved air quality and lower operation costs. *Refer to Section IX.*)

II. Site Selection & Site Design

A. Site Selection

___1. Analyze and assess site characteristics such as vegetation, topography, geology, climate, natural access, solar orientation patterns, water and drainage, and existing utility and transportation infrastructure to determine the appropriate use of the site.

___2. Whenever possible, select a site in a neighborhood, where the project can have a positive social, economic and/or environmental impact.

___3. Select a site with short connections to existing municipal infrastructure (sewer lines, water, waste water treatment plant, roads, gas, electricity, telephone, data communication lines and services). Select a site close to mass transportation, bicycle routes and pedestrian access.

B. Site Preparation and Design

___1. Preserve existing resources and natural features to enhance the design and add aesthetic, economic and practical value. Design to minimize the environmental impact of the development on vegetation and topography.

___2. Site building(s) to take advantage of natural features and maximize their beneficial effects. Provide for solar access, daylighting and natural cooling. Design ways to integrate the building(s) with the site that maximizes and preserves positive site characteristics, enhances human comfort, safety and health, and achieves operational efficiencies.
___3. Locate building(s) to encourage bicycle and pedestrian access and pedestrian oriented uses. Provide bicycle and pedestrian paths, bicycle racks, etc.
___4. Retain existing topsoil and maintain soil health by clearing only the areas reserved for the construction of streets, driveways, parking areas, and building foundations. Replant exposed soil areas when practical. Reuse excavated soils and cut vegetation for fill or mulch.
___5. Grade slopes to a ratio of less than 2 : 1 (run to rise). Balance cut and fill to eliminate hauling. Check grading frequently to prevent accidental over excavation.
___6. Minimize the disruption of site drainage patterns. Provide erosion and dust controls, positive site drainage, and siltation basins as required to protect the site during and after construction, especially, in the event of a major storm.
___7. Minimize the area required for the building footprint. Consolidate utility and infrastructure in common corridors to minimize site degradation, and cost, improve efficiency, and reduce impermeable surfaces.
___8. For ground treatment, use non toxic alternatives to pesticides and herbicides.

III. Building Design

___1. Consider renovating an existing building instead of demolishing and/or constructing a new building.
___2. Plan for high flexibility while designing building shell and interior spaces to accommodate changing needs of the occupants, and thereby extend the life span of the building.
___3. Design for re-use and/or disassembly. (For recyclable and reusable building products, see Section VII).
___4. Design space for recycling and waste diversion opportunities during occupancy.
___5. Provide facilities for bicycle and pedestrian commuters (showers, lockers, bike racks, etc.).
___6. Plan for a comfortable and healthy work environment. Include inviting outdoor spaces, wherever possible. *(Refer to Section VIII.)*
___7. Provide an Integrated Pest Management approach. The use of products such as Termi-mesh, Basaltic Termite Barrier and the Sentricon "bait" system can provide long term protection from termite damage and reduce environmental pollution.
___8. Design a building that is energy efficient and resource efficient. *(See Sections IV, V, VII.)* Determine building operation by-products such as heat gain and build up,

waste/gray-water and energy consumption, and plan to minimize them or find alternate uses for them.

___9. For natural cooling, use
   a. Reflective or light colored roofing, radiant barrier and/or insulation, roof vents
   b. Light colored paving (concrete) and building surfaces
   c. Tree Planting to shade buildings and paved areas
   d. Building orientation and design that captures trade winds and/or provides for convective cooling of interior spaces when there is no wind.

IV. Energy Use

___1. Obtain a copy of the State of Hawaii Model Energy Code (available through the Hawaii State Energy Division, at Tel. 587-3811). Exceed its requirements. (Contact local utility companies for information on tax credits and utility-sponsored programs offering rebates and incentives to businesses for installing qualifying energy efficient technologies.)

___2. Use site sensitive orientation to :
   a. Minimize cooling loads through site shading and carefully planned east-west orientation.
   b. Incorporate natural ventilation by channeling trade winds.
   c. Maximize daylighting.

___3. Design south, east and west shading devices to minimize solar heat gain.

___4. Use spectrally selective tints or spectrally selective low-e glazing with a Solar Heat Gain Coefficient (SHGC) of 0.4 or less.

___5. Minimize effects of thermal bridging in walls, roofs and window systems.

___6. Maximize efficiencies for lighting, Heating, Ventilation, Air Conditioning (HVAC) systems and other equipment. Use insulation and/or radiant barriers, natural ventilation, ceiling fans and shading to avoid the use of air conditioning whenever possible.

___7. Eliminate hot water in restrooms when possible.

___8. Provide tenant sub-metering to encourage utility use accountability.

___9. Use renewable energy. Consider the use of solar water heaters, photovoltaics and Building Integrated Photovoltaics (BIPV).

__10. Use available energy resources such as waste heat recovery, when feasible.

A. Lighting

___1. Design for at least 15% lower interior lighting power allowance than the Energy Code.

___2. Select lamps and ballasts with the highest efficiency, compatible with the desired level of illumination and color rendering specifications. Examples that combine improved color rendering with efficient energy use include compact flourescents and T8 flourescents that use tri-phosphor gases.

___3. Select lighting fixtures which maximize system efficacy and which have heat removal capabilities
___4. Reduce light absorption on surfaces by selecting colors and finishes that provide high reflectance values without glare.
___5. Use task lighting with low ambient light levels.
___6. Maximize daylighting through the use of vertical fenestration, light shelves, skylights, clerestories, building form and orientation as well as through translucent or transparent interior partitions. Coordinate daylighting with electrical lighting for maximum electrical efficiency.
___7. Incorporate daylighting controls and/or motion activated light controls in low or intermittent use areas.
___8. Avoid light spillage in exterior lighting by using directional fixtures.
___9. Minimize light overlap in exterior lighting schemes.
__10. Use lumen maintenance procedures and controls.

B. Mechanical Systems

___1. Design to comply with the Energy Code and to exceed its efficiency requirements.
___2. Use "Smart Building" monitor/control systems when appropriate.
___3. Utilize thermal storage for reduction of peak energy usage.
___4. Use Variable air volume systems to save fan power.
___5. Use variable speed drives on pumping systems and fans for cooling towers and air handlers.
___6. Use air-cooled refrigeration equipment or use cooling towers designed to reduce drift.
___7. Specify premium efficiency motors.
___8. Reduce the need for mechanical ventilation by reducing sources of indoor air pollution. Use high efficiency air filters and ultraviolet lamps in air handling units. Provide for regular maintenance of filtration systems. Use ASHRAE standards as minimum.
___9. Locate fresh air intakes away from polluted or overheated areas. Locate on roof where possible. Separate air intake from air exhausts by at least 40 ft.
__10. Use separate HVAC systems to serve areas that operate on widely differing schedules and/or design conditions.
__11. Use shut off or set back controls on HVAC system when areas are not occupied.
__12. Use condenser heat, waste heat or solar energy. (Contact local utility companies for information on the utility-sponsored Commercial and Industrial Energy Efficiency Programs which offer incentives to businesses for installing qualifying energy efficient technologies.)
__13. Evaluate plug-in loads for energy efficiency and power saving features.
__14. Improve comfort and save energy by reducing the relative humidity by waste reheat, heat pipes or solar heat.
__15. Minimize heat gain from equipment and appliances by using:

a. Environmental Protection Agency (EPA) Energy Star rated appliances.
b. Hoods and exhaust fans to remove heat from concentrated sources.
c. High performance water heating that exceeds the Energy Code requirements.

__16. Specify HVAC system "commissioning" period to reduce occupant exposure to Indoor Air Quality (IAQ) contaminants and to maximize system efficiency.

V. Water Use

A. Building Water

___1. Install water conserving, low flow fixtures as required by the Uniform Plumbing Code.
___2. If practical, eliminate hot water in restrooms.
___3. Use infrared sensors for flushing of toilets and urinals.
___4. Use self closing faucets (infrared sensors or spring loaded faucets) for lavatories and sinks.

B. Landscaping and Irrigation

(See Section VI.)

VI. Landscape and Irrigation

___1. Incorporate water efficient landscaping (xeriscaping) using the following principles:
a. Planning, Efficient irrigation: Create watering zones for different conditions. Separate vegetation types by watering requirements. Install moisture sensors to prevent operation of the irrigation system in the rain or if the soil has adequate moisture. Use appropriate sprinkler heads.
b. Soil analysis/improvement: Use (locally made) soil amendments and compost for plant nourishment, improved water absorption and holding capacity.
c. Appropriate plant selection: Use drought tolerant and/or slow growing hardy grasses, native and indigenous plants, shrubs, ground covers, trees, appropriate for local conditions, to minimize the need for irrigation.
d. Practical turf areas: Turf only in areas where it provides functional benefits.
e. Mulches: Use mulches to minimizes evaporation, reduce weed growth and retard erosion.

Contact the Honolulu Board of Water Supply at 527-6126 for additional information on xeriscaping such as efficient irrigation, soil improvements, mulching, lists of low water-demand plants, tours of xeriscaped facilities, and xeriscape classes.

___2. Protect existing beneficial site features and save trees to prevent erosion. Establish and carefully mark tree protection areas well before construction.
___3. Limit staging areas and prevent unnecessary grading of the site to protect existing, especially native, vegetation.
___4. Use top soil from the graded areas, stockpiled on the site and protected with a silt fence to reduce the need for imported top soil.
___5. Irrigate with non-potable water or reclaimed water when feasible. Collect rainwater from the roof for irrigation.
___6. Sub-meter the irrigation system to reduce water consumption and consequently water and sewer fees. Contact the Honolulu Department of Environmental Services at 527-6240 to obtain irrigation sub-metering requirements and procedures. Locate irrigation controls within sight of the irrigated areas to verify that the system is operating properly.
___7. Use pervious paving instead of concrete or asphalt paving. Use natural and man-made berms, hills and swales to control water runoff.
___8. Avoid the use of solvents that contain or leach out pollutants that can contaminate the water resources and runoff. Contact the State of Hawaii Clean Water Branch at 586-4309 to determine whether a NPDES (National Pollutant Discharge Elimination System) permit is required.
___9. Use Integrated Pest Management (IPM) techniques. IPM involves a carefully managed use of biological, cultural and chemical pest control tactics. It emphasizes minimizing the use of pesticides and maximizing the use of natural process
__10. Use trees and bushes that are felled at the building site (i.e. mulch, fence posts). Leave grass trimmings on the lawn to reduce green waste and enhance the natural health of lawns.
__11. Use recycled landscape materials such as plastic lumber for planters and benches.

VII. Building Materials & Solid Waste Management

A. Material Selection and Design

___1. Use durable products.
___2. Specify and use natural products or products with low embodied energy and/or high recycled content. Products with recycled content include steel, concrete with fly ash or glass, drywall, carpet, etc. Use ground recycled concrete, graded glass cullet or asphalt as base or fill material.
___3. Specify low toxic or non-toxic materials whenever possible, such as low VOC (Volatile Organic Compounds) paints, sealers and adhesives and low or formaldehyde-free materials. Avoid products with CFCs (Chloro-fluoro-carbons).
___4. Use locally produced products such as plastic lumber, insulation, hydro-mulch, glass tiles, compost.

___5. Use advanced framing systems that reduce waste, two stud corners, engineered structural products and prefabricated panel systems.
___6. Use materials which require limited or no application of finishing or surface preparation. (i.e. finished concrete floor surface, glass block and glazing materials, concrete block masonry, etc.).
___7. Use re-milled salvaged lumber where appropriate and as available. Minimize the use of old growth timber.
___8. Use sustainably harvested timber.
___9. Commit to a material selection program that emphasizes efficient and environmentally sensitive use of building materials, and that uses locally available building materials. (A list of Earth friendly products and materials is available through the Green House Hawaii Project. Call Clean Hawaii Center, Tel. 587-3802 for the list.)

B. Solid Waste Management, Recycling and Diversion Plan

___1. Prepare a job-site recycling plan and post it at the job-site office.
___2. Conduct pre-construction waste minimization and recycling training for employees and sub-contractors.
___3. Use a central area for all cutting.
___4. Establish a dedicated waste separation/diversion area. Include Waste/Compost/Recycling collection areas and systems for use during construction process and during the operational life cycle of the building.
___5. Separate and divert all unused or waste cardboard, ferrous scrap, construction materials and fixtures for recycling and/or forwarding to a salvage exchange facility. Information on "Minimizing C&D (construction and demolition) waste in Hawaii" is available through Department of Health, Office of Solid Waste Management, Tel. 586-4240.
___6. Use all green waste, untreated wood and clean drywall on site as soil amendments or divert to offsite recycling facilities.
___7. Use concrete and asphalt rubble on-site or forward the material for offsite recycling.
___8. Carefully manage and control waste solvents, paints, sealants, and their used containers. Separate these materials from C&D (construction and demolition) waste and store and dispose them of them carefully.
___9. Donate unused paint, solvents, sealants to non-profit organizations or list on HIMEX (Hawaii Materials Exchange). HIMEX is a free service operated by Maui Recycling Group, that offers an alternative to landfill disposal of usable materials, and facilitates no-cost trades. See web site, www.himex.org.
__10. Use suppliers that re-use or recycle packaging material whenever possible.

VIII. Indoor Air Quality

___1. Design an HVAC system with adequate supply of outdoor air, good ventilation rates, even air distribution, sufficient exhaust ventilation and appropriate air cleaners.
___2. Develop and specify Indoor Air Quality (IAQ) requirements during design and contract document phases of the project. Monitor compliance in order to minimize or contain IAQ contaminant sources during construction, renovation and remodeling.
___3. Notify occupants of any type of construction, renovation and remodeling and the effects on IAQ.
___4. Inspect existing buildings to determine if asbestos and lead paint are present and arrange for removal or abatement as needed.
___5. Supply workers with, and ensure the use of VOC (Volatile Organic Compounds)-safe masks.
___6. Ensure that the HVAC system is installed, operated and maintained in a manner consistent with its design. Use UV lamps in Air Handling Units to eliminate mold and mildew growth. An improperly functioning HVAC system can harbor biological contaminants such as viruses, bacteria, molds, fungi and pollen, and can cause Sick Building Syndrome (SBS).
___7. Install separate exhaust fans in rooms where air polluting office equipment is used, and exhaust directly to the exterior of the building, at sufficient distance from the air intake vents.
___8. Place bird guards over air intakes to prevent pollution of shafts and HVAC ducts.
___9. Control indoor air pollution by selecting products and finishes that are low or non-toxic and low VOC emitting. Common sources of indoor chemical contaminants are adhesives, carpeting, upholstery, manufactured wood products, copy machines, pesticides and cleaning agents.
__10. Schedule finish application work to minimize absorption of VOCs into surrounding materials e.g. allow sufficient time for paint and clear finishes to dry before installing carpet and upholstered furniture. Increase ventilation rates during periods of increased pollution.
__11. Allow a flush-out period after construction, renovation, remodeling or pesticide application to minimize exposure to any chemicals and debris.

IX. Commissioning & Construction Project Closeout

___1. Appoint a Commissioning Authority to develop and implement a commissioning plan and a preventative maintenance plan. Project Manager's responsibilities must include coordination of commissioning activities during project closeout.

___2. Commissioning team should successfully demonstrate all systems and perform operator training before final acceptance.
___3. Provide flush-out period to remove air borne contaminants from the building and systems.
___4. Provide as-built drawings and documentation for all systems. Provide data on equipment maintenance and their control strategies as well as maintenance and cleaning instructions for finish materials.

X. Occupancy and Operation

A. General Objectives

___1. Develop a User's Manual for building occupants that emphasizes the Owner's/Management's commitment to efficient sustainable operations.
___2. Management's responsibilities must include ensuring that sustainability policies are carried out.

B. Energy

___1. Purchase EPA rated, Energy Star, energy-efficient office equipment, appliances, computers, and copiers. (Energy Star is a program sponsored by U.S. Dep. Of Energy. Use of these products will contribute to reduced energy costs for buildings and reduce air pollution.)
___2. Institute an employee education program about the efficient use of building systems and appliances, occupants impact on and responsibility for water use, energy use, waste generation, waste recycling programs, etc.
___3. Re-commission systems and update performance documentation periodically per recommendations of the Commissioning Authority, or whenever modifications are made to the systems.

C. Water

___1. Start the watering cycle in the early morning in order to minimize evaporation.
___2. To reduce cooling tower water consumption, increase concentration of chemical treatment.

D. Air

___1. Provide incentives which encourage building occupants to use alternatives to and to reduce the use of single occupancy vehicles.
___2. Provide a location map of services within walking distance of the place of employment (child care, restaurants, gyms, shopping).
___3. Periodically monitor or check for indoor pollutants in building.

___4. Provide an IAQ plan for tenants, staff and management that establishes policies and documentation procedures for controlling and reporting indoor air pollution. This helps tenants and staff understand their responsibility to protect the air quality of the facility.

E. Materials and Products

___1. Purchase business products with recycled content such as paper, toners, etc.
___2. Purchase Furniture made with sustainably harvested wood, or with recycled and recycled content materials, which will not off gas VOC's.
___3. Remodeling and painting should comply with or improve on original sustainable design intent.
___4. Use low VOC, non-toxic, phosphate and chlorine free, biodegradable cleaning products.

F. Solid Waste

___1. Collect recyclable business waste such as paper, cardboard boxes, and soda cans.
___2. Avoid single use items such as paper or Styrofoam cups and plates, and plastic utensils.

XI. Resources

Financing: Energy Efficiency in Buildings. U.S. Department of Energy, DOE/EE-0152, May, 1998 (Call Tel.1-800-DOE-EREC or visit local office)

Building Commissioning: The Key to Quality Assurance. U.S. Department of Energy, DOE/EE-0153, May, 1998 (Call Tel.1-800-DOE-EREC or visit local office)

Guide to Resource-Efficient Building in Hawaii. University of Hawaii at Manoa, School of Architecture and Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, October 1998. (Call Tel. 587-3804 for publication)

Hawaii Model Energy Code. Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, November 1997 (Call Tel. 587-3810 for publication)

Photovoltaics in the Built Environment: A Design Guide for Architects and Engineers. NREL Publications, DOE/GO #10097-436, September 1997 (Call Tel.1-800-DOE-EREC or visit local office)

Building Integrated Photovoltaics: A Case Study. NREL Publications #TP-472-7574, March 1995 (Call Tel.1-800-DOE-EREC or visit local office)

Solar Electric Applications: An overview of Today's Applications. NREL Publications, DOE/GO #10097-357, Revised February, 1997 (Call Tel.1-800-DOE-EREC or visit local office)

Green Lights: An Enlightened Approach to Energy Efficiency and Pollution Prevention. U.S. Environmental Protection Agency, Pacific Island Contact Office (Call Tel. 541-2710 for publication.)

Healthy Lawn, Healthy Environment. U.S. Environmental Protection Agency, Pacific Island Contact Office. (Call Tel. 541-2710 for this and related publications)

How to Plant a Native Hawaiian Garden. Office of Environmental Quality Control (OEQC), Department of Health, State of Hawaii (Call Tel. 586-4185 for publication)

Buy Recycled in Hawaii. Clean Hawaii Center, Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, November 1997. (Call Tel. 587-3802 for publication)

Minimizing Construction and Demolition Waste. Office of Solid Waste Management, Department of Health and Clean Hawaii Center, Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, February 1998. (Call Tel. 586-4240 for publication)

Waste Management and Action: Construction Industry. Department of Health, Solid and Hazardous Waste Branch (Call Tel. 586-7496 for publication)

Business Guide For reducing Solid Waste. U.S. Environmental Protection Agency, Pacific Island Contact Office, Tel. 541-2710 (Call for publication.)

The Inside Story: A Guide to Indoor Air Quality. U.S Environmental Protection Agency, Pacific Island Contact Office, Tel. 541-2710 (Call for this and related publications.) Additional information is available from the American Lung Association, Hawaii, Tel. 537-5966

Office Paper Recycling: An Implementation Manual. U.S. Environmental Protection Agency, Pacific Island Contact Office, Tel. 541-2710 (Call for publication.)

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P)1691.9

OCT 14 1999

TO: Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control

SUBJECT: Aiea Public Library Site Feasibility
Draft Environmental Assessment (EA)

Thank you for your comments of May 24, 1999, regarding the proposed new Aiea Public Library draft EA. We have reviewed your remarks and offer the following response to each of your numbered comments:

1. As you suggested, we have contacted the State Department of Health (DOH), Solid and Hazardous Waste Branch concerning any potential contamination of the site from underground fuel storage tanks. According to DOH records, there have been two underground storage tanks on the subject property, but these have been closed in accordance with DOH requirements. In addition, a "Phase 1" EA of the property has been conducted which identified some soil contaminated with petroleum. These soils have been cleaned and/or removed in accordance with DOH requirements by Harding and Lawson Associates in 1995. It is noted that the property was recently consolidated and resubdivided (revised Figure 2), and it is uncertain at this time where the potentially contaminated soil may be located. It seems the proposed library site will not have this problem.

2. We are not aware of any current plans to channelize Aiea Stream. There have been plans prepared in the past to realign a portion of Aiea Stream by the current landowner if the property was to be redeveloped for industrial and/or residential uses. However, we understand that a preliminary plan has been prepared and the subject property may be for sale.

Although the proposed library site borders Aiea Stream, it is intended that the proposed development of the library will not increase the amount of runoff entering the stream. All drainage flows from the impermeable surface can be retained on-site.

3. The proposed library site is presently serviced by The Bus, Route No. 11, which is along Aiea Heights Drive.

4. Moanalua Road is approximately 1/4 miles from the proposed library site on the makai side of the H-1 Freeway. Consequently, the new library will not significantly impact the transportation project. However, the relatively close proximity of the library to this major transportation corridor will enhance the accessibility of the facility for residents of the surrounding Aiea community.

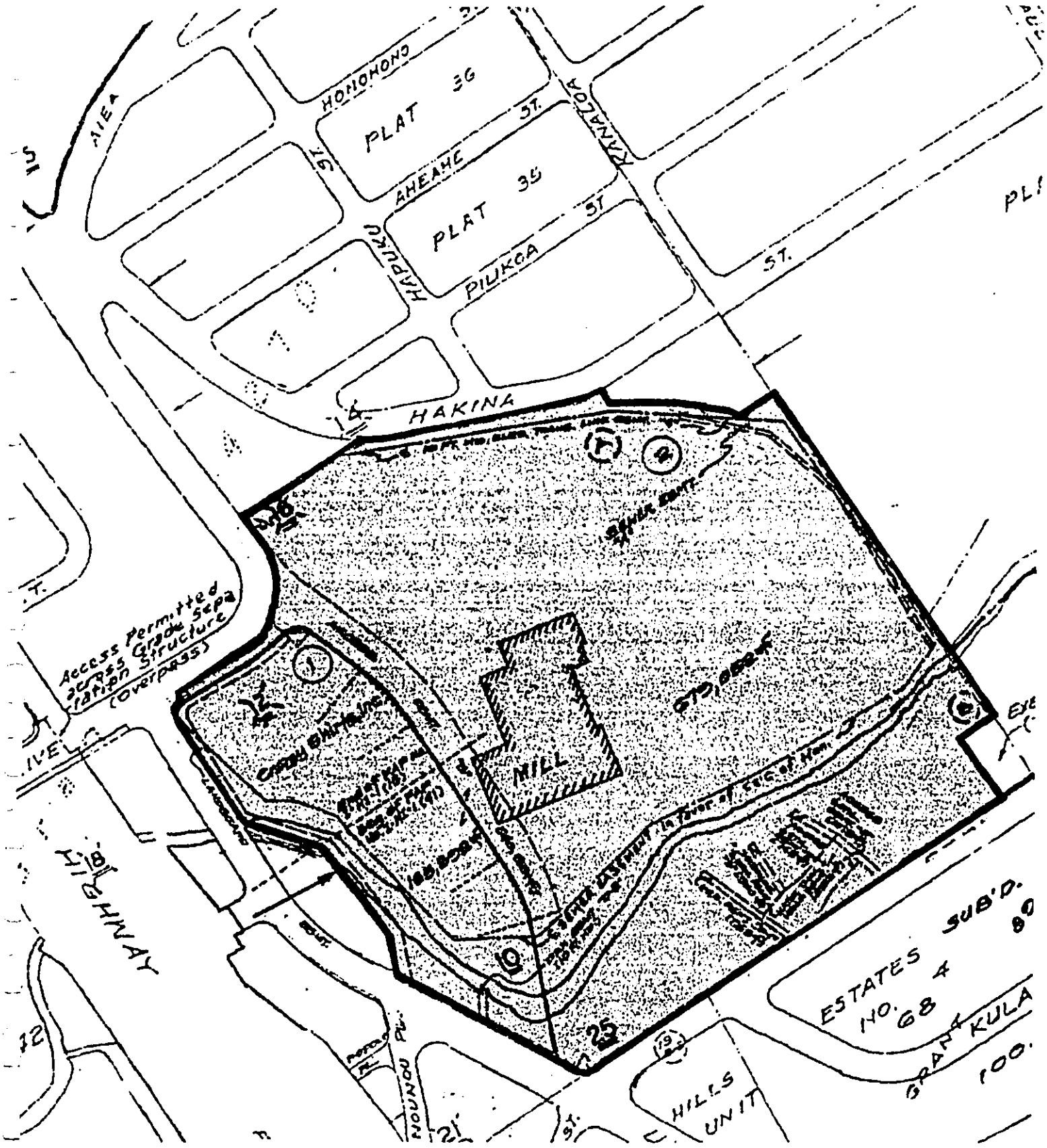
5. Thank you for providing the "Guidelines for Sustainable Building Design in Hawaii." As requested, we have indicated which techniques we have implemented up to this point in the planning and design process. However, we wish to emphasize that no project funding is currently available for the land acquisition, master planning, design, and construction of the proposed new Aiea Public Library. We will include the guidelines in the Final EA for future review by the project architect.

6. We will discuss the findings and reasons for supporting the FONSI determination based on the significant criteria listed in Section 11-200-12 of the EIS as your requested in the Final EA.

This response letter and your May 24, 1999, comment letter will be included in the final EA. Should you have any questions, please have your staff contact Mr. Ralph Morita of the Planning Branch at 586-0486.

GORDON MATSUOKA
Public Works Administrator

GC:mo
c: Kajioka Yamachi Architects, Inc./PBR Hawaii



FIRST DIVISION		
ZONE	SEC.	PLAT
9	9	05

CONTAINING PARCELS

SCALE: 1 in. = 200 ft.

PRINTED: JUN 7 4 1999

Figure 2
TAX MAP KEY

Aiea Public Library

Department of Accounting & General Services — July 1999

N

0 100 200
FEET

RAJCHA YAMACHI ARCHITECTS

PBR HAWAII

RM fen 6/8/99

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

RECEIVED - DAGS
DIV. OF PUBLIC WORKS
1999 JUN -7 P 12:51

May 27, 1999

JUN 8

Mr. Ralph Morita
Department of Accounting
and General Services
Kalanimoku Building, Room 430
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Morita:

Subject: Your Transmittal of May 12, 1999 of the Draft Environmental Assessment for the Aiea Public Library Site Feasibility Study

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the Aiea Public Library Site Feasibility Study.

We provide the following comments to the document:

1. There is an existing 4-inch and 1½-inch water meter serving TMK: 9-9-05: 10.

2. The existing water system is presently adequate to accommodate the proposed library.

3. The applicant will be required to obtain a water allocation from the State Department of Land and Natural Resources.

4. The availability of water will be confirmed when the building permit application is submitted for our review and approval. When water is made available, the applicant will be required to pay our Water System Facilities Charges for transmission and daily storage.

5. The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

6. If a 3-inch or larger meter is required, the construction drawings showing the installation of the meter should be submitted for our review and approval.

7. The proposed project is subject to Board of Water Supply cross-connection control requirements prior to the issuance of the building permit application.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO. (P)1734.9

RECEIVED
OCT 28 1999
KAJIOKA YAMACHI
ARCHITECTS, INC.

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

Dear Mr. Jamile:

Subject: Aiea Public Library Site Feasibility
Draft Environmental Assessment (EA)

Thank you for your comments of May 27, 1999, regarding the proposed new Aiea Public Library Draft EA. We have reviewed your remarks and offer the following response to each of your numbered comments:

1. Thank you for informing us that there is an existing 4-inch and 1.5 inch water meter servicing TMK (1) 9-9-05:10. We will include this information in the final EA.

2. We will also include a statement in the final EA that the existing potable water system is presently adequate to accommodate the proposed library.

3. Prior to development of the proposed new Aiea Public Library, the Department of Accounting and General Services (DAGS) will obtain all applicable permits and the necessary potable water allocation (if required).

4. We concur that potable water availability will be confirmed when the building permit application is submitted for BWS review and approval. If applicable, the proposed new Aiea Public Library project will pay any Water System Facilities Charge that may apply. Development of the site will require the removal of the existing storage tank and capping of the existing wells.

5. On-site fire protection requirements will be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department and designed in accordance with City standards.

6. If a 3-inch or larger meter is required, construction drawings showing the installation of the meter will be submitted for your review and approval.

7. We acknowledge that the proposed project is subject to Board of Water Supply cross-connection control requirements prior to the issuance of the building permit application.

This response letter and your May 27, 1999, comment letter will be included in the final EA. Should you have any questions, please have your staff contact Mr. Ralph Morita of the Planning Branch at 586-0486.

Sincerely,

GORDON MATSUOKA
Public Works Administrator

GC:mo
c: Kajioka Yamachi Architects/PBR Hawaii

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 10TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4182 • FAX: (808) 523-4054

JEREMY HARRIS
MAYOR

WILLIAM D. BALFOUR, JR.
DIRECTOR

MICHAEL T. AMII
DEPUTY DIRECTOR

May 19, 1999

Mr. Ralph Morita
State Department of Accounting
and General Services
Kalanimoku Building, Room 430
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Morita:

Subject: Aiea Public Library Site Feasibility Draft Environmental Assessment

We have reviewed the above-referenced document and acknowledge that the proposed site and project is not intended to be used for active recreational purposes and will have no impact upon City recreation programs or facilities.

Thank you for the opportunity to review the draft environmental assessment for the Aiea Public Library site.

Should you need further information, please contact Mr. Norman Morikuni, West Honolulu Manager, at 522-7070.

Sincerely,

W. D. Balfour, Jr.
WILLIAM D. BALFOUR, JR.
Director

WDB:cu
(99-1140GT)

cc: Office of Environmental Quality Control
Kajioka Yamachi Architects, Inc./PBR Hawaii

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P)1567.9

AUG 11 1999

Mr. William D. Balfour
Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street, 10th floor
Honolulu, Hawaii 96813

Dear Mr. Balfour:

Subject: Aiea Public Library Site Feasibility
Draft Environmental Assessment (EA)

Thank you for your comments of May 19, 1999, regarding the proposed Aiea Public Library Draft EA. We have reviewed your remarks and concur that the project is not intended to be used for active recreational purposes and will have no impact on City recreation programs or facilities.

This response letter and your May 19, 1999, comment letter will be included in the Final EA. If you have any questions, please have your staff call Mr. Ralph Morita of the Planning Branch at 586-0486.

Sincerely,

GORDON MATSUOKA
Public Works Administrator

GC:jk
c: Kajioka Yamachi Architects, Inc./PBR Hawaii

GT-204

May 26, 1999

Mr. Ralph Morita
Department of Accounting and General Services
State of Hawaii
P. O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Morita:

Subject: Aiea Public Library Site Feasibility
Draft Environmental Assessment (EA)

We have reviewed the draft EA for the subject project and have no comments to offer.

Thank you for the opportunity to review the document.

Very truly yours,

FOR RANDALL K. FUJIKI
Director

RKF:jo
cc: Governor, State of Hawaii
c/o Office of Environmental Quality Control
Kajioka Yamachi Architects, Inc/PBR Hawaii
Attn: Garrick Yama

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P)1568.9

AUG 11 1999

Mr. Randall K. Fujiki
Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 9th floor
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

Subject: Aiea Public Library Site Feasibility
Draft Environmental Assessment (EA)

Thank you for your comments of May 26, 1999, regarding the proposed Aiea Public Library Draft EA. Your comment letter indicating the Department of Design and Construction has no comments to offer is acknowledged.

This response letter and your May 26, 1999, comment letter will be included in the Final EA. If you have any questions, please have your staff call Mr. Ralph Morita of the Planning Branch at 586-0486.

Sincerely,

GORDON MATSUOKA
Public Works Administrator

GC:jk
c: Kajioka Yamachi Architects, Inc./PBR Hawaii

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743

JEREMY HARRIS
MAYOR

JAN NAOE SULLIVAN
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

June 22, 1999

1999/CLOG-3118(ST)
'99 EA Comments Zone 9

Mr. Sam Callejo, Comptroller
Department of Accounting
and General Services
State of Hawaii
1151 Punchbowl Street, Room 430
Honolulu, Hawaii 96813

Attn: Ralph Morita

Dear Mr. Callejo:

Draft Environmental Assessment (EA)
Aiea Public Library Site Feasibility
Aiea (Old Sugar Mill Site), Oahu
Tax Map Keys: 9-9-5: 10 and 25

We have reviewed the above-referenced document received by our department on May 11, 1999, and offer the following comments:

1. Subdivision

The final EA should be revised to indicate that the site has been consolidated and resubdivided under a subdivision action (DPP File 1997-252). This subdivision created a separate lot for the HARC building. The final EA should also note the pending industrial subdivision (DPP File 1997-178) for the remainder lot. Lot 15 of the proposed subdivision includes most of the proposed Aiea Library site. If approved, the subdivision would prohibit vehicular access from Kulawea Street as is proposed on page 19 of the Draft EA. Access for Lot 15 would need to be provided through interior subdivision roads.

Page 18: In a reference to parcel 10, Section 3.12 states: "In the future, the larger land parcel opposite Aiea Stream could still be redeveloped into community facilities". The final EA should be revised accordingly.

2. Flood

Discussion of flood zones affecting the project site should indicate that Zone AE (100-year flood) for Aiea Stream is a designated floodway district where improvements are not permitted unless a flood hazard variance is approved by our department. The flood variance requires certification by a licensed engineer that the improvements will not increase the regulatory flood elevation.

A drainage report will be required with the construction plans when they are submitted for approval.

It would be helpful if the final EA showed the flood hazard zone on Figure 3. Conceptual Site Plan, to show the relationship of the facility to the potential hazard.

There are various conflicting references to "project area size", "subject property" and the pertinent Tax Map Keys (TMKs) in the first few pages of the EA. To eliminate confusion, it would be helpful if the EA clearly stated at the beginning that while three sites within parcels TMKs: 9-9-5: 10 and 25 are discussed as alternatives for placement of the new library, the 2.9-acre parcel 25 is the preferred location. This is not articulated until page 26.

3. Traffic

Installation of sidewalks and shoulder improvements along the length of Kulawea Street are required.

The conceptual site plan should be revised to show the driveway to the library located directly across Kulawea Place, as recommended in the traffic study.

All vehicular access points should be constructed as standard City dropped driveways. Landscaping and structures in the vicinity of the driveway should be designed and constructed such that adequate vehicular sight to pedestrians and other vehicles can be provided and maintained. The driveway grade should not exceed 5 percent for a minimum distance of 25 feet from the public road right-of-way.

The traffic study should address cumulative traffic impacts including those associated with the proposed Aiea Industrial Subdivision, which we understand will be under construction shortly. The dispersion to traffic resulting from the new roadway at the intersections around the library site should also be addressed.

Construction plans for work within the public road right-of-way and construction traffic control plans should be submitted to our department for review and approval.

Page 19: In another reference to parcel 10, the following is stated: "The greatest impact to traffic would likely occur in the future when the Old Aiea Sugar Mill parcel is eventually developed for public facilities or commercial purposes. At that time in the planning and development process, a Traffic Impact Assessment Report (TIAR) should be prepared to determine the cumulative impact of both projects and the need to develop the City's proposed realignment of Aiea Heights Drive and Ulune Street".

The TIAR does not mention the planned road identified on the City's Primary Urban Center Development Plan Public Facilities Map (DP), which would run through both parcels 10 and 25. This DP roadway is referred to in the Draft EA as "the City's proposed realignment of Aiea Heights Drive and Ulune Street".

The landowner will be constructing this roadway in conjunction with its planned industrial subdivision, and is currently considering the implementation of a five-leg intersection with the new DP road and the intersection of Ulune and Kulawea Streets.

Therefore, the statement on page 27 of the EA that "the site selected for the new library is well mauka of the future realignment and will not impact its future development" may not be accurate. Since both the future roadway and the possible five-leg intersection may be impacted, discussions with the landowner and the Department of Planning and Permitting's Traffic Review Branch is advised. The EA should be revised accordingly.

Another reference to the planned realignment of Aiea Heights Drive and Ulune Street is made on page 33: "This proposed roadway re-alignment would improve access into TMK: 9-9-5: 10 and would likely be a requirement imposed by the City for any future redevelopment of this parcel".

As noted above, the landowner is already planning to develop this roadway in conjunction with the proposed industrial subdivision. Therefore, this statement should be revised to reflect current information.

Our remaining comments, are arranged in a page-by-page format for ease of reference.

Page 1:

4. Project Area: The project area is stated as 16.447 acres. This contradicts the information provided on Figure 2 and in the first sentence of Section 2.1.3. The final EA should clarify that the area of TMK: 9-9-5: 10 is 16.447 acres, and that of TMK: 9-9-5: 25 is 2.953 acres, for a total project area of 19.400 acres.

Figure 1, Location Map:

5. Either this map or an additional map should be labeled to indicate what is being depicted (apparently some existing structures and roads are shown, as is a proposed roadway alignment). Also, either this map or an additional map should depict and label the approximate locations of the two wells and the water tank.

Page 7:

6. Sec. 2.1.6, Exterior Design Elements, 2), 4th bullet: The final EA should (a) confirm the appropriate ratio of parking spaces to floor area, (b) be consistent in the assumed total floor area, and (c) should address the issues of provision of adequate parking for "special" events conducted at the proposed facility and whether parking provisions should take into account potential parking demand related to activity areas outside the building footprint.

Page 8:

7. Sec. 2.1.8, Development Costs and Timetable, first paragraph: The Draft EA understates the costs of development by citing only estimated construction costs. The final EA should provide estimates of other project costs.

Page 9:

8. Sec. 2.4, Cultural and Historic Characteristics: The final EA should cite the sources of information presented in the first paragraph of this section.

9. Sec. 2.5, Environmental Characteristics: The final EA should cite the source(s) of information for the material presented in the second paragraph of this section.

10. Sec. 2.5, Environmental Characteristics, 3rd paragraph, 2nd sentence: This sentence notes on-site retention areas will be used to manage run-off. The final EA should discuss the anticipated capacity and design features of these on-site retention areas; and the anticipated locations of these areas should be indicated on the conceptual site plan (Figure 3).

11. Sec. 2.5, Environmental Characteristics, 3rd paragraph, last sentence: The final EA should indicate where the "potential wetland areas associated with Aiea Stream" are located, and how that potential has been determined.

12. Sec. 3.2, Topography, first paragraph, 2nd sentence: The final EA should provide an estimate of the amount (or order of magnitude) of site grading, cut and fill that will be required for each of the alternate sites considered.

13. Sec. 3.2, Topography, first paragraph, 3rd sentence: "None of the land within the flood hazard zone will be altered or filled". The 5th sentence of this paragraph indicates that it may be necessary to locate structural footings within the flood hazard area; and elsewhere throughout the Draft EA it is evident that it has been assumed that structural elements will have to be located in the flood hazard zone. The final EA should resolve these apparently inconsistent and contradictory statements.

Figure 6, Soil Conservation Service Soil Survey:

14. The final EA should cite the source of the map and should provide a key. It may also be useful to note that the former Soil Conservation Service is now known as the Natural Resources Conservation Service.

Figure 8, Agricultural Lands of Importance to the State of Hawaii, ALISH:

15. The final EA should cite the source of the map, should provide labels for the various areas depicted, and should provide a key.

Page 12:

16. Sec. 3.4.1, Drainage Features, first paragraph, first sentence: This sentence incorrectly states that Aiea Stream flows between the two parcels comprising the project site. The final EA should clarify that Aiea Stream flows along an alignment generally parallel to the boundary shared by the two parcels.

17. Sec. 3.9, Air Quality, Potential Impacts and Mitigative Measures, 3rd paragraph, first sentence: It seems one or more words are missing from this sentence.

Page 18:

18. Potential Impacts and Mitigative Measures, last sentence: This states that 51 parking stalls will be provided. On page 7, it is stated that 45 parking stalls will be provided. The final EA should resolve this inconsistency.

Page 19:

19. Sec. 3.13.2, Water Supply, first paragraph, 2nd sentence: The final EA should clarify what is meant by the "higher aquifer".

Page 22:

20. Sec. 3.14.2, Schools, first paragraph: The final EA should clarify that the Department of Education operates four (not three) schools in Aiea, including Webling Elementary School, Aiea Elementary School, Aiea Intermediate School, and Aiea High School.

Page 24:

21. Short term, last bullet: The final EA should note if construction activities will be allowed during early morning and late afternoon hours, and/or on weekends and holidays.

22. Site Considerations: The six bullet points under this heading are provided to support the selection of TMK: 9-9-5: 25 as the site for the new library. The final EA should reflect the following:

(a) The first bullet should be revised to eliminate mention of demolition required prior to development of TMK: 9-9-5: 10 as most of that demolition has been accomplished and should no longer be treated as a significant constraint on development of that parcel. The bullet point should continue to note that TMK: 9-9-5: 25 is still encumbered with the water tank and wells.

(b) The second bullet should be revised to recognize that bus access is not provided in the vicinity of TMK: 9-9-5: 25, but that buses do travel on Aiea Heights Drive in the vicinity of TMK: 9-9-5: 10; and that the access and visibility of TMK: 9-9-5: 10 may exceed that of TMK: 9-9-5: 25 when the realignment of Aiea Heights Drive is implemented.

(c) The fourth bullet point states that if sited on TMK: 9-9-5: 25, the library may encroach upon the flood hazard zone. This statement both: apparently contradicts statements elsewhere throughout the Draft EA; and serves to argue that the library should be sited in an area that would not require encroachment on the flood hazard district, i.e., somewhere on TMK: 9-9-5: 10. This bullet point should not be cited as being in support of selection of TMK: 9-9-5: 25.

(d) The fifth bullet point introduces the possibility that the library could be designed as a split-level structure. This contradicts statements throughout the Draft EA that indicate a one-story design will be used; and introduces the possibility that at least one elevator and two fire-rated egress stairways would be required, which could significantly increase the cost of constructing and operating the new library. This bullet point should be deleted or other sections of the EA should be revised to reflect the split-level proposal.

23. Sec. 4.2, Aiea Heritage and Town Center Alternative, first paragraph: This states that if the library is included as part of the Heritage and Town Center, it will require a site area of 3.5 acres; this contradicts the Draft EA's statement that the "optimum" site area ranges from 80,000 to 100,000 square feet (i.e., approximately 1.84 to 2.29 acres), and does not account for the possibility of sharing parking provisions with other portions of the Heritage and Town Center development (an option that does not exist on TMK: 9-9-5: 25). The final EA should resolve this apparent conflict, and should discuss the potential impact on the "critical mass" of the Heritage and Town Center if the library is removed from that center, especially as the Draft EA states that "the library would be an important element" of that center.

24. Sec. 4.2, Aiea Heritage and Town Center Alternative, 2nd paragraph: This states, in part, that selection of TMK: 9-9-5: 10 was rejected because (a) demolition of the existing structures would be costly and (b) "unknown constraints may exist". Most of the demolition work on that site has been accomplished and no longer poses a significant constraint on site development. Therefore, this factor should no longer be considered in the evaluation of TMK: 9-9-5: 10. The final EA should note that TMK: 9-9-5: 25 remains encumbered with the water tank and wells, which may be costly to demolish and close, and that this factor should be considered in favor of selection of TMK: 9-9-5: 10 as the preferred site. The final EA should also discuss how it is that "unknown constraints may exist" with respect to TMK: 9-9-5: 10, but that every possible constraint on development of TMK: 9-9-5: 25 is known with apparently absolute clarity.

Figure 12, State Land Use Map:

25. The final EA should cite the source of the map, and should provide a key.

Page 33:

26. Sec. 5.5, City and County of Honolulu General Plan, Discussion of Physical Development and Urban Design, Objective A, Policy 5: The final EA should clarify how development of the library on TMK: 9-9-5: 25, separated from other community facilities proposed for development on TMK: 9-9-5: 10, supports the policy of encouraging compact development and intensive use of urban lands.

27. Sec. 5.5, City and County of Honolulu General Plan, Discussion of Public Safety, Objective B, Policy 2: The first sentence is missing one or more words and its meaning cannot be deciphered.

28. Sec. 5.6, City and County of Land Use Ordinance: This title should be revised to read "City and County of Honolulu Land Use Ordinance".

Figure 13, Primary Urban Center Development Plan Land Use Map:

29. The final EA should cite the source of the map, and should provide a key.

Figure 14, Primary Urban Center Development Plan Public Facility Map:

30: The final EA should cite the source of the map, and should provide a key.

Figure 15, City and County of Honolulu Land Use Ordinance Map:

31. The final EA should cite the source of the map, the legend should be titled "Legend: Zoning Districts", P-2 should be noted as "General Preservation", F-1 should be noted as "Military and Federal Preservation", I-2 should be noted as "Intensive Industrial", and the readability of the underlying streets and parcels should be improved.

Page 34:

32. Sec. 5.7, The Aiea Empowerment Zone Strategic Plan, 4th paragraph, first sentence: The final EA should address whether the Elderly Day Care/Housing project might make a better buffer for the residential neighborhood than would the institutional use posed by the library.

33. Sec. 5.7, The Aiea Empowerment Zone Strategic Plan, 4th paragraph, last sentence: The proposal to provide the Community and Biotech Gardens is not reflected in the conceptual site plan presented in Figure 3, and is not discussed elsewhere in this document. The final EA should clarify whether these gardens are intended to be part of the proposed action.

34. Sec. 5.7, The Aiea Empowerment Zone Strategic Plan, 5th paragraph: The final EA should clarify what the potential noise conflicts might be and why those potential noise conflicts would be of greater consequence for the Elderly Dare Care/Residential project than for the proposed library.

Page 35:

35. Sec. 6.0, Significance Criteria, first bullet, Comment: The final EA should clarify how supporting a portion of the library on posts rising from footings in the stream's flood hazard zone can said to "reflect the surrounding land forms".

Page 36:

36. Last bullet on page: As noted elsewhere in these comments, this document makes no attempt to address the potential cumulative impacts of development of the entire 19.4-acre project it identifies; nor does it look at the impacts of re-use of the existing library structure and site. The final EA should provide serious analysis of these potential cumulative impacts.

Page 37:

37. Last bullet on page: The final EA should clarify why supporting a portion of the library on posts rising from footings in Aiea Stream's flood hazard zone can be said to not affect the types of sensitive areas noted in this bullet point.

38. Sec. 7.0, Determination: The determination that no significant environmental affects will result from development of the proposed project is not supported by the analyses provided in this Draft EA. The final EA should support this determination with analyses with respect to:

    (a) Potential cumulative impacts;
    (b) Potential impacts due to location of footings and exposed structural members in the flood hazard zone;
    (c) Potential traffic impacts attendant with the proposed project; and
    (d) Alternatives to the proposed action.

Finally, our department has had preliminary discussions with a representative of the landowner, who is preparing a zone change application for parcel 25 (proposed site of new library) from industrial to residential use.

Should you have any questions, please contact Ardis Shaw-Kim of our Coastal Lands Branch at 527-5349.

Very truly yours,

for JAN NAOE SULLIVAN
Director of Planning
and Permitting

JNS:am

cc: ✓Kajioka Yamachi Architects, Inc.
Office of Environmental Quality Control

POSSE Doc. No.: 5097

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P) 1694.9

OCT 13 1999

Ms. Jan Sullivan, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Ms. Sullivan:

Subject: Aiea Public Library Site Feasibility
Draft Environmental Assessment (EA)

Thank you for your comments of June 22, 1999, regarding the proposed Aiea Public Library Draft Environmental Assessment. We have reviewed your remarks and offer the following response to each of your numbered comments.

1. Subdivision

The final EA will be revised accordingly to depict the information regarding the recent consolidation and resubdivision of the subject properties and the new parcels; TMK 9-9-5: 10 and 25 (revised Figure 2). It is noted that previous EA discussions referencing the subject parcels were incorrectly based on the TMK information from the EIS document for the proposed Aiea Sugar Mill commercial developments by Crazy Shirts (prior to the recent consolidation and resubdivision of the subject properties).

We have reviewed the proposed industrial subdivision and it appears that there are no interior subdivision roads accessing the proposed library parcel (shown as Lot 15 on the sales brochure for the Aiea Business and Industrial Park). If use of the realigned Ulune Street is required for access into Lot 15, we are concerned that the proposed five-way intersection and the subdivision road running parallel to the opposite side of the realigned Aiea Stream has limited site distance. In addition, the grading required for the proposed bridge crossing Aiea Stream could also limit site distance if this were used as the access point.

It is also our understanding that the Unilateral Agreement (Ordinance No. 4320 and DLU File 73/Z-46) states under condition 2(b) "access for *industrial uses* (emphasis added) shall be limited to access only off Aiea Heights Drive on the Ewa side of the site." Consequently, it appears that access must be made from the proposed realigned of Aiea Heights Drive and Ulune Street only if accessing industrial uses. Since the proposed library is a public use and not an industrial use, access into the library from Kulawea Street should be permissible. Nevertheless, if access for Lot 15 is limited to the proposed realignment of Aiea Heights Drive and Ulune Street, we believe that library development on Lot 15 is still more appropriate than industrial or residential land uses.

We also believe that the statement on Page 18 is correct. If community facilities are developed as public uses (as envisioned by the Aiea Empowerment Zone Strategic Plan), they are permitted under the current I-2 Intensive Industrial zoning for this property.

2. Flood

We concur that a portion of the property planned for the library is located within Zone AE. However, please see the definition of *Flood fringe district* which states; *"Flood fringe district means the district consisting of the area of the flood fringe as delineated on the flood maps as the colored or shaded area and designated Zones AE, AO, and AH on the flood insurance rate maps."* This flood hazard zone is depicted in the Draft EA as Figure 9, the Generalized Slope Map-Figure 5, and the Conceptual Site Plan Figure 3. As shown, approximately 25 percent of the building footprint shown for conceptual purposes is located within the Flood fringe district (AE where base flood elevations have been determined) and *not* the flood way district as indicated in your comments. The Flood way districts are depicted with a "hatched line" pattern on the Flood Insurance Rate Maps.

Within the Flood fringe district, the proposed library is permitted by the underlying zoning provided that the capacity of the flood way or regulatory flood elevation is not affected by the project as determined by a registered professional architect or engineer. Specifically, Section 21-9.10-6(7) of the LUO states, *"Within the flood fringe district, the top of the lowest floor shall be at or above the regulatory flood, except for nonresidential flood proof structures."* In addition, any fill that would divert flood flows can be mitigated by creating a larger flood fringe area located elsewhere on the property. Consequently, the proposed library would be designed to conform with these standards as determined by a registered engineer.

We concur with your comments suggesting that the TMK parcels and the corresponding land area be revised to eliminate confusion in the final EA.

3. Traffic

If applicable, the proposed new Aiea Public Library project will comply with any City ordinance that requires installation of sidewalks and shoulder improvements along the length of Kulawea Street.

The Conceptual Site Plan (Figure 3) depicts a driveway accessing the parking area directly across Kulawea Place as recommended in the traffic study. Note the dashed line in the area of the building entry which depicts an entry driveway under a covered entry structure to serve as a drop-off area. Therefore, in accordance with the Conceptual Site Plan (Figure 3), the vehicular access point on Kulawea Street will be constructed directly across Kulawea Place in accordance with all City design standards and the recommendation of the Traffic Study.

As indicated on Table 2 of the Traffic Study, the library will generate 19 trips during the AM peak hour and 121 trips during the PM peak hour. To incorporate future industrial development of the property, annual growth rates to account for future development were taken from the Traffic Impact Assessment Report for the Aiea sugar Mill Development Plan Amendment, dated May

1997. As stated on page 17 of the Traffic Study; *"All approaches to the intersection of Ulune Street and Kulawea Street are projected to experience no change in level of service but is projected to experience a slight increase in average delay with or without the proposed library." "The increase in overall average vehicle delay is 1.4 seconds/vehicle, and is attributed to the slight increase in traffic headed to the library."*

Construction plans for any work within the public road right of way and construction traffic control plans will be submitted to the City for review and approval as applicable.

Once again, thank you for informing us that the proposed realignment of Aiea Heights Drive and Ulune Street will be constructed by the current landowner. The potential development of this roadway was considered in the Draft EA as depicted on Figures 1, 3, 4, and 5, and Figure 2 of the Traffic Study. Consequently, we believe that the statement on page 27 remains accurate. However, DAGS will work with the City to ensure that any future development of the library will not encroach into the improvement area for the future roadway and intersection. The statement on page 33 referenced in your comments will be revised to reflect the current information regarding the development schedule for the roadway by the landowner.

4. Project Area

The project area indicated on page 1 will be corrected to read 19.4 acres rather than 16.447 acres.

5. Location Map

The Location Map will be revised to remove buildings and roads that no longer exist. The map was intended to only show the project boundaries and location of the subject property on Oahu. The Existing Conditions figure will be revised to show the well sites and water tank.

6. Section 2.1.6, Exterior Design Elements, 2), 4th Bullet

According to the Land Use Ordinance (Table 21-6.1), a parking ratio of 1 parking stall/400 square feet is required. This equates to approximately 50 parking stalls (20,000 sq./400 sq. = 50 stalls) based on a 20,000 square foot building. The parking area shown on the Conceptual Site Plan (Figure 3) is also based on a maximum building size of 20,000 square feet and depicts a parking area consisting of 48 stalls and 3 handicap stalls.

In addition, Section 21-6.10 of the LUO states, "Parking standards are not intended to satisfy maximum parking demand." Therefore, special event parking has not been included in the conceptual design. However, it is likely that additional parking at Aiea Intermediate School could be arranged for the rare instances where additional parking would be required for special events.

7. Section 2.1.8, Development Costs and Timetable, First Paragraph

Regarding the costs for the project, please be advised that the current landowner is marketing the proposed industrial lots on the Ewa side of Aiea Stream for $31/square foot Based on a library site of 2 - 3 acres as preferred by the Hawaii State Public Library System (HSPLS), the cost to acquire improved industrial zoned land would be approximately $2.7 to $4.0 million. This compares to unimproved residential land on the Kulawea Street side of Aiea Stream (proposed library site) of approximately $1.4 million (12 lots @ $120,000/lot). Consequently, purchasing on the Ewa side of Aiea Stream would result in land acquisition costs approximately 2 - 3 times higher than a parcel on the Kulawea Street side of Aiea Stream. As indicated in the draft EA, development costs are estimated at approximately $4 - 6 million (20,000 sq. ft. x 200/sq. ft., plus site improvements) on either site.

8. Sec. 2.4, Cultural and Historic Characteristics

The final EA will cite the source of the information presented in the first paragraph of this section as *"Final Environmental Impact Statement for Aiea Sugar Mill Commercial Development, Aiea, Oahu, June 6, 1997."*

9. Section 2.5, Environmental Characteristics

The final EA will cite the source of the information presented in this section as *"Final Environmental Impact Statement for Aiea Sugar Mill Commercial Development, Aiea, Oahu, June 6, 1997."* The calculations regarding the impermeable surfaces was prepared by PBR Hawaii based on the *Conceptual* Site Plan, Figure 3.

10. Section 2.5, Environmental Characteristics, 3rd Paragraph, 2nd Sentence

We wish to emphasize that the Conceptual Site Plan depicted as Figure 3 is *conceptual* only. The actual architectural plans, building footprint, and areas with impermeable surfaces will likely be much different once the design-development phases of the project are completed. Consequently, it is premature to identify and size retention areas at this level of planning. However, the likely location for a retention area could be located between the parking lot and the Aiea Intermediate School property.

11. Section 2.5, Environmental Characteristics, 3rd Paragraph, Last Sentence

There has been no formal wetland delineation prepared for the project at this level of planning. However, the location of the proposed library is approximately 20 feet above the Aiea Stream in the area of the existing water tank and wells. In this area, there are no wetland species, hydric soils, or standing water. Consequently, this site has been selected to ensure that no wetland areas are impacted.

Should the proposed industrial development proceed as planned by the current landowner, Aiea Stream and the existing wetlands will be dramatically altered compared to the current condition.

12. Section 3.2, Topography, First Paragraph, 2nd Sentence

At this level of planning, the quantities of cut and fill cannot be determined. However, once the construction plans are completed, an accurate calculation of cut and fill quantities will be provided when plans are submitted for the appropriate grading permits.

13. Section 3.2, Topography, First Paragraph, 3rd Sentence

These statements will be revised to clearly describe the proposed development that may occur within the Flood fringe area in the final EA.

14. Figure 6, Soil Conservation Service Soil Survey

The source of this exhibit will be placed on Figure 6 in the final EA and the Natural Resources Conservation Service will be noted.

15. Figure 8, Agricultural Lands of Importance to the State of Hawaii (ALISH)

The source of this exhibit and a key will be placed on Figure 6 in the final EA.

16. Section 3.4.1, Drainage Features, First Paragraph, First Sentence

The final EA will be revised to clarify that Aiea Stream flows along an alignment generally parallel to the boundary shared by the two parcels rather than between the two parcels.

17. Section 3.9, Air Quality, Potential Impacts and Mitigative Measures, 3rd Paragraph, First Sentence

This sentence will be revised to read, *"With development of the proposed new Aiea Public Library,*

the only potentially significant source of air emissions associated with the project will be from motorized vehicles entering the library property."

18. Page 18 - Potential Impacts and Mitigative Measures, Last Sentence

The statement that 51 parking stalls is planned on the Conceptual Site Plan is correct. The 45 stall calculation is based on a minimum sized building of 18,000 square feet and will be revised in the final EA.

19. Section 3.13.2, Water Supply, First Paragraph, 2nd Sentence

The term "higher aquifer" refers to the fresh water that typically floats on the top of brackish ground water. This information will be provided in the final EA.

20. Section 3.14.2, Schools, First Paragraph

Aiea Elementary School will be added to this section of the final EA.

21. Page 24: Short Term, Last Bullet

This bullet will be revised to read, "Restrict use of heavy construction equipment to 8:00 a.m. to 5:00 p.m. during weekdays".

22. Site Considerations (Page 27)

(a) We concur that the recent demolition of the major structures associated with the Aiea Sugar Mill would no longer be necessary. However, the cost for demolition and grading of the site will not be borne by the current landowner, but passed on to the future lot purchasers. Consequently, it should be more cost effective for the State to purchase unimproved land and develop the necessary improvements, and not pay for industrial infrastructure improvements that are unnecessary for library development. The final EA will be revised to reflect the recent demolition.

(b) We concur that bus service is available on Aiea Heights Drive. However, the access and visibility referenced in the draft EA refers to vehicular and pedestrian access and visibility. If the new Ulune Street realignment is completed, we believe visibility of the library on the selected site would also be enhanced.

(c) Both sides of Aiea Stream are affected by the AE Flood Hazard District. However, as previously described, the current landowner may modify Aiea Stream and the existing flood boundaries with development of the proposed industrial and/or residential developments. In addition, the proposed library can be developed within the Flood fringe with approval by a registered engineer without significantly impacting the existing Flood Hazard Zone. Use of the selected library site will require significantly less alteration to Aiea Stream than the proposed industrial or residential development for this property.

(d) By developing a split level structure along the hillside, the profile of the building would be reduced and integrated into existing landforms and extensively landscaped. Retention of the natural and undisturbed state of Aiea Stream is also an important consideration in selecting the selected library site. The final EA will be revised to indicate that a split-level design would require additional costs for at least one elevator and two fire-rated egress stairways.

23. Section 4.2, Aiea Heritage and Town Center Alternative, First Paragraph

Paragraph one states; "The Aiea Sugar Mill and Heritage and Town Center alternative would locate the proposed library at the mauka end of TMK: 9-9-05:10 and utilize approximately 3.5 acres..." Therefore, the 3.5 acres is not desired or required by HSPLS, but only 80,000 to 100,000 square feet as stated in the draft EA is necessary. The final Environmental Assessment will be revised to reflect that this parcel is now TMK 25.

Regarding the loss of "critical mass" if the library is located along Kulawea Street, we suggest that the site for the "Elderly Day Care" facility could be moved to the 3.5 acre site designated for the library on the Aiea Sugar Mill and Heritage and Town Center Plan. This may be a more appropriate alternative than having elderly day care adjacent to a large intermediate school.

24. Section 4.2, Aiea Heritage and Town Center Alternative, Second Paragraph

We concur that the recent demolition of the major structures associated with the Aiea Sugar Mill would no longer be necessary. However, the cost for demolition and grading of the site will not be borne by the current landowner, but passed on to the future lot purchasers. Consequently, it should be more cost effective for the State to purchase unimproved land and develop the necessary improvements, and not pay for industrial infrastructure improvements that are unnecessary for library development. The final EA will be revised to reflect the recent demolition.

The statement regarding "unknown constraints" was referring to potential hazardous conditions that may have been associated with years of industrial use on the property. The final EA will be revised to reflect that the current landowner has removed the structures and cleaned the site of any potentially hazardous materials that may have existed on the property. Comparing the historical use of each parcel, it appears that the selected site where the existing water tank and pumps are located was relatively less likely to have been exposed to hazardous waste disposal. The draft EA does not state that "every possible constraint .... is known with apparently absolute clarity."

25. Figure 12, State Land Use Map

The final EA will cite the source of the map and provide a key as suggested.

26. Section 5.5, City and County of Honolulu General Plan, Discussion of Physical Development and Urban Design, Objective A, Policy 5

According to the information provided in your comments, the portion of the property on the Ewa side of Aiea Stream is currently being developed for industrial purposes and *not* community facilities. Therefore, it seems feasible from a land use perspective to locate the library proximate to the community facilities that do exist (Aiea Intermediate School and Webling Elementary School), rather than surrounded by future industrial land uses. The HSPLS has indicated that they oppose development of the library adjacent to commercial or high intensity land uses. The selected site will also provide an open space buffer between existing residential neighborhoods and the industrial area.

27. Section 5.5, City and County of Honolulu General Plan, Discussion of Physical Development and Urban Design, Objective B, Policy 2

This section of the final EA will be revised (see italics below) to read as follows:

Discussion: Although the subject property is not subject to *tsunamis*, portions are presently subject to flooding during intense storms. However, with development of the drainage improvements planned for the project and by locating the library well above the flood hazard elevation, storm water runoff impact*ing* the project area will be managed to mitigate all potential health and/or safety hazards. Storm water flows will be controlled to limit off-site discharges and to permit on-site detention and recharge of storm water.

28. Section 5.6, City and County of Land Use Ordinance

This title will be revised in the final EA to read *"City and County of Honolulu Land Use Ordinance."*

29. Figure 13, Primary Urban Center Development Plan Land Use Map

    The final EA will cite the source of the map and provide a key.

30. Figure 14, Primary Urban Center Development Plan Public Facility Map

    The final EA will cite the source of the map and provide a key.

31. Figure 15, City and County of Honolulu Land Use Ordinance Map

    The final EA will cite the source of the map, provide a legend with the revisions suggested by your comments, and improve the readability of the underlying streets and parcels.

32. Section 5.7, The Aiea Empowerment Zone Strategic Plan, 4th Paragraph, First Sentence

    According to the information provided in your comments, the parcel of the property on the Ewa side of Aiea Stream is currently being developed for industrial purposes and *not* community facilities. Therefore, it seems feasible from a land use perspective to locate the library proximate to the community facilities that do exist (Aiea Intermediate School and Webling Elementary School), rather than surrounded by future industrial land uses. The HSPLS has indicated that they oppose development of the library adjacent to commercial or high intensity land uses. The selected site will also provide an open space buffer between existing residential neighborhoods and the industrial area.

    An Elderly Day Care facility surrounded by industrial development, an intermediate school, and residential dwellings does not seem compatible from a land use perspective. Libraries properly designed and integrated into residential neighborhoods, however, can provide a highly valued contribution to residential neighborhoods and the community.

33. Section 5.7, The Aiea Empowerment Zone Strategic Plan, 4th Paragraph, Last Sentence

The Community and Biotech Gardens is not intended to be part of the proposed action. However, the development of the library on this site does not necessarily preclude the establishment of these uses in the future.

34. Section 5.7, The Aiea Empowerment Zone Strategic Plan, 5th Paragraph, Last Sentence

The final EA will be revised to indicate that elderly persons may be more noise sensitive to traffic noise and the sounds of children entering or leaving school, or playing. Traffic may also be worse since the elderly would be dropped off during peak traffic hours compared to a library which is open throughout the day. It is also likely that more outdoor activities will be desired by the elderly patrons of the day care facility as compared to outdoor activities desired by users of the library. Similarly, library and educational land uses are highly compatible and often designed within the same campus setting or building.

35. Section 6.0, Significance Criteria, First bullet, Comment

If the use of posts in building architecture does not "reflect the surrounding land forms" they won't be used. The building plan used and described in the Draft EA is only conceptual.

36. Page 36: Last Bullet on Page

The development of the proposed library would require the acquisition of land from an existing urban and industrially zoned property. It does not require other lands on the opposite site of Aiea Stream and cannot control the land uses that may be developed there. As such, the library project cannot dictate whether the balance of the property is to be used for industrial purposes or the land uses as envisioned by the Sugar Mill Heritage and Town Center plan. Consequently, only the cumulative impact of the library was assessed in the Draft EA and not the land uses proposed for the Old

Aiea Sugar Mill parcel. Specifically, cumulative impacts were addressed in terms of the need for the project, traffic, water, wastewater, and visual impacts. Re-use of the existing library structure and site would not achieve the goals for the project as described in Sections 2.1.2 and 2.1.5 of the Draft EA.

37. Page 37: Last Bullet on Page

We concur that the library development could impact a small portion of the flood hazard zone, but only in conformance with applicable City building standards and codes. However, the us of the flood hazard zone would only occur if Aiea Stream is not altered by the construction of the proposed industrial subdivision. If this occurs, the flood hazard boundaries could be altered dramatically.

In addition, the use of flood hazard areas is not unusual or necessarily hazardous if proper design and engineering controls are implemented. For example, a large portion of Waikiki is also located within the same AE Flood Zone.

If the use of posts in the building architecture is determined to affect an environmentally sensitive area such as the flood hazard area, alternatives previously discussed are available to mitigate potential impacts. The building plan and description used in the Draft EA is only conceptual at this level of planning. No architect has been selected and the building design has not been determined at this time. All architectural designs, however, will incorporate mitigation measures to ensure that the flood fringe district is not significantly altered and that downstream property owners are not impacted.

38. Section 7.0, Determination

Based on the discussion above, we do not agree with your opinion that a more thorough analysis is warranted. Cumulative impacts have been addressed, any development within the flood hazard zone will be undertaken after full compliance with applicable City requirements, potential traffic impacts resulting from

library development have been addressed in Appendix B, and alternatives to the proposed action have also been evaluated.

Finally, rezoning of the property from I-2 Intensive Industrial to a residential district would still permit development of the proposed library on the selected site as a public use.

The HSPLS does not have the financial resources to acquire a 19.4 acre property of improved industrial land for a proposed new public library, especially when the library only requires a site of 2.5 acres and relatively minimal infrastructure.

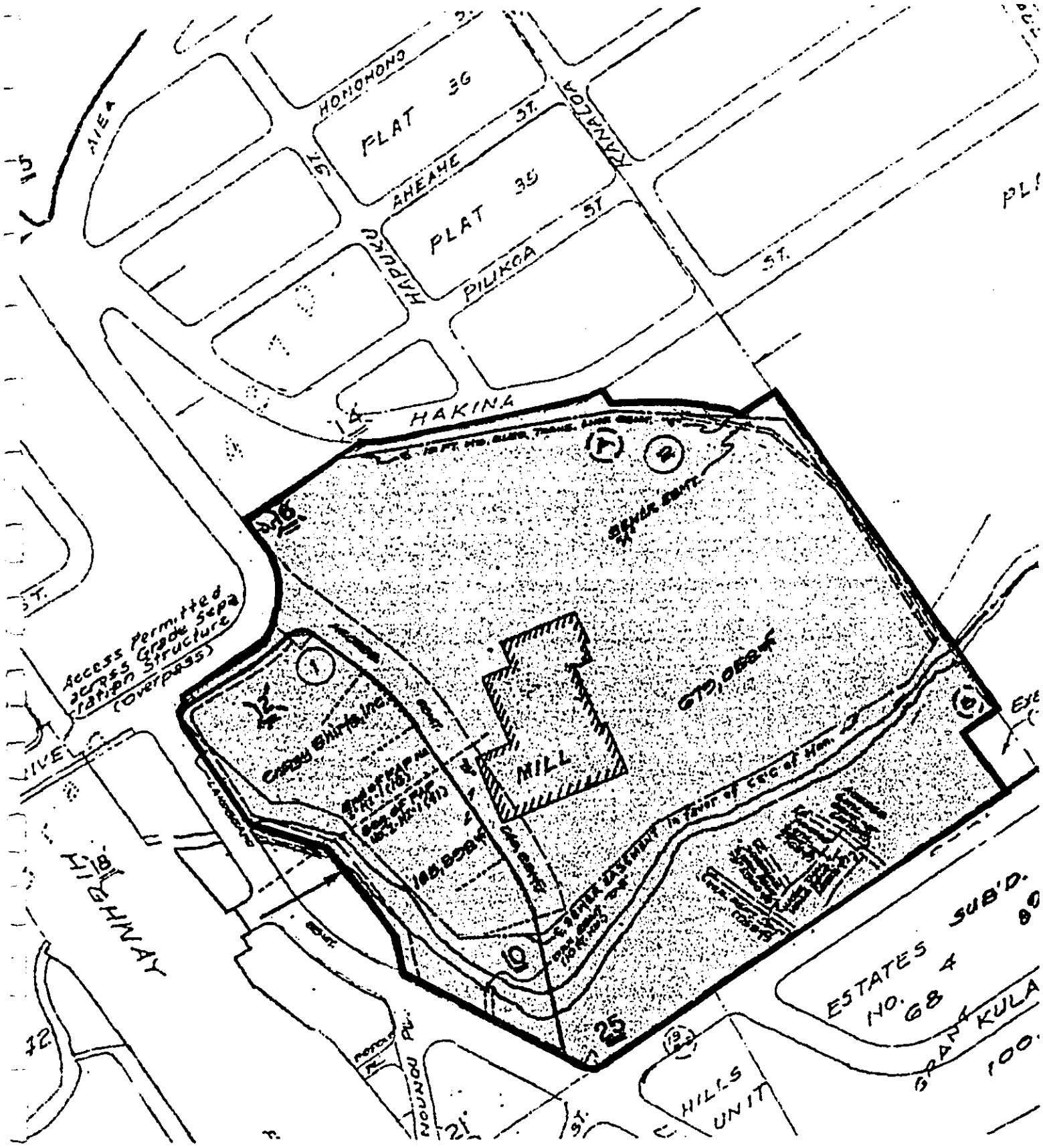
However, if the subject properties were resubdivided and rezoned in accordance to with the community plan (by others) and the Aiea Heights Drive extension were completed (by others) and additional funds were made available for this HSPLS project, then Lot 6 (revised Figure 12) in the community plan proposal could be reconsidered as an alternative site (at a later date and under a separate Site Feasibility/EA project).

This response letter and your June 22, 1999, comment letter will be included in the final EA. Should you have any questions, please have your staff contact Mr. Ralph Morita of the Planning Branch at 586-0486.

Sincerely,

GORDON MATSUOKA
Public Works Administrator

GC:mo
c: Kajioka Yamachi Architects, Inc./PBR Hawaii



FIRST DIVISION		
ZONE	SEC.	PLAT
9	9	05
CONTAINING		PARCELS
SCALE: 1 in. = 200 ft.		
PRINTED JUN 24 1999		

Figure 2
TAX MAP KEY

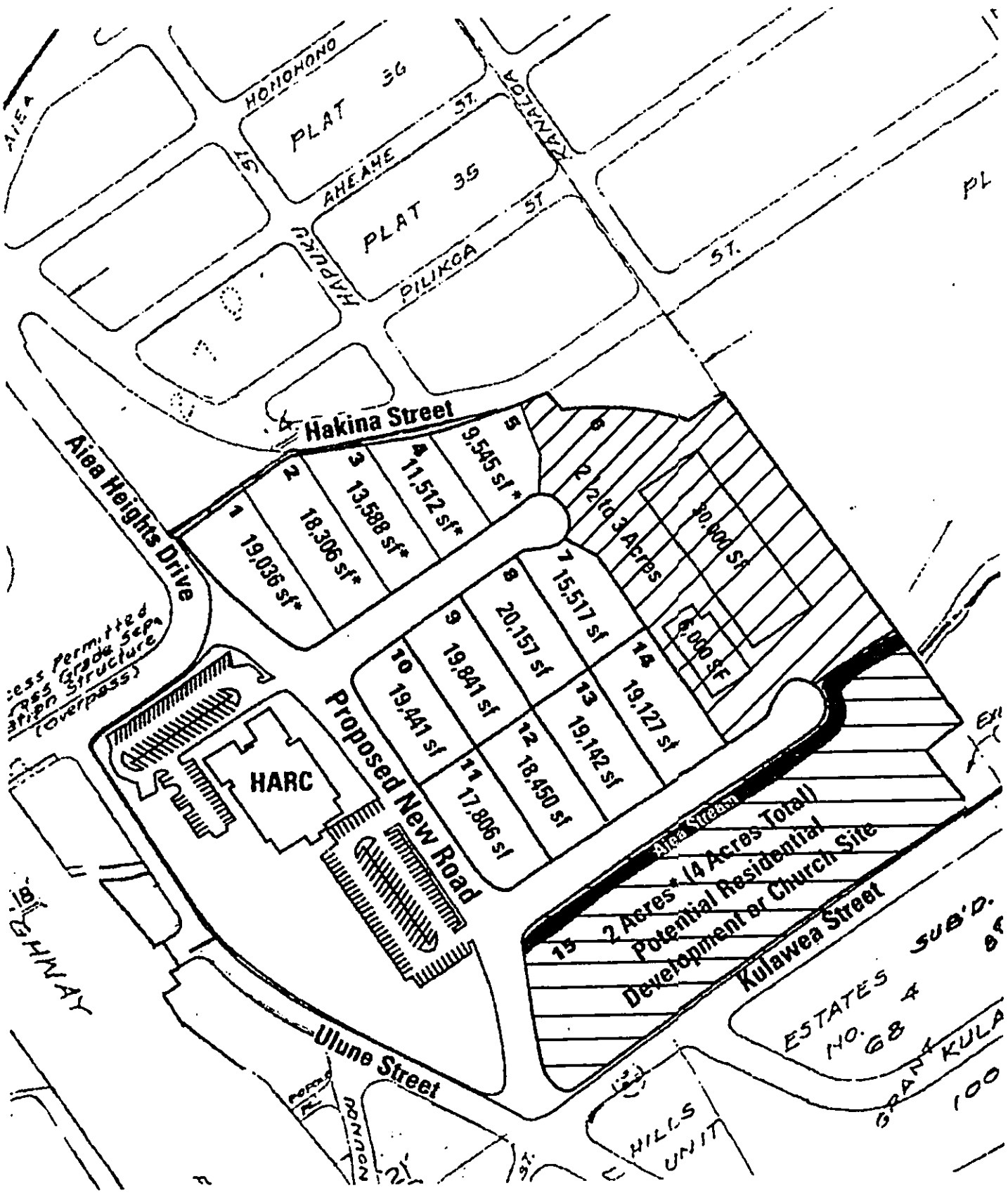
Aiea Public Library

Department of Accounting & General Services — July 1999

0 100 200 FEET

KAJIOKA YAMAOKI ARCHITECTS

PBR HAWAII



LEGEND

- Lot 6
- Project Site

Figure 12
AIEA BUSINESS AND INDUSTRIAL PARK

0 100 200 FEET

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE (808) 523-4529 • FAX (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D SOON
DIRECTOR

JOSEPH M MAGALDI, JR
DEPUTY DIRECTOR

July 6, 1999

TPD5/99-02327R
TPD5/99-02371R

Mr. Ralph Morita
Department of Accounting and General Services
State of Hawaii
Kalanimoku Building, Room 430
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Morita:

Subject: Aiea Public Library Site Feasibility

As requested, the draft environmental assessment (DEA) for the subject project was reviewed. The following comments are the result of this review:

1. The new proposed site for the Aiea Library appears to be adequate for a public library from a traffic operations standpoint.

2. Section 3.13.1 Roadways and Traffic (page 18 of the DEA) states that "a loading ramp for service vehicles and delivery trucks is also provided." This ramp should be designed such that the reversing of larger vehicles is done off of Kulawea Street to ensure public (i.e. vehicular and pedestrian) safety.

3. The traffic study should address the associated impacts of the development proposed for the Old Aiea Sugar Mill parcel.

4. The proposed project must adhere to the Americans with Disabilities Act Accessibility Guidelines. The pathway to the parking lot and main street must be accessible. It is anticipated that the project will be served by TheHandi-Van. TheHandi-Van curb-to-curb paratransit service requires adequate turnaround space (or through travel) for its vehicles.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

CHERYL D. SOON
Director

cc: Office of Environmental
Quality Control
Mr. Garrick Yama,
Kajioka Yamachi Architects, Inc./PBR Hawaii

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P)1570.9

AUG 11 1999

RECEIVED
AUG 13 1999
KAJIOKA YAMACHI
ARCHITECTS, INC.

Ms. Cheryl D. Soon
Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Aiea Public Library Site Feasibility
Draft Environmental Assessment (EA)

Thank you for your comments of July 6, 1999, regarding the proposed Aiea Public Library Draft EA. We have reviewed your remarks and offer the following response to each of your numbered comments:

1. We concur that the proposed site for the Aiea Public Library appears to be adequate for a public library from a traffic operations perspective and that access into the project site from Kulawea Street is appropriate. Your comment letter will be included in the Final EA for review by the Department of Planning and Permitting.

2. The loading ramp for service vehicles and delivery trucks will be designed so that the reversing of larger vehicles is done off Kulawea Street to enhance public (i.e., vehicular and pedestrian) safety.

3. As indicated on Table 2 of the Traffic Study, the library will generate 19 trips during the morning peak hour and 121 trips during the evening peak hour. To incorporate future industrial development of the property, annual growth rates to account for future development were taken from the Traffic Impact Assessment Report for the Aiea Sugar Mill Development Plan Amendment dated May 1997. As stated on Page 17 of the Traffic Study "All approaches to the intersection of Ulune Street and Kulawea Street are projected to experience no change in level of service but is projected to experience a slight increase in average

delay with or without the proposed library. The increasing overall average vehicle delay is 1.4 seconds/vehicle and is attributed to the slight increase in traffic headed to the library."

4. We concur that the project must comply with the Americans with Disabilities Act Accessibility Guidelines. Pathways to the parking lot and main street will be accessible. Facilities will also be provided to accommodate the Handi-Van paratransit service vehicles.

This response letter and your July 6, 1999, comment letter will be included in the Final EA. If you have any questions, please have your staff call Mr. Ralph Morita of the Planning Branch at 586-0486.

Sincerely,

GORDON MATSUOKA
Public Works Administrator

GC:jk
c: Kajioka Yamachi Architects, Inc./PBR Hawaii

OFFICE OF THE MAYOR
CITY AND COUNTY OF HONOLULU
530 SOUTH KING STREET, ROOM 300 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4141 • FAX: (808) 527-5552

RM-Fern 7/16/99

JEREMY HARRIS
MAYOR

July 14, 1999

Mr. Ralph Morita
State Department of Accounting
and General Services
Kalanimoku Building, Room 430
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Morita:

I received a copy of the Aiea Community Association's comments on the Draft Environmental Assessment for the Aiea Public Library Site Feasibility Study. I support their concerns related to assuring that the library building's architecture reflects the character of the surrounding community's plantation heritage and not the institutional architecture of the Aiea Intermediate School structures.

I also urge you to give full consideration to reevaluating the selection of the former Aiea Sugar Mill site, to locate the proposed library. The community has done an excellent job in reviewing concerns relative to the selected site. I strongly encourage you to take their concerns seriously.

Sincerely,

for JEREMY HARRIS
Mayor

JH:jms

cc: Aiea Community Association

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P) 1736.9

NOV 1 - 1999

The Honorable Jeremy Harris
Mayor
City and County of Honolulu
530 South King Street, Room 300
Honolulu, Hawaii 96813

Dear Mayor Harris:

Subject: Aiea Public Library Site Feasibility
Draft Environmental Assessment (EA)

Thank you for your July 14, 1999, comments on the proposed Aiea Public Library Draft EA. Your letter indicating support and concurrence with the Aiea Community Association's concerns is acknowledged. Attachment copy of DAGS' response letter dated October 13, 1999, (P)1696.9 to the Aiea Community Association is provided for your information and reference.

This response letter and your July 14, 1999, comment letter will be included in the Final EA. Should you have any questions, please have your staff contact Mr. Ralph Morita of the Public Works Division at 586-0486.

Sincerely,

RAYMOND H. SATO
State Comptroller

Attachments
c: Kajioka Yamachi Architects, Inc.

AIEA COMMUNITY ASSOCIATION
c/o 99-120 Hailimanu Place * Aiea, Hawaii 96701

June 9, 1999

Mr. Ralph Morita
State Department of Accounting and General Services
Kalanimoku Building, Room 430
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Morita:

Aiea Public Library Site Feasibility Draft Environmental Assessment
Property bound by Aiea Heights Drive, Hakina, Kulawea and Ulune Streets - Aiea
Tax Map Keys: 9-9-005: 010 and 025

In response to your request for comments, the Aiea Community Association (ACA) has reviewed the above document postmarked May 7, 1999. The ACA is extremely supportive of the State's commitment to provide a suitable library facility for the Aiea community at the former sugar mill site. As stated throughout the Draft Environmental Assessment (EA), the ACA has been actively involved in the conceptual redevelopment of the mill site as a community town center, which includes the proposed public library.

However, we would like to restate that our preferred location for the library facility is at parcel 10. The Draft EA justification for not selecting this site is flawed, and furthermore, the constraints of the selected site make it unfit and unacceptable for the library development.

Description of the Subject Property: The EA should be updated to reflect the recent building demolitions and latest project developments on site. Nearly all structures have been removed from the site. The land owner has received tentative approval from the Department of Planning and Permitting for a 15-lot industrial subdivision, which includes a major segment of the Development Plan Public Facilities Map through-road and interior roads to serve the subdivision.

Character of the Community, Exterior Design Elements: In addition to complementing the surrounding residential neighborhood, the architecture of the proposed library should respect and be responsive to the vernacular of the former historic sugar mill and/or its existing surrounding plantation village. It would be highly inappropriate to duplicate the institutional architecture of the Aiea Intermediate School structures, as proposed.

Environmental Characteristics: The Draft EA suggests that "The increase in runoff will be intercepted and conveyed to an on-site retention areas to permit percolation into the ground"... This is highly unlikely given the sloped topography surrounding the library structure. The existing drainage patterns of the site will continue to direct runoff and additional runoff toward Aiea Stream.

Topography, Natural Hazards: The Draft EA does not address the Floodway District affecting the site, as indicated on Flood Insurance Rate Map (FIRM) Panel 135C. The Land Use Ordinance, Section 9.10-5 Floodway district, prohibits the proposed use and structure within the district. The proposed site design locates a significant portion of the library structure within the Floodway, in conflict with zoning and federal regulations.

Furthermore, a building overlay onto Figure 4 sites the library on the steeper portion of parcel 25. Our calculations indicate an approximate 18-foot grade change from the front elevation to the rear elevation of the structure. This would result in extensive excavation, grading or posting; unsuitable for streamside development and contributing to an increase in construction cost. The configuration and topography of parcel 25 would also preclude the expansion potential of the library facility.

With average slopes of less than 2 percent, parcel 10 is more suitable for single-level construction, handicap accessibility and future expansion. Preservation of the naturalness of Aiea Stream is an important objective of the community. Construction that would negatively impact its natural state is highly undesirable.

Drainage and Hydrology: The closer proximity to the stream and sloped topography associated with the proposed facility will likely produce greater surface runoff to Aiea Stream, versus a development of the same footprint on parcel 10.

Roadways and Traffic: The existing 28-foot wide pavement of Kulawea Street allows for 2-way traffic (1 travel lane in each direction), but does not permit on-street parking. The minimum parking requirements of the Land Use Ordinance does not include the need for over-flow parking associated with special events (book fairs, town meetings, neighborhood board meetings, etc).

The Selected Alternative: The indicated considerations for the selected site are inaccurate and are responded to point-by-point:

- *"The parcel has no large existing buildings to demolish as compared to the Old Aiea Mill site, however, there are two water wells and the water tower that must be dismantled."*

  The mill site has been cleared of most of its structures and is currently being graded for future development at parcel 10 for individual fee simple-lot purchasers. The State's purchase of a graded subdivided lot is an attractive alternative to parcel 25 with its associated demolition and grading work.

- *"Access and visibility is easily available from Ulune and Kulawea Streets."*

  Public transportation is unavailable at the corner of Ulune and Kulawea. With the new Ulune Street through-road being constructed, visibility will be made available to parcel 10, and bus service is currently available along Aiea Heights Drive.

- *"The site is proximate to the Aiea Intermediate School. While this may also be a concern for HSPLS, however, a location anywhere within the mill site will be of relatively close proximity to the school."*

  Locating the library facility at parcel 10 will take advantage of the natural and physical separation of the stream between institutions, yet be within walking distance to the area schools. Also, the added distance to the residential dwellings along Kulawea Street will mitigate traffic, parking and noise concerns.

- *"A portion of the proposed library structure may infringe upon the designated flood hazard district delineated on the Flood Insurance Rate Maps. However, the library could be designed on posts for the portion of the structure that may infringe upon the flood hazard district."*

  As confirmed with the Department of Planning and Permitting, Subdivision Branch, the subject parcel is affected by a Floodway District, which will preclude development as proposed. Parcel 10 has subdivided lots of varying square footage well outside of the Floodway District and AE Flood Hazard District.

- *"By building on a slope, the library structure would appear to be one story from Kulawea Street, but could be designed as a split level structure."*

  Consideration must also be given to the structure's appearance from other vantage points. The installation of the Ulune Street through-road, views from across the stream, and impacts to the stream banks should be carefully assessed. Again, retention of the natural and undisturbed state of Aiea Stream is important to the community.

- *"The size of the parcel and its relatively undisturbed condition lends itself toward establishment of landscaped open space areas. The property could also function as a visual buffer between residential development along Kulawea Street and future development of the Aiea Sugar Mill site."*

  The irregular configuration, parcel size and slopes lend the proposed library to be inappropriately situated on the undisturbed stream slopes.

Aiea Heritage and Town Center Alternative: Unfortunately, the restrictive size, slope, configuration and Floodway District designation makes parcel 25 unfeasible for the proposed library development. The EA should be revised to address the comments of the ACA, and reselection of an alternate site at parcel 10.

We strongly encourage you to re-evaluate the conditions and current development status of the entire property. The development of the library poses a rare opportunity to serve as the building block of our community center foundation. Proper master-planning of the mill site will afford future generations a workable town center. This may be the final window of opportunity to create such a desirable place for Aiea.

In the attached February 1999 postcard circulated by Senator Norman Mizuguchi, he describes his vision to build a sense of place and foster community pride. "The ...project is to re-locate the Aiea Public Library to the old Aiea Sugar Mill site." "Though the mill is gone, its location at the heart of the center would nonetheless trumpet its special place in Hawaii's history. Together, we can re-establish a sense of place of days gone by. That is the legacy we can leave for future generations."

We appreciate the opportunity to provide input. Should you have any questions relating to our comments, please feel free to contact my Vice President, Bonnie Arakawa at 527-5837 or page me at 598-2076.

Sincerely,

Claire Tamamoto

Claire Tamamoto, President
Aiea Community Association

Attachment
a:aca-dea.bka

cc: Office of Environmental Quality Control
✓Kajioka Yamachi Architects, Inc.
Governor Benjamin Cayetano
Senator Norman Mizuguchi
Representative Tom Okamura
Mayor Jeremy Harris
Councilmember Mufi Hannemann
Aiea Neighborhood Board
Friends of Aiea Library

Senate President
NORMAN MIZUGUCHI
15th Senatorial District

415 So. Beretania St.
State Capitol, Rm 003
Honolulu, Hawaii 96813

Building a Sense of Place

Dear Friends and Neighbors:

Modern-day changes have overtaken our lifestyle of days gone by in Pearlridge, Aiea, and Halawa. In the process, we saw the demise of the sugar industry, and most recently, the demolition of the sugar mill.

As the 20th Legislature opens and we face the dawn of a new century, I want to briefly share my vision for two major projects that would build a sense of place and foster community pride.

The first project is to beautify the Aiea Interchange. Renovating and cleaning up the interchange would make it less of a safety and traffic hazard and eliminate an eyesore.

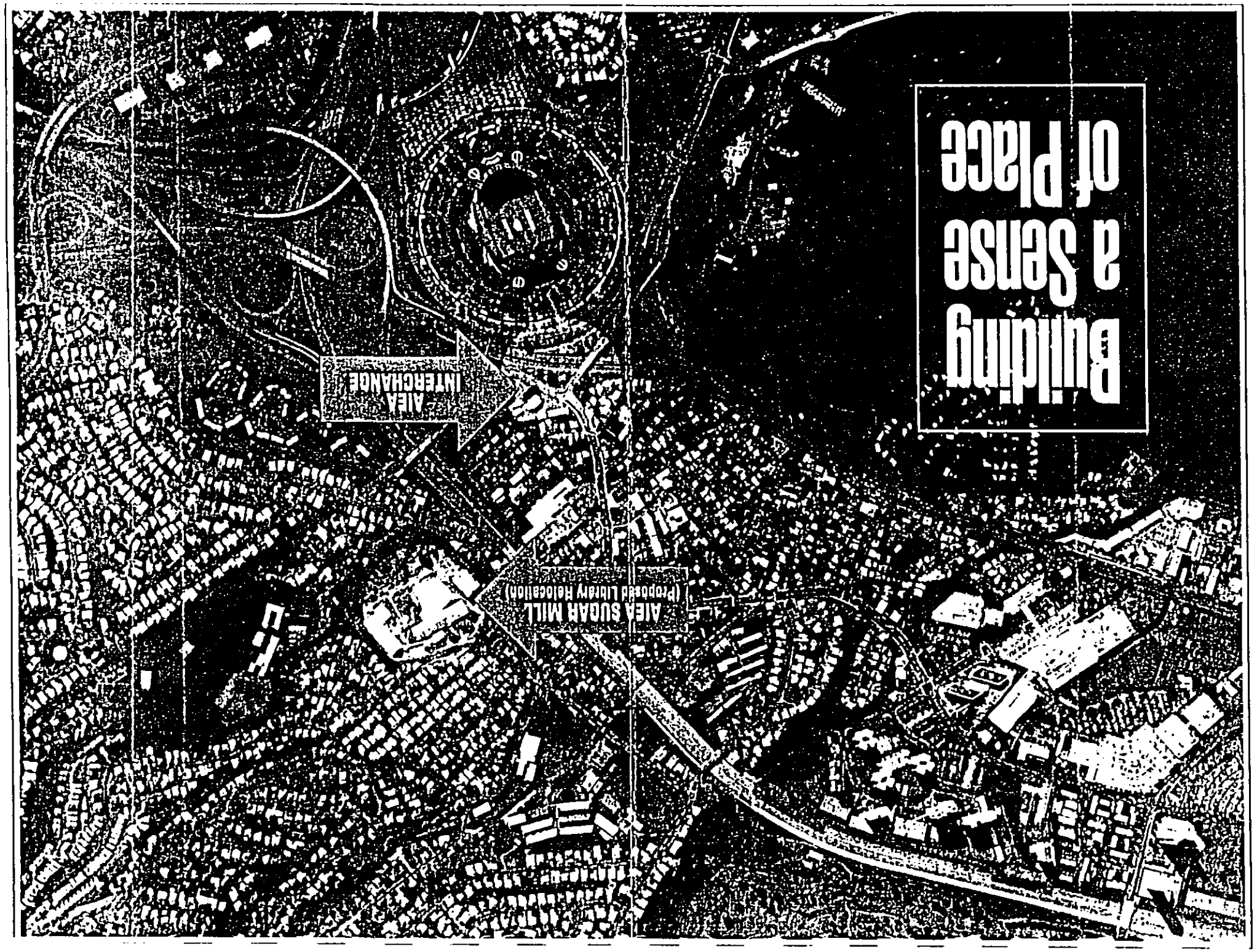
The second project is to re-locate the Aiea Public Library to the old Aiea Sugar Mill site. The mills 19.4-acre parcel of land would also be a perfect place to eventually develop a community center that would draw the people of our community together—a gathering place for family and friends. Though the mill is gone, its location at the heart of the center would nonetheless trumpet its special place in Hawaii's history.

Realistically, these projects will take years to develop. The community center, in particular, would need the private and public sectors and the community to work collaboratively as partners.

Together, we can re-establish a sense of place of days gone by. That is the legacy we can leave for future generations.

Sincerely,

Norman Mizuguchi
Senator, District 15



DOCUMENT CAPTURED AS RECEIVED

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P)1696.9

OCT 13 1999

Ms. Claire Tamamoto, President
Aiea Community Association
c/o 99-120 Hailimanu Place
Aiea, Hawaii 96843

Dear Ms. Tamamoto:

Subject: Aiea Public Library Site Feasibility
Draft Environmental Assessment (EA)

Thank you for your comments of June 9, 1999, regarding the proposed Aiea Public Library draft EA. We have reviewed your remarks and offer the following response to each of your comments:

1. Description of the Subject Property:

The final EA will be updated to reflect the recent building demolitions and project developments on the site. We understand that an industrial 15-lot preliminary subdivision approval has been granted that includes the new through-road and interior roads. The plan by the current landowner for Parcel 6 would create a single lot of 2.5 to 3 acres and retention of the existing 30,000 and 6,000 square foot warehouse buildings.

We also understand that the two (2) Tax Map Key parcels were recently consolidated and resubdivided such that TMK 9-9-05: 25 now includes both sides of Aiea Stream. TMK 9-9-05: 10 consists primarily of the Hawaii Agricultural Research Center (HARC) building and associated parking area (revised Figure 2). The final EA will be revised accordingly to depict the new parcels, TMK 9-9-5: 10 and 25 (revised Figure 12). It is noted that discussions referencing the subject parcels were incorrectly based on the TMK information from the EIS document for the proposed commercial developments by Crazy Shirts (prior to the recent consolidation and resubdivision of the subject properties).

2. Character of the Community, Exterior Design Elements:

We concur that the architecture of the proposed library should complement the surrounding structures and character of the community. However, as you indicated in your comments, most of the former sugar mill buildings have been demolished. It is unlikely that either the institutional architecture of the Aiea Intermediate School or the industrial architecture of the sugar mill would be an appropriate model for the library architecture. The actual building architecture, which has not been determined at this level of planning, will be identified once a project architect has been selected.

3. Environmental Characteristics:

We agree that the existing drainage patterns on both TMK's 10 and 25 will direct runoff and additional runoff toward Aiea Stream. However, with the open space available on the Kulawea side of Aiea Stream, the proposed library site has opportunities for landscaping and establishment of on-site retention basins do exist with some minor modifications to existing topography.

4. Topography, Natural Hazards:

The Flood Insurance Rate Map referred to in your comments is contained in the Draft EA as Figure 9, the Generalized Slope Map Figure 5, and the Conceptual Site Plan Figure 3. As shown, approximately 25 percent of the building footprint shown for conceptual purposes is located within the Flood fringe district (AE where base flood elevations have been determined) and not the Flood way district as indicated in your comments. The Flood way districts are depicted on the Flood Insurance Rate Maps (FIRM) with a "hatched line" pattern.

Within the Flood fringe district, the proposed library is permitted by the underlying zoning provided that the capacity of the floodway or regulatory flood elevation is not affected by the project as determined by a registered professional architect or engineer. Specifically, Section 21-9.10-6(7) states, "Within the

flood fringe district, the top of the lowest floor shall be at or above the regulatory flood, except for nonresidential floodproof structures." In addition, any fill that would divert flood flows can be mitigated by creating a larger flood fringe area located elsewhere on the property. Consequently, the proposed library would be designed to conform with these standards as determined by a registered engineer.

Your estimate that there is an approximately 18-foot grade change between the front and rear of the conceptual building footprint is correct. This differential would be considered during the design phase and could be addressed by a retaining wall, post/beam construction, or use of a split level design for the library. The flood elevation at the rear of the proposed library building is approximately 100' msl, or 20' lower than the approximately floor elevation of 120' msl along Kulawea Street.

We concur with your statement that the average slopes of less than 2 percent within the proposed industrial subdivision are more suitable for single-level construction and that preservation of Aiea Stream is an important objective. However, if the current owner proceeds with the industrial subdivision (as indicated in the preliminary subdivision plan), Aiea Stream and the existing flood elevations will be significantly altered to realign the stream. These plans call for straightening of Aiea Stream and development of the proposed library site for a single-family residential subdivision. Therefore, it seems more likely that if the library were located on the Kulawea side of Aiea Stream, the stream would remain in its current condition and not require straightening.

5. Drainage and Hydrology:

The amount of runoff generated from the impermeable surfaces associated with the library will be the same on either side of Aiea Stream. Control and management of runoff would be more feasible on the Kulawea side of Aiea Stream, however, due to the availability of open

space suitable for detention/retention basins, underground drains, etc.

6. Roadways and Traffic:

There is ample room for expansion of the parking lot on the proposed library site if determined necessary during the architectural design phase of the project for special events. Parking within the proposed industrial subdivision would be much more costly if the use of improved industrial land was required for parking purposes.

7. The Selected Alternative:

(a) We concur with your first bullet point that the recent demolition of the major structures within the proposed industrial subdivision site makes their future demolition unnecessary. However, the cost for demolition and grading of the industrial subdivision will not be borne by the current landowner, but must ultimately be passed on to the future lot purchasers. Consequently, it should be more cost effective for the State to purchase unimproved land and develop the necessary improvements, and not pay for industrial infrastructure improvements that are unnecessary for library development.

(b) We concur with bullet two that bus service is available on Aiea Heights Drive. However, the access and visibility referenced in the Draft EA refers to vehicular and pedestrian access and visibility. If the new Aiea Heights Drive/Ulune Street realignment is completed, visibility to the library on the Kulawea side of Aiea Stream would also be enhanced.

(c) As indicated in your third bullet point, pedestrians from Aiea Intermediate School would be forced to cross Aiea Stream via a new pedestrian

crossing or along Ulune Street. As depicted on Figure 11b, there are presently no pedestrian walkways along Ulune Street to accommodate the projected increase in pedestrian traffic if the industrial subdivision site was developed for the library. We also believe that buffering the library from the planned industrial area by the natural open space of Aiea Stream makes sense from a land use perspective.

We also concur that the added distance to the residential dwellings along Kulawea Street will mitigate traffic, parking, and noise concerns if it is assumed that there would be no future industrial development at this site. However, the current landowner plans industrial or residential development for the proposed library site and alterations to Aiea Stream. We feel that the traffic, parking and noise concerns generated by industrial or residential development are more significant than the proposed library use of this property.

(d) Both TMK's 10 and 25 are affected by the AE Flood Hazard District. However, as previously described, the current landowner may modify Aiea Stream and the existing flood boundaries with development of the proposed industrial development. In addition, the proposed library can be developed within the Flood fringe with approval by a registered engineer.

(e) By developing a split level structure along the hillside, the profile of the building would be reduced and integrated into existing landforms and extensively landscaped. Retention of the natural and undisturbed state of Aiea Stream is also an important consideration in selecting the Kulawea side of Aiea Stream as the proposed library site.

(f) The configuration and parcel size of those lands on the Kulawea side of Aiea Stream will likely change in the future if the current landowner's plans for the industrial development on the

opposite side of Aiea Stream are implemented. Nevertheless, the design of the library has not been determined, but it will certainly incorporate the sites physical features in any design.

8. Aiea Heritage and Town Center Alternative:

Please be advised that the current landowner is marketing the proposed industrial lots on the Ewa side of Aiea Stream for $31/square foot. Based on a library site of 2 - 3 acres as preferred by the HSPLS, the cost to acquire improved industrially zoned land would be approximately $2.7 to $4.0 million. This compares to unimproved residential lots on the Kulawea Street side of Aiea Stream (proposed library site) of approximately $1.4 million (12 lots @ $120,000/lot). Consequently, selection of a site on the Ewa side of Aiea Stream would result in land costs approximately 2 - 3 times higher than on the opposite side of Aiea Stream. As indicated in the draft Environmental Assessment, development costs are estimated at approximately $4 - 6 million (20,000 sq. ft. x 200/sq. ft. plus site improvements) on either site.

In addition, the surrounding land uses located within the industrial subdivision would likely conflict with the proposed library uses. This would also be inconsistent with the HSPLS preference that the new library not be located proximate to commercial-type land uses.

We are also aware that Senator Mizuguchi supports relocation of the Aiea Library to the "19.4 acre-parcel" consisting of the old Aiea Sugar Mill property (includes same level on Kulawea Street side of Aiea Stream).

Based on the preceding discussion, we believe that the Kulawea Street site for the library is still preferable to the industrial subdivision on the Ewa side of Aiea Stream for the new library. However, <u>if</u> the subject properties were resubdivided and re-zoned in accordance with the community plan (by others) and the Aiea Heights Drive extension were completed (by others) and

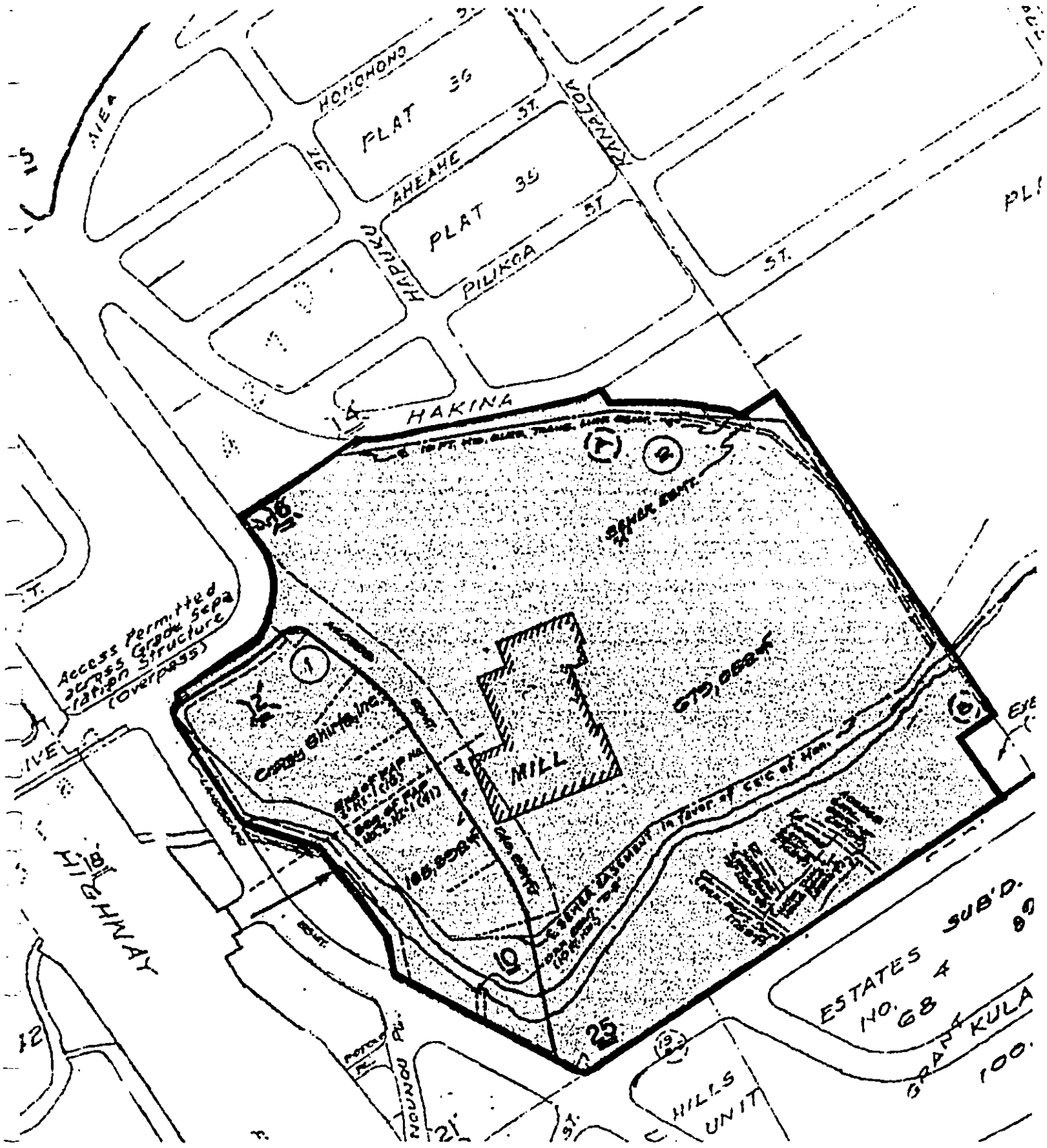
additional funds were made available for this HSPLS project, <u>then</u> Lot 6 in the community plan could be reconsidered as an alternative site (at a later date and under a separate feasibility study/EA project).

This response letter and your July 26, 1999, comment letter will be included in the Final EA. Should you have any questions, please have your staff contact Mr. Ralph Morita at 586-0486.

Sincerely,

GORDON MATSUOKA
Public Works Administrator

GC:mo
c: Kajioka Yamachi Architects, Inc./PBR Hawaii



FIRST DIVISION		
ZONE	SEC.	PLAT
9	9	05

CONTAINING PARCELS

SCALE: 1 in. = 200 ft.

PRINTED

Figure 2
TAX MAP KEY

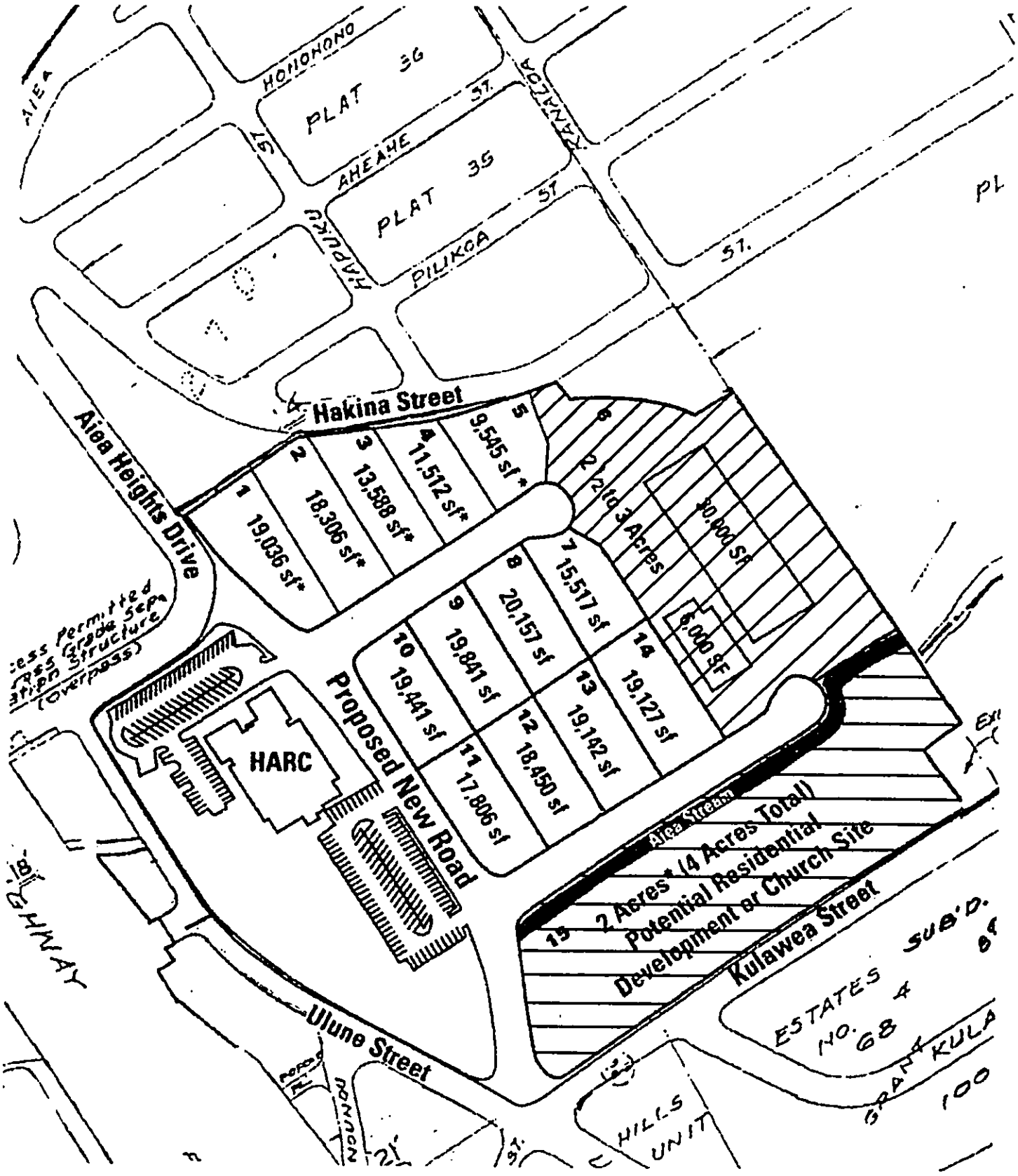
Aiea Public Library

Department of Accounting & General Services — July 1998

0 100 200 FEET

KAJIOKA YAMADA ARCHITECTS

PBR HAWAII



LEGEND

- Lot 6
- Project Site

Figure 12
AIEA BUSINESS AND INDUSTRIAL PARK

0 100 200 FEET

RM-[illegible] 6/23/99

Office of the President
The Senate
State of Hawaii
State Capitol
Honolulu, Hawaii

June 18, 1999

Mr. Ralph Morita
Department of Accounting & General Services
1151 Punchbowl Street, Rm. 430
Honolulu, Hawai'i 96813

Dear Mr. Morita:

Re: Aiea Public Library Site Feasibility Draft Environmental Assessment
Tax Map Keys: 9-9-05:10 and 25

I am writing in response to your request for comments regarding the above referenced project. The proposed relocation of the Aiea Public Library is a much-anticipated project for the Aiea community and is an important component of an overall vision for a community town center concept for the former sugar mill site.

In reviewing the environmental assessment (EA), I have several concerns regarding the proposed site at TMK 9-9-005:25:

- As indicated in the EA, a portion of the proposed site is situated in a Floodway District. This creates potential problems in complying with Land Use Ordinance, Section 9.10-5 relating to floodway districts. Additionally, the run-off created during construction and the building's presence on a slope could adversely impact the Aiea Stream. Given the public nature of this facility and the valuable resources it will maintain, it would be prudent to avoid any potential risk of flooding that could cause irreparable damage and loss to the library.
- In evaluating the alternative site, TMK 9-9005:10, the EA noted that there were existing constraints on the site that made this alternative less favorable. However, since the time the data for the EA was collected, the landowner has begun grading the property at site #10 and has removed one of the structures. Furthermore, the City has given tentative approval for the land owner to construct an interior road that will greatly improve traffic movement at the site. Given this new information, the EA should be updated to reflect these improvements and the site re-evaluated for its suitability for the proposed library.

Mahalo for this opportunity to provide comments on the proposed Aiea Public Library relocation. I am confident that a suitable site can be identified that will provide the greatest benefit to the community. If you have any questions or need assistance, please do not hesitate to contact me at 586-6870.

Sincerely,

NORMAN MIZUGUCHI
President of the Senate

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P)1693.9

OCT 21 1999

The Honorable Norman Mizuguchi
Senator, 15th District
Twentieth State Legislature
State Capitol, Room 003
Honolulu, Hawaii 96813

Dear Senator Mizuguchi:

Subject: Aiea Public Library Site Feasibility
Draft Environmental Assessment (EA)

Thank you for your comments of June 18, 1999, regarding the proposed new Aiea Public Library draft Environmental Assessment. We have reviewed your remarks and offer the following response to each of your comments:

1. We concur that a portion of the property planned for the library is located within Zone AE. However, please see the definition of *Flood fringe district* in the City's Land Use Ordinance which states; *"Flood fringe district means the district consisting of the area of the flood fringe as delineated on the flood maps as the colored or shaded area and designated Zones AE, AO, and AH on the flood insurance rate maps."* This flood hazard zone is depicted in the Draft EA as Figure 9, the Generalized Slope Map-Figure 5, and the Conceptual Site Plan Figure 3. As shown, approximately 25 percent of the building footprint shown for conceptual purposes is located within the Flood fringe district (AE where base flood elevations have been determined) and *not* the flood way district as indicated in your comments. The Flood way districts are depicted with a "hatched line" pattern on the Flood Insurance Rate Maps.

   Within the Flood fringe district, the proposed library is permitted by the underlying zoning provided that the capacity of the flood way or regulatory flood elevation

is not affected by the project as determined by a registered professional architect or engineer. Specifically, Section 21-9.10-6(7) of the LUO states, *"Within the flood fringe district, the top of the lowest floor shall be at or above the regulatory flood, except for nonresidential flood proof structures."* In addition, any fill that would divert flood flows can be mitigated by creating a larger flood fringe area located elsewhere on the property. Consequently, the proposed library would be designed to conform with these standards as determined by a registered engineer.

2. The final EA will be revised accordingly to depict the information regarding the recent consolidation and resubdivision of the subject properties and the new parcels; TMK 9-9-5: 10 and 25 (revised Figure 2). It is noted that previous EA discussions were incorrectly based on the Tax Map Key information from the EIS document for the proposed Aiea Sugar Mill commercial development by Crazy Shirts, (prior to the consolidation and resubdivision of the subject properties).

We have reviewed the proposed industrial subdivision and it appears that there are no interior subdivision roads accessing the proposed library parcel (shown at Lot 15 on the sales brochure for the Aiea Business and Industrial Park). If use of the realigned Ulune Street is required for access into Lot 15, we are concerned that the proposed five-way intersection and the subdivision road running parallel to the opposite side of the realigned Aiea Stream has limited site distance. In addition, the grading required for the proposed bridge crossing Aiea Stream could also limit site distance if this were used as the access point.

We concur that the recent demolition of the major structures within the proposed industrial subdivision site makes their future demolition unnecessary. However, the cost for demolition and grading of this parcel will not be borne by the current landowner, but passed on to the future lot purchasers. Consequently,

it should be more cost effective for the State to purchase unimproved land and develop the necessary improvements, and not pay for industrial infrastructure improvements that are unnecessary for library development. However, <u>if</u> the subject properties were resubdivided and rezoned in accordance with the community plan (by others) and the Aiea Heights Drive extension were completed (by others) and additional funds were made available for this HSPLS project <u>then</u> Lot 6 in the community plan could be reconsidered as an alternative site (at a later date and under a separate feasibility study/EA project).

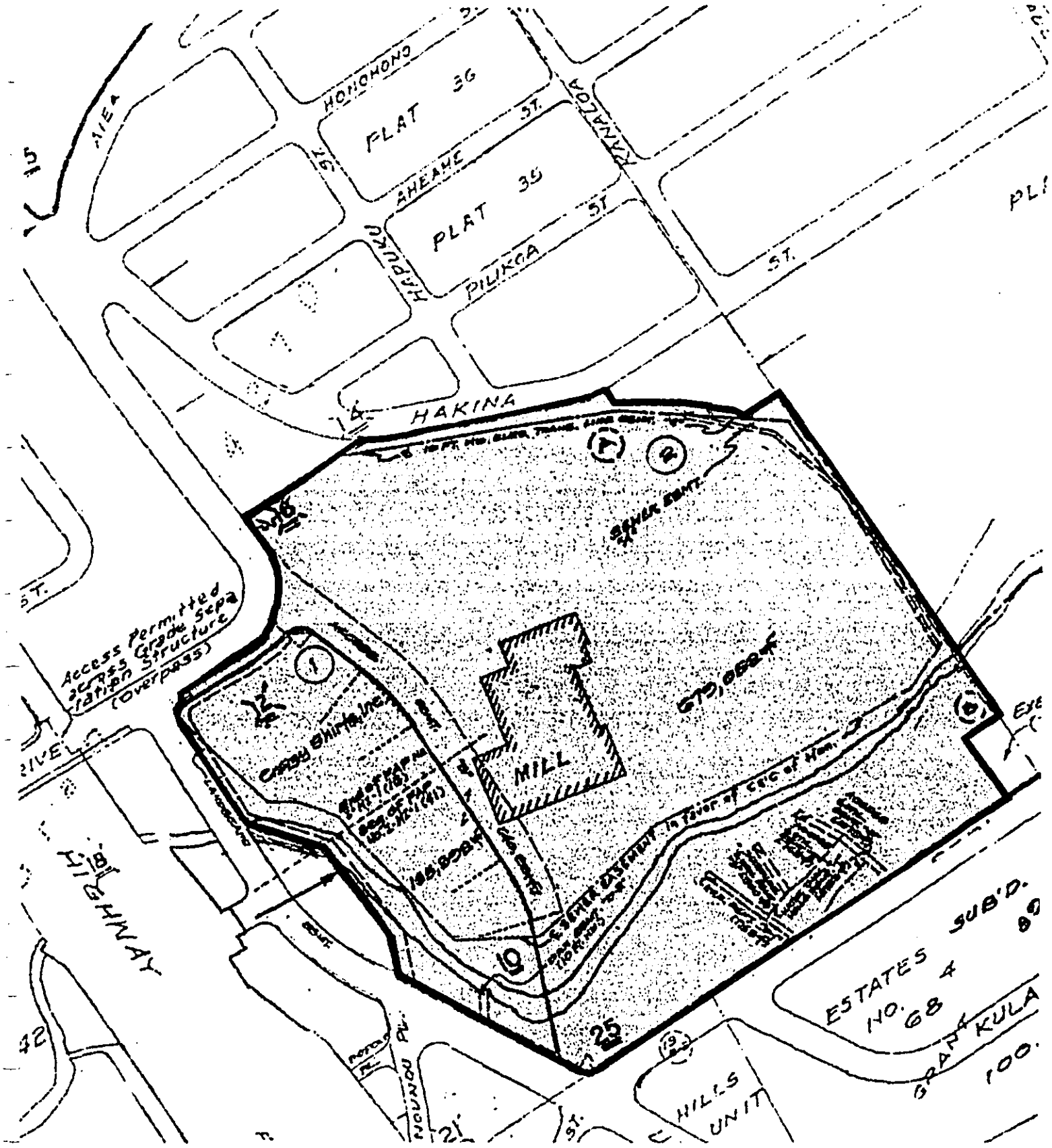
This response letter and your June 18, 1999, comment letter will be included in the Final EA. Should you have any questions, please have your staff contact Mr. Ralph Morita of the Public Works Division at 586-0486.

Once again, thank you for participating in the environmental review process.

Sincerely,

RAYMOND H. SATO
State Comptroller

c: Kajioka Yamachi Architects, Inc./PBR Hawaii



FIRST DIVISION		
ZONE	SEC.	PLAT
9	9	05

CONTAINING PARCELS

SCALE 1 in = 200 ft

PRINTED JUN 24 1999

Figure 2
TAX MAP KEY

Aiea Public Library

Department of Accounting & General Services — July 1999

N

0 100 200 FEET

KAJIOKA YAMAGHI ARCHITECTS

PBR HAWAII

Appendix A

Flora and Fauna Survey for lower Aiea Stream, at the Aiea Sugar Mill, Island of O'ahu, Hawai'i

March 19, 1997

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Introduction

This report has been prepared to address proposed modifications to the channel of Aiea Stream for the Sugar Mill Shopping Center on Aiea Sugar Mill property in Aiea. In this area, the stream is presently confined within a modified channel. It is proposed, for the shopping center development, to realign an approximately 700 ft (210 m) section of the stream in order to reduce the channel area. The new channel would be concrete lined, presumably with vertical or near-vertical side walls.

On March 17, 1997, a reconnaissance survey of Aiea Stream adjacent to the old Aiea Sugar Mill and was conducted to assess the natural resources value of the stream segment between Aiea Intermediate School and Ulune Street. Unfortunately, heavy rainfall and a flash flood (freshet) during the morning hours of March 17 made observations of stream life nearly impossible. Consequently, the stream was revisited late in the day on March 18. Flow had receded considerably, although the water remained turbid.

Stream Description

Aiea Stream arises from several branches in the Ko'olau Range behind Honolulu (Aiea) elevations under 1400 ft (425 m) on Pu'u Uau. This is the watershed partly bounded by the Aiea Loop Trail in Keaiwa Heiau State Park. The stream flows southwest to a small cove called Aiea Bay in East Loch of Pearl Harbor, passing Aiea Sugar Mill on the right bank. Aiea Stream drains a water shed between the larger Kalauao and Halawa Streams, whose drainage basins extend to the Ko'olau crest. These perennial streams drain the higher elevations mauka (inland) of Aiea Stream watersheds.

In the project area the stream is confined to a channel some 9 to 15 ft (3 to 5 m) wide. Typical water depths on the 18th were 4 to 10 in (10 to 25 cm) in pools and runs. The

channel bottom is natural, consisting of a mixture of rounded boulders and coarse gravel, with bars of silt and red soil. The water flows over and between large basalt boulders. There is a substantial amount of man-made debris in the stream; mostly garbage originating from houses upstream: garden hose, paint brushes, chunks of glass, pieces of metal furniture, clothing, construction debris, etc.

The stream banks and steep slopes of the ravine appear natural, although are covered so densely with grasses and vines that rock-work revetments may be much more extensive than is evident. The right bank rises very steeply some 20 to 30 ft (6 - 10 m) to the old sugar mill and the Hawaii Sugar Planters Association (HSPA) facility and must be extensively revetted. In places, rock work of carefully set, large stones can be seen. The left bank rises only 5 to 10 ft (2 - 3 m) above the stream to a graded area which varies considerably in width from 30 to perhaps 100 ft (10 - 30 m), then rises again to street level (Kulawea St.). Upstream of the mill property, the channel is modified (realigned) but otherwise not structurally confined except through the Aiea Park Place subdivision, where there is a mixture of high CRM walls and concrete, box culverts above and below Auamo Street.

Immediately downstream of the Aiea Sugar Mill and the box culvert under Ulune Street, the channel is rough concrete with CRM side walls. Water then flows over an escarpment into two very large box culvert structures under H-1 freeway. Below the freeway, segments of concrete culvert alternate with CRM walls and a stream bed of rounded boulders. Channelization of one sort or another extends from a debris basin above Auamo Street all the way to below Kamehameha Highway not far from the stream mouth.

Review of Previous Aiea Area Stream Surveys

Aiea Stream was included in the study of stream channelization by Timbol and Maciolek (1978). However, no biological survey was made, only a mapping of channel modifications. It was noted that 25% of the channel length was altered, essentially all of the stream downstream of the confluence of the first right tributary. Although the percentage of stream length in altered channel has not increased much since 1978, the nature of the channel modifications has, with more concrete culverts replacing realigned channel or revetted banks. Maps prepared for their study indicate that the three stream tributaries are perennial in their middle reaches, above about the 500 ft (150 m), and intermittent higher up. The stream is shown as perennial below 300 ft (90 m). Thus, Aiea Stream is an interrupted stream, channelized through the urban/residential development of Aiea. This stream was further classified as of low environmental and biological value (class IV: "construct - alter"), with one upstream diversion, and crossed 6 times by roadways. Auamo Street culverts have been added more recently.

Aiea Stream is coded No. 3-4-03 in the Hawaii Stream Assessment (Hawaii Cooperative Park Service Unit, 1990). This stream is stated to be interrupted and without separately listed tributaries in the State's stream data base. The stream is listed under "special areas" as including a natural area reserve or sanctuary, special marine or estuarine reach, or wetlands. What this might refer to is unknown. The "aquatic resources" rank is not determined. No part of the stream includes native forest. Recreational resources list fishing (presumably at the mouth) and park use (the upper tributaries are within a State park), with a ranking of "moderate". Under cultural resources it is noted that there is an absence of studies and presence of one site (presumably Keaiwa heiau).

No aquatic surveys in Aiea Stream were uncovered in a review of the literature. The State Department of Natural Resources (DLNR), Aquatic Resources Division retains data on nearby Halawa Stream (State ID No. 3-4-02) and Waiawa Stream (3-4-06) to the west. These are much larger streams than Aiea, yet are ranked low or "limited" and "moderate," respectively (Hawaii Cooperative Park Service Unit, 1990). *AECOS* (1994a) prepared an environmental reconnaissance report of Waiau Stream for a channel reconstruction project. This stream is located some 2.2 mi (3.6 km) to the west, also draining to Pearl Harbor at East Loch. Waiau Stream is intermittent (interrupted) above Kamehameha Highway. *AECOS* has also conducted surveys and/or made water quality measurements on lower Waiawa (*AECOS*, 1991) and Halawa streams (*AECOS*, 1994b) in the Pearl City to Moanalua area.

Field Survey

Field work conducted for this report consisted of *AECOS* biologists visiting the stream channel adjacent to the Aiea Sugar Mill property (about the 100 ft or 30 m elevation), at Auamo Street, and at the 730 ft (220 m) elevation on Aiea Heights Drive, March 17 and 18, 1997.

The stream at Aiea Heights Drive is confined to pipe culverts under the roadway and a steep ravine covered in white shrimp plant (*Justicia betonica*). An open forest of albizia (*Paraserianthus falcataria*), mango (Mangifera indica), kukui (*Aleurites moluccana*), Formosan koa (*Acacia confusa*), silk oak (*Grevillea robusta*), and other species characterizes this area. Above the roadway, the stream bed is only about 6 ft. (2m) lower than the road, but on the downslope side, the stream bed is over 30 ft (10 m) down, indicating that the culvert under the road must be placed at a steep angle. The stream below the road is overgrown with California grass (*Brachiaria mutica*) and white shrimp plant to such an extent that the channel could not be seen from above.

The stream at Auamo Street is confined within high CRM rock walls or concrete culvert structures. Where the bed is mostly natural material, a dense growth of grasses and sedges (*Cyperus alternifolius*) fill the channel. The subdivision lacks trees.

The stream at the sugar mill flows within a small ravine between the mill and a mostly empty lot. A large steel water tank is present on the lot. A listing of the vegetation observed on the lot and along the stream is given as Table 1 below. Trees along the stream in this area are scattered and do not form a closed canopy except upstream of the mill property beside Aiea Intermediate School where koa-haole (*Leucaena leucocephala*) dominates the riparian vegetation. On the mill property, Guinea grass (*Panicum maximum*) dominates the riparian vegetation and most of the adjacent lot. California grass is prominent in local areas. Within the stream bed or close to the stream, umbrella sedge and primrose willow (*Ludwegia octivalvis*) are locally abundant. Where shade from trees discourages tall grass, dayflower (*Commelina diffusa*) and coral berry (*Rivina humilis*) occur.

Several vines mix with the grasses to cover the banks and ravine margins: Mexican creeper (*Antigonon leptopus*), scarlet-fruited gourd (*Coccinea grandis*), and wood rose (*Merremia tuberosa*) are all common to abundant in this setting. Java plum (*Syzigium cumini*) is the most common tree close to the stream. Monkeypod or rain trees (*Samanea saman*) and 'opiuma trees (*Pithecellobium dulce*) are conspicuous throughout the area. Most of the other species listed in Table 1 may be found near the stream, but are associated with the adjacent lot and ruderal areas.

Table 1. Vegetation list for the empty lot and Aiea Stream riparian zone adjacent to the Aiea Sugar Mill (March 17, 1997).

Species	Common name	Status	ID QA	Abundance
	FLOWERING PLANTS			
	DICOTYLEDONES			
ACANTHACEAE				
Asystasia gangetica	Chinese violet	nat.	10	Abundant
Justicia betonica L.	white shrimp plant	nat	10	Abundant
ANACARDIACEAE				
Schinus terebinthifolius Raddi	Christmas berry	nat.	10	Common
AMARANTHACEAE				
Amaranthus spinosus L.	spiny amaranth	nat.	10	Occasional
ASTERACEAE (COMPOSITAE)				
Ageratum conyzoides L.	*maile hohono*	nat.	10	Common
Bidens alba (L.) DC.	beggar's tick	nat.	10	Occasional
Bidens pilosa L.	beggar's tick	nat.	10	Common
Calyptocarpus vialis Less.		nat.	10	Rare
Emilia fosbergi Nicolson	Flora's paintbrush	nat.	10	Occasional
Pluchea symphytifolia (Mill.) Gillis	sourbush	nat.	10	Rare
Sonchus oleraceus L.	sow thistle	nat.	10	Occasional
Wedelia trilobata (L.) Hitchc.	wedelia	nat.	10	Common

Table 1 (continues).

Species	Common name	Status	ID DA	Abundance
CONVOLVULACEAE				
Ipomoea indica Blume		ind.	10	Uncommon
Ipomoea obscura (L.) Ker-Gawl.		nat.	10	Occasional
Merremia aegypta (L.) Urb.	hairy merremia	nat.	10	Rare
Merremia tuberosa (L.) Rendle	wood rose	nat.	10	Common
CUCURBITACEAE				
Momordica charantia L.	balsam pear	nat.	10	Uncommon
Coccinia grandis (L.) Voigt	scarlet-fruited gourd	nat.	10	Common
Cucumis sp.	cucumber	orn.	10	Rare
EUPHORBIACEAE				
Aleurites moluccana (L.) Willd.	*kukui*	pol.		Uncommon
Chamaesyce hirta (L.) Millsp.	garden spurge	nat.	10	Common
Chamaesyce hypericifolia (L.) Millsp.	graceful spurge	nat.	10	Occasional
Ricinus communis L.	castor bean	nat.	10	Occasional
FABACEAE				
Chamaecrista nictitans (L.) Moench	partridge pea, *lauki*	nat.	10	Rare
Crotalaria pallida Aiton	smooth rattlepod	nat.	10	Uncommon
Desmanthus virgatus (L.) Willd.	virgate mimosa	nat.	10	Rare
Indigofera suffruticosa Mill.	indigo	nat.	10	Common
Leucaena leucocephala (Lam.) deWit	*koa haole*	nat.	10	Occasional
Medicago cf. minima	little bur clover	nat.	11	Uncommon
Pithecellobium dulce (Roxb.) Benth.	*'opiuma*	nat.	10	Occasional
Prosopus pallida (Humb. & Bomnpl.) Kunth	*kiawe*	nat.	10	Occasional
Samanea saman (Jacq.) Merr.	monkeypod, rain tree	nat.	10	Common
LAMIACEAE				
Leonotis nepetifolia (L.) R. Br.	Lion's ear	nat.	10	Occasional
MALVACEAE				
Abutilon grandifolium (Willd.) Sweet	hairy abutilon	nat.	10	Rare
Hibiscus rosa-sinensis L.	red hibiscus	orn.	10	Uncommon
Malvastrum coromandelianum (L.) Garcke	false mallow	nat.	10	Common
Sida rhombifolia L.	Cuba jute	nat.	10	Occasional
Sida spinosa L.	prickly sida	nat.	10	Occasional
MORACEAE				
Ficus microcarpa L. fil.	Chinese banyan	nat.	10	Rare
NYCTAGINACEAE				
Boerhavia coccinea Mill.		nat.	10	Uncommon
MYRTACEA				
Eucalyptus sp.	gum	nat.	10	Occasional
Melaleuca quinquenervia (Cav.) S.. Blake	paperbark	nat.	10	Occasional

Table 1 (continues).

Species	Common name	Status	ID QA	Abundance
MYRTACEA (cont.)				
Syzygium cumini (L.) Skeels	Java plum	nat.	10	Common
ONAGRACEAE				
Ludwigia octovalvis (Jascq.) Raven	primrose willow	nat.	10	Occasional
PHYTOLACCACEAE				
Rivina humilis L.	coral berry	nat.	10	Rare
POLYGONACEAE				
Antigonon leptopus Hook. & Arnott	Mexican creeper	nat.	10	Common
PROTEACEAE				
Grevillea robusta A. Cunn. ex R. Br.	silk oak (seedlings)	nat.	10	Occasional
RUBIACEAE				
Paederia scandens(Lour.) Merr.	*maile pilau*	nat.	10	Occasional
RUTACEAE				
Murraya paniculata (L.) Jack.	mock orange	orn.	10	Uncommon
SOLONACEAE				
Capsicum frutescens L.	bird pepper, *nioi*	nat.	10	Rare
Solanum americanum Mill.	*popolo*	nat.	10	Rare
STERCULIACEAE				
Waltheria indica L.	*'uhaloa*	nat.	10	Occasional
MONOCOTYLEDONES				
ARACEAE				
Alocasia macrorrhiza (L.) Schott	*'ape*, elephant ear	pol.	10	Uncommon
ARACACEAE				
Cocos nucifera	coconut	pol.	10	Uncommon
COMMELINACEAE				
Commelina diffusa N. L. Burm.	*honohono*, dayflower	nat.	10	Uncommon
CYPERACEAE				
Cyperus alternifolius L.	umbrella sedge	nat.	10	Occasional
Cyperus gracilis R. Br.	McCoy grass	nat.	10	Uncommon
POACEAE (GRAMINEAE)				
Bothriochloa pertusa (L.) A. Camus	pitted beardgrass	nat.	10	Rare
Brachiaria mutica (Forssk.) Stapf.	California grass	nat.	10	Abundant
Chloris barbata (L.) Sw.	radiate fingergrass	nat.	10	Common
Digitaria insularis (L.) Mez ex Ekman	sourgrass	nat.	10	Uncommon
Eleusine indica (L.) Gartn.	wiregrass	nat.	10	Occasional
Eragrostis sp.	lovegrass	nat.	10	Uncommon
Panicum maximum Jacq.	Guinea grass	nat.	10	Abundant
Paspalum fimbriatum Kunth	fimbriate paspalum	nat.	10	Rare

[KEY FOLLOWS]

Table 1 (continues).

STATUS ABBREVIATIONS:
end. -- endemic; native plant or animal found only in the Hawaiian Islands.
ind. - indigenous; native plant or animal found in Hawai`i and elsewhere (not unique to these islands).
nat. -- an introduced species which has escaped and become naturalized. Introduced after Cook Expedition in 1778.
orn. - a garden or ornamental plant not naturalized at this location.
pol. -- a species very probably introduced into Hawai`i by the Polynesians migrating across the Pacific. Introduced before Cook Expedition in 1778.

ID QA ABBREVIATION:
10 - Identified (recognized) in the field.
11 - Identified from collected material.

ABUNDANCE:
Abundant - a dominant species in the survey area; numerous individuals seen.
Common - a species considered an important part of the assemblage and observed numerous times.
Occasional - as species observed no more than ten times during survey.
Uncommon - Fewer than five specimens seen during survey.
Rare - Only one specimen seen.
Ukw. - Abundance unknown.

Although conditions during and following the freshet on March 17 limited the opportunity to catalogue aquatic biota, a number of typical lowland, exotic species were observed (see Table 2). These were the guppy (*Poecilia reticulata*), adults and tadpoles of the neotropical toad (*Bufo marinus*), crayfish (*Procambarus clarki*), and a pond snail (*Lymnaea* sp.). A male bullfrog (*Rana catesbeiana*) was heard vocalizing in the culvert under Auamo Street. A single dragonfly was observed at a distance near the stream by the mill.

TABLE 2. Checklist of Animals Observed In and Along Aiea Stream, March 17-18, 1997.

Species	Common name	Status	ID QA	Abundance
	INVERTEBRATES			
ARTHROPODA, INSECTA				
ODONATA - LIBELLULIDAE				
uniden.	adult dragonfly	nat.	10	Rare
DIPTERA - CULICIDAE				
Aedes albopictus (Skuse)	forest day mosquito	nat.	10	Common
ARTHROPODA, CRUSTACEA				
DECAPODA - CAMBARIDAE				
Procambarus clarki (Girard)	Amer. swamp crayfish	nat.	10	Uncommon
MOLLUSCA				
PULMONATA - LYMNAEIDAE				
uniden., sinistral	pond snail	nat.	11	Occasional

Table 2 (Continues).

Species	Common name	Status	ID QA	Abundance
	VERTEBRATES			
FISHES - POECILIIDAE				
Poecilia reticulata (Peters)	guppy	nat.	10	Common
AMPHIBIANS - BUFONIDAE				
Bufo marinus L.	giant neotropical toad	nat.	10	Common
AMPHIBIANS - RANIDAE				
Rana catesbeiana Shaw	American bullfrog	nat.	10s	Unk.
AVIANS - CHARADRIIDAE				
Pluvialis dominica fulva	Pacific golden plover	ind.	10	Uncommon
AVIANS - COLUMBIDAE				
Geopelia striata striata	barred dove	nat.	10	Abundant
Streptopelia chinensis chinensis	lace-necked dove	nat.	10	Common
AVIANS - PYCNONOTIDAE				
Pycnonotus cafer	red-vented bulbul	nat.	10	Occasional
Pycnonotus jocosus	red-whiskered bulbul	nat.	10	Uncommon
AVIANS - CARDULINAE				
Carpodacus mexicanus	House finch	nat.	10	Common
AVIANS - STURNIDAE				
Acridotheres tristis tristis	common mynah	nat.	10	Abundant
ESTRILIDAE				
Amandava amandava	strawberry finch	nat.	10	Occasional
Padda oryzivora	Java sparrow	nat.	10	Uncommon
FRINGILLIDAE				
Richmondena cardinalis	Kentucky cardinal	nat.	10	Uncommon
MAMMALS - FELIDAE				
Felis sylvestris catus	feral (domestic) cat	nat.	10s	Unk.

NOTES: See Table 1.
ID QA ABBREVIATION:
10s – Identified in the field by sign or call.

Assessment

Aiea Stream is highly modified in the lower reach where it passes through the Honolulu urban corridor along the north shore of Pearl Harbor. The proposed stream modification is located in this area. The upper watershed extends only to around the 1400 ft. (430 m) elevation and the stream is an interrupted one (the stream dries in some segments during periods of sparse rainfall). Portions of this stream above Aiea Park Place subdivision are well away from the extensively developed ridges (Aiea Heights and Halawa Heights), may be continuous flowing, and may include aquatic habitat of some value, although this could be determined only by survey within the forested parts of the

watershed during the drier months of the year. Only diadromous populations of native species in these remote areas could be adversely impacted by the proposed channel modifications. More than likely, because of urban development on much of the watershed, extensive existing channelization of the lowest reach, and the relatively short length of the stream, aquatic habitat even in remote areas harbors only exotic (introduced) species of fishes and macroinvertebrates.

Within the project area, Aiea Stream has minimal aquatic resource value. The plants observed close to the stream (riparian zone) and those in the empty lot adjacent to the stream are dominated by introduced species. Of 65 recorded species, only one is native (indigenous to Hawai`i). Many are ruderal weeds; that is, plants characteristic of disturbed areas. Animals observed in the stream are all common, lowland, introduced species. Species abundances are low, although this may be due to conditions at the time of the survey. The limited resource value of the stream could be preserved by designing the culvert bottom to accommodate a natural stream bed. Preserving or planting large trees to shade the culvert would also mitigate some of the adverse impacts (e.g., increased temperature) concrete culverts can have on water quality.

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Appendix B

DRAFT

TRAFFIC IMPACT ANALYSIS

Aiea Public Library

AIEA, OAHU, HAWAII

February 1999

PARSONS BRINCKERHOFF

Over a Century of Engineering Excellence

TRAFFIC IMPACT ANALYSIS

AIEA PUBLIC LIBRARY
Aiea, Oahu, Hawaii

February 1999

Prepared For:

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PBQD Reference Number:
16293A.01

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Appendices

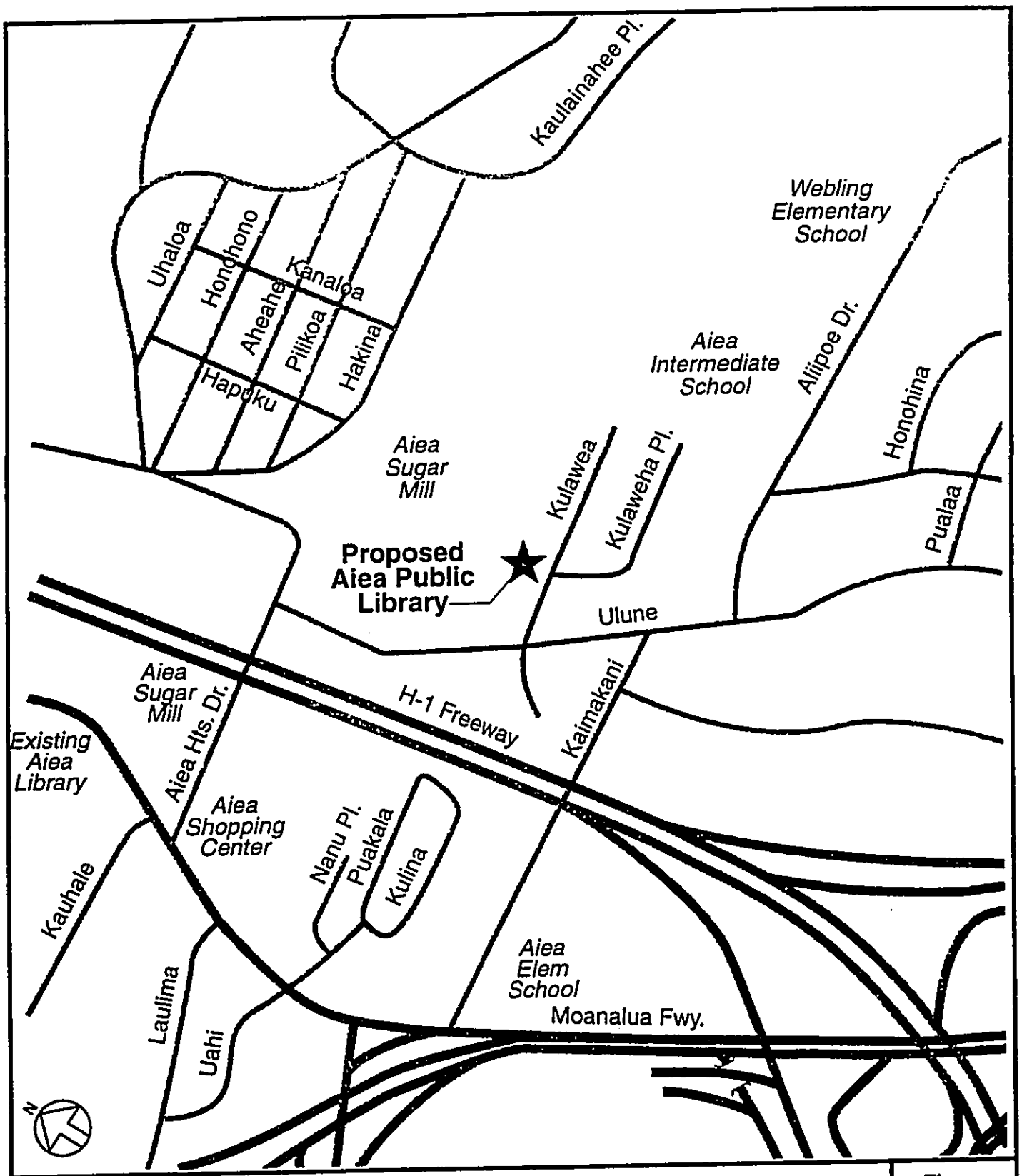
DRAFT

I. INTRODUCTION

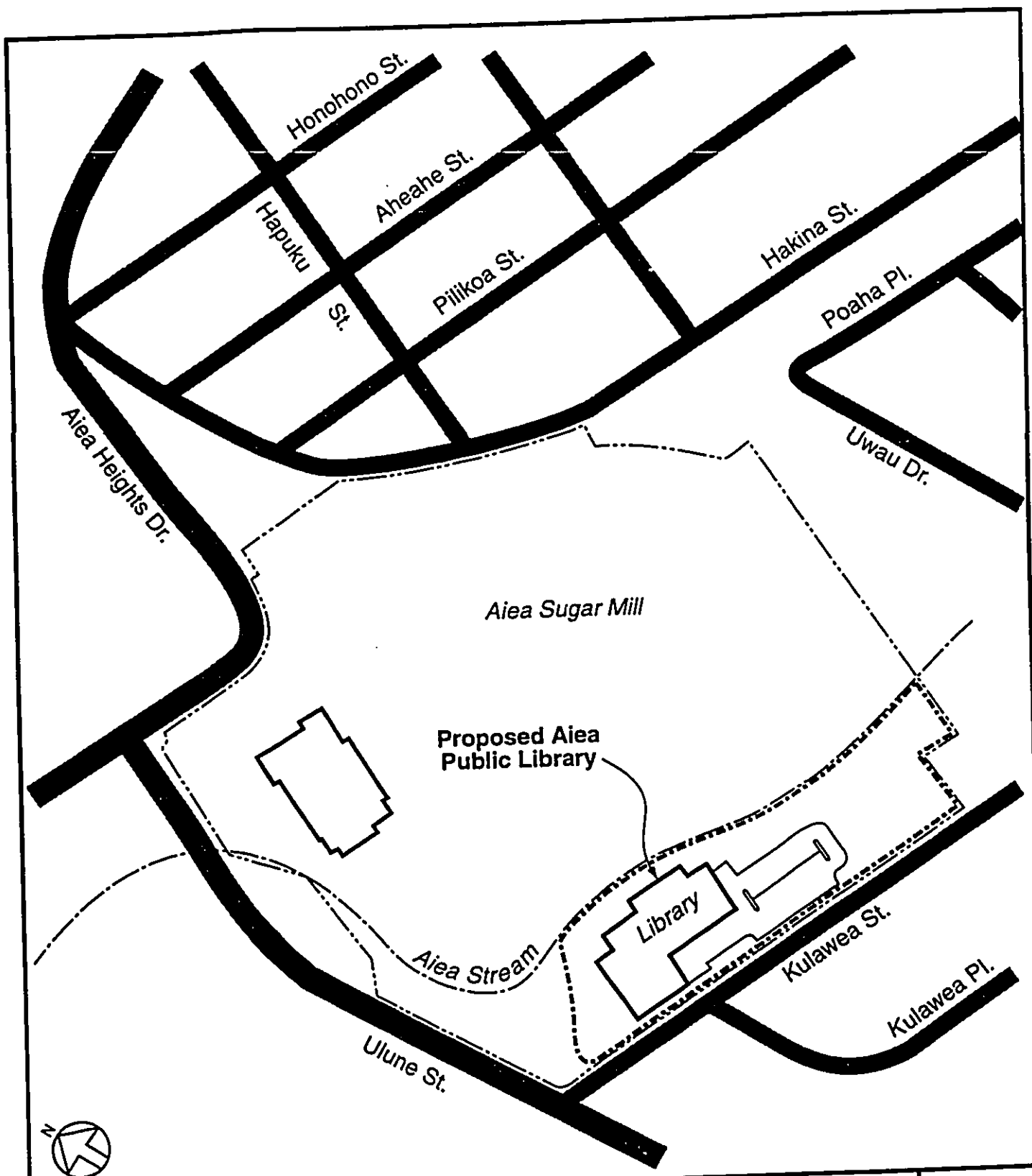
The Department of Education and the Department of Accounting & General Services is planning to relocate the Aiea Public Library from its existing site on Moanalua Road to a site at the mauka/Ewa corner of the Kulawea Street/Ulune Street intersection. Figure 1 shows the project vicinity map. The library would be accessed from Kulawea Street via a driveway located opposite of Kulawea Place. Kulawea Street is also used as access Aiea Intermediate School. The proposed parcel is planned to provide parking, landscaping, and approximately 18,000 square feet of floor area. Figure 2 provides the proposed site plan.

The purpose of this report is to document existing and projected Year 2001 traffic conditions at key intersections within the study area. Roadways in the study area include Aiea Heights Drive, Ulune Street, Kulawea Street and Kulawea Place. Existing roadway conditions are documented, and the operational characteristics of the three intersections within the study area are described. Future traffic conditions are reported with and without the project for the same three intersections.

The Year 2001 analysis is used to identify the traffic impacts of the relocated Aiea Public Library at its projected completion year. Based on the results, recommendations are made on access design and intersection improvements that would benefit roadway operations in the study area.



PB 100 YEARS	SITE LOCATION MAP	Figure 1



PB 100 YEARS	SITE PLAN	Figure 2

II. EXISTING CONDITIONS

A. EXISTING ROADWAY SYSTEM

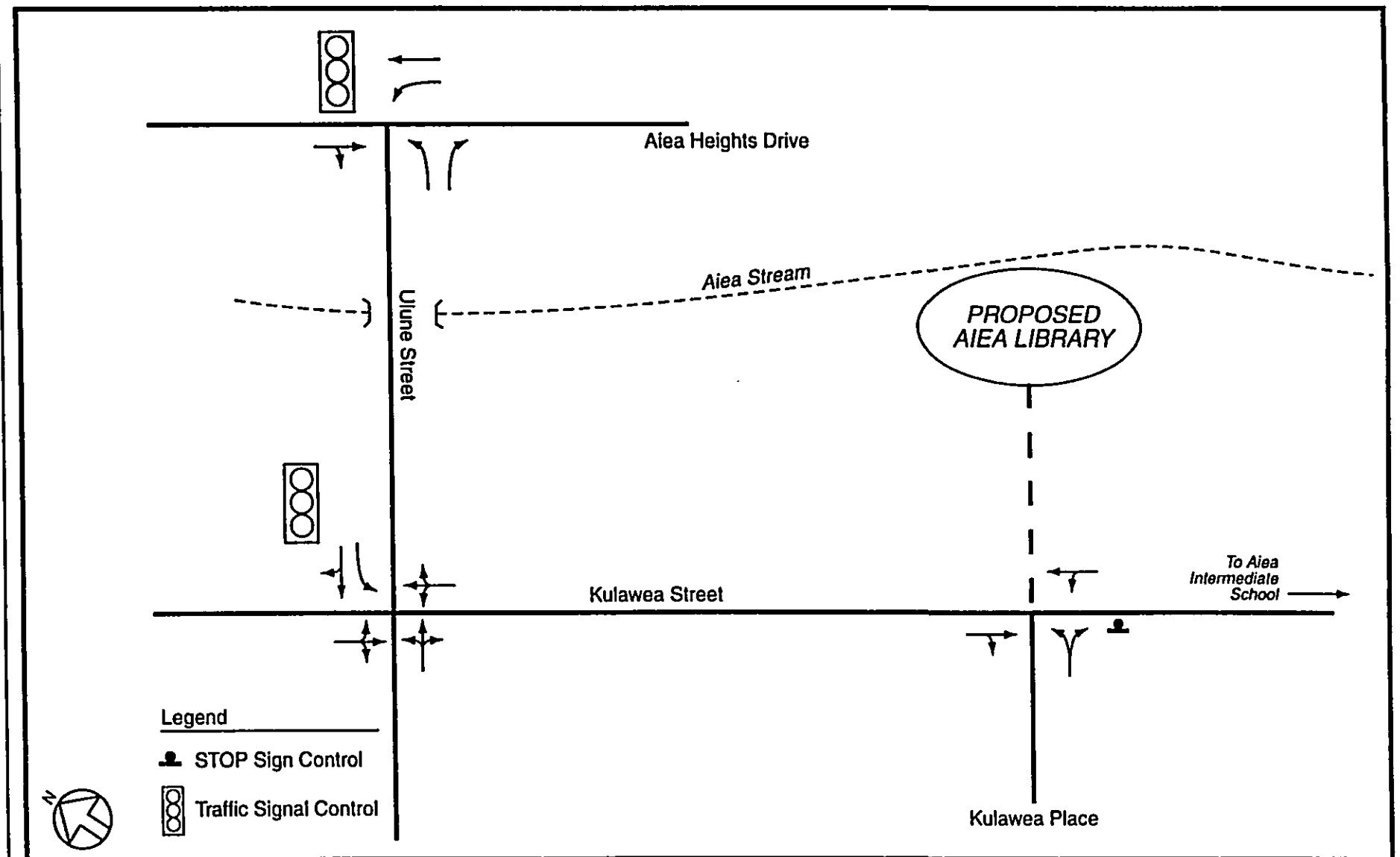
Figure 3 illustrates the existing roadway conditions described in this section.

Within the project study area, Aiea Heights Drive transitions from a two-lane roadway mauka of Ulune Street to a four-lane, undivided roadway makai of Ulune Street. The transition between the roadway cross-sections is handled by dropping and adding lanes at Ulune Street intersection. Aiea Heights Drive is signalized at this intersection. An exclusive left-turn lane is provided for makai-bound traffic turning into Ulune Street. The posted limit is 25 miles per hour (mph). of the Aiea Heights Drive bridge over Interstate H-1 and the commercial area is makai of the bridge

Currently, the Aiea Heights Drive bridge over Interstate H-1 is being reconstructed. Due to the construction, the normal two lanes in each direction over the bridge has been reduced to one lane in each direction. The bridge construction is projected to be completed by the time the library is relocated.

Ulune Street is a two-lane roadway which runs in the Koko Head-Ewa direction. The roadway provides a connection between Kahuapaani Street and Aiea Heights Drive, paralleling Moanalua Road. At the signalized intersection with Aiea Heights Drive, separate left and right turn lanes are provided on the Ulune Street approach. On the Ewa side of its intersection with Kulawea Street, Ulune Street has a pavement width of 36 feet consisting of a 12-foot, Ewa-bound lane and a 24-foot, Koko Head-bound lane. Vehicles were observed using the 24-foot, Koko Head-bound lane as if it were channelized with separate left and through/right lanes when vehicles were waiting to turn into Kulawea Street. This intersection is signalized. The posted speed limit on Ulune Street is 25 mph.

Kulawea Street is a mauka-makai, two-lane roadway providing access to residential areas and the Aiea Intermediate School. About 250 feet mauka of Ulune Street, Kulawea Street is intersected by Kulawea Place. This is an unsignalized intersection with STOP-sign control on the Kulawea Place approach. The posted speed limit on both streets is 25 mph.



EXISTING INTERSECTION LANE CONFIGURATIONS

Figure 3

Kulawea Place is a Koko Head-Ewa, two-lane cul-de-sac in the residential community. It has a single-lane approach to the intersection with Kulawea Street.

B. EXISTING TRAFFIC VOLUMES

Manual turning movement traffic counts were conducted during the morning and afternoon peak periods on Thursday, January 21, 1999 at the following three intersections:

- Aiea Heights Drive and Ulune Street,
- Ulune Street and Kulawea Street, and
- Kulawea Street and Kulawea Place

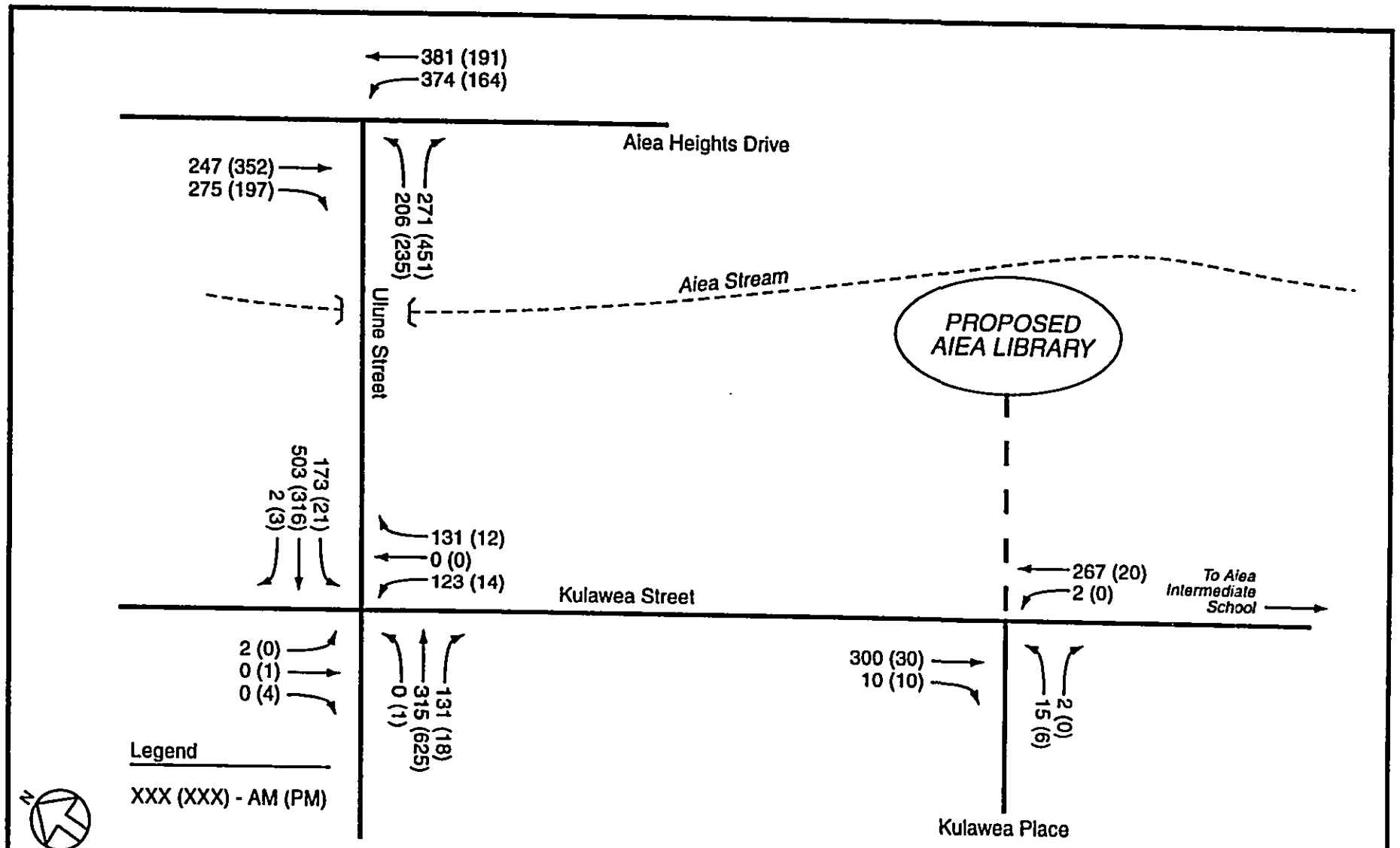
The morning and afternoon peak hours were found to occur from 7:00 to 8:00 AM and 4:15 to 5:15 PM. The existing traffic volumes are shown in Figure 4, and the traffic data are included in Appendix A of this report.

C. EXISTING INTERSECTION OPERATIONS

Traffic operations at each intersection were evaluated based on the existing roadway conditions and traffic volumes. The intersections on Ulune Street were analyzed using the *1994 Highway Capacity Manual* methodology for signalized intersections, and the intersection with Kulawea Place was analyzed using the methodology for unsignalized intersections. Intersection operating conditions are expressed as the qualitative measure Level-of-Service (LOS). LOS is represented by a letter designation ranging from A to F. LOS A represents free-flow operating conditions, while LOS F represents congested conditions. More detailed LOS definitions are included in Appendix B.

Signalized Intersections

Based on the operaticnal analysis of the Aiea Heights Drive/Ulune Street intersection, the overall intersection operates at LOS F in the AM peak hour, experiencing traffic delays. This is mostly caused by the makai-bound approach of Aiea Heights Drive which experiences delay over 60 seconds/vehicle. This is attributable to the temporary reduction



EXISTING WEEKDAY MORNING AND EVENING PEAK HOUR TRAFFIC VOLUMES

Figure 4

in the number of mauka-bound lanes resulting from the construction on the Aiea Heights Drive bridge. Forcing all mauka-bound vehicles into one through/right lane reduces the number of available gaps for makai-bound left turning vehicles. The lack of a protected left-turn for vehicles turning into Ulune Street also contributes to the congestion on Aiea Heights Drive in the makai-bound direction.

During the PM peak hour, the intersection operations improve to an overall LOS C with the Ulune Street approach operating with the most average delay (35.3 seconds/vehicle), LOS D. Ulune Street experiences the largest volume of traffic.

The traffic signal cycle length at the Aiea Heights Drive/Ulune Street intersection varies from 95 to 150 seconds per cycle, and the analyses were conducted using a 120 second cycle length.

The Ulune Street/Kulawea Street intersection operates at an overall LOS B in both peak hours. The traffic signal cycle length at this intersection varied from 90 seconds to 150 seconds; the analyses were conducted using a 120 second cycle length. Table 1 displays the results of the analyses, and the analysis worksheets are in Appendix C.

Unsignalized Intersections

The Kulawea Street/Kulawea Place intersection operates at an overall LOS A in both peak hours. The Kulawea Place approach does experience some delay but the time period of this experience is limited to just before school starts when the traffic volumes on Kulawea Street increases.

The analysis of existing unsignalized intersection is also summarized in Table 1.

Table 1
Existing Conditions Level of Service

Intersection	AM Peak Hour 7:00-8:00 AM		PM Peak Hour 4:15-5:15 PM	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Signalized Intersections				
Aiea Heights Dr./Ulune St.	**F**	**60+**	**C**	**19.3**
Mauka-bound Approach	B	5.8	B	6.0
Makai-bound Approach	F	60+	C	18.6
Ewa-bound Approach	D	30.1	D	35.3
Ulune St./Kulawea St.	**B**	**11.0**	**B**	**7.9**
Mauka-bound Approach	C	18.7	C	18.7
Makai-bound Approach	C	21.4	C	18.8
Ewa-bound Approach	B	6.3	B	8.0
Koko Head-bound Approach	B	9.6	B	6.2
Unsignalized Intersection				
Kulawea St./Kulawea Pl.	**A**	**0.3**	**A**	**0.4**
Ewa-bound Approach	C	10.7	A	3.6
Koko Head-bound Approach	----	----	----	----
Mauka-bound Approach	----	----	----	----
Makai-bound Approach	A	0.0	A	0.1

Discussion of Intersection Operations

Field observations during traffic volume data collection confirm results of the intersection analyses. The only intersection experiencing significant delays is the Aiea Heights Drive/Ulune Street intersection, mostly due to the Aiea Heights Drive bridge reconstruction. During the morning peak hour, the queues on the makai-bound approach on Aiea Heights Drive were observed to extend beyond the adjacent intersection of Hakina Street. The temporary intersection lane configurations due to the bridge construction has reduced the number of mauka-bound lanes, forcing all through and right turning vehicles into one lane. This in turn reduces the number of available gaps in traffic for makai-bound traffic turning

left into Ulune Street, causing them to queue. As the left turning vehicles queue, the queue then begins to block traffic in the makai-bound through traffic lane, exacerbating the traffic queuing on Aiea Heights Drive.

In the afternoon, the Ulune Street approach experiences some delay but the traffic signal adjusts the amount of green time to process the demand. The reduction in number of mauka-bound lanes also affects the afternoon peak hour traffic by requiring a longer green time to process the mauka-bound demand. With two mauka-bound lanes, the required green time would be less thereby allowing more green time for Ulune Street.

The intersection of Ulune Street and Kulawea Street experiences some delay on the makai-bound Kulawea Street, but the traffic signal adjusts to process the demand. The traffic signals at adjacent intersections on Ulune Street creates sufficient gaps in platoons of traffic for the traffic signal system at Kulawea Street to process Kulawea Street demand.

The unsignalized intersection of Kulawea Street and Kulawea Place experiences more traffic volumes in the morning than the afternoon corresponding with the start of school. The majority of the traffic on Kulawea Street during this time period are parents dropping off students. Traffic volumes are much less during the afternoon peak hour, because school is over and student pickups have already occurred.

III. YEAR 2001 TRAFFIC CONDITIONS

The Year 2001 was the assumed year of completion for the proposed relocation of the Aiea Public Library. Traffic generated by the relocated library was based on the forecasting methodology of trip generation, trip distribution, and trip assignment.

The Year 2001 roadway conditions were assumed to be the same as the existing roadway conditions with the exception of the Aiea Heights Drive/Ulune Street intersection. According to the Hawaii State Department of Transportation, the re-construction of the Aiea Heights Drive bridge will be completed, therefore, the lane configurations for the Aiea Heights Drive/Ulune Street intersection included a separate right turn lane on mauka-bound Aiea Heights Drive for future conditions.

A. TRIP GENERATION

Trip generation rates documented in the 1997 Institute of Transportation Engineers (ITE) publication, *Trip Generation, Sixth Edition*, were used to estimate the traffic volumes generated by the project. The total floor area of the library would be approximately 18,000 square feet. Table 2 presents the number of vehicular trips generated by the project in the Year 2001.

Table 2
Trip Generation

Landuse	Intensity	AM Peak Hour 7:00-8:00 AM		PM Peak Hour 4:15-5:15 PM	
		Enter	Exit	Enter	Exit
Library	18,000 s.f.	15	4	58	63

Source: Institute of Transportation Engineers (ITE), *Trip Generation, Sixth Edition*, 1997

B. TRIP DISTRIBUTION

The traffic generated by the relocated Aiea Public Library was directionally distributed. Using the existing turning movement patterns at the intersections, the trips generated were distributed fifty percent in both Ewa and Koko Head bound directions along Ulune Street.

The fifty percent of trips reaching the intersection with Aiea Heights Drive was then distributed with thirty percent mauka-bound and twenty percent makai-bound. These distributions were applied to the trips generated, and the resulting assignment is shown in Figure 5.

C. YEAR 2001 WITHOUT PROJECT TRAFFIC VOLUMES

The Year 2001 without project traffic volumes were estimated by factoring existing traffic by annual growth rates. For consistency, annual growth rates to account for future development were taken from the *Traffic Impact Assessment Report for the Aiea Sugar Mill* Development Plan Amendment, dated May 1997 which, in turn, were based on historical data taken from DOT traffic count stations in the surrounding area. This growth rate was one percent per year.

Additional growth was added to Aiea Heights Drive to account for future developments. As of this writing, the only active development is the Lapa`olu residential project. Traffic to and from Aiea Heights, mauka of Ulune Street, was increased by an additional one percent annually for a total annual growth rate of two percent.

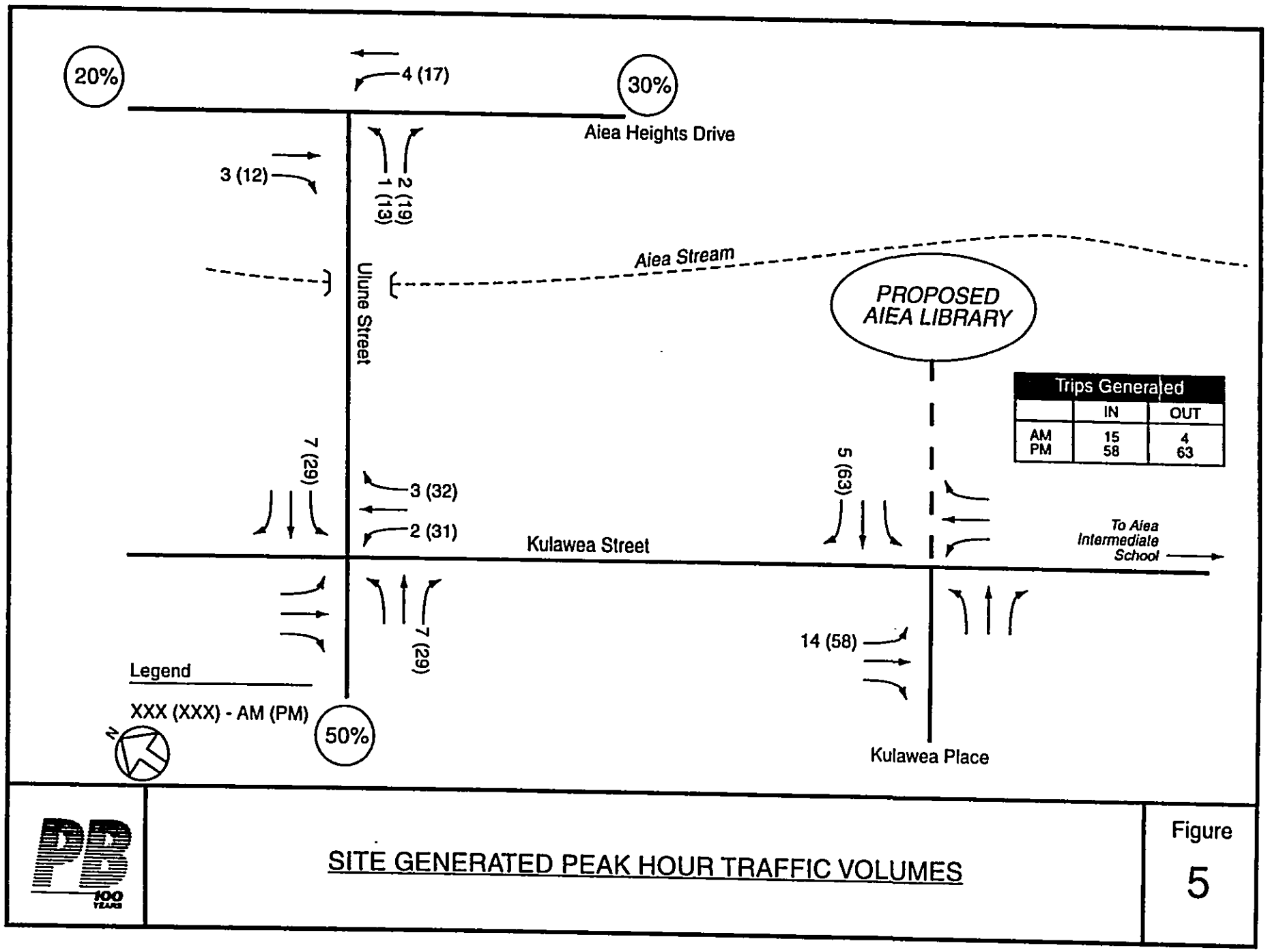
The resulting traffic volumes are the without project peak hour traffic volumes shown in Figure 6. The Without Project traffic volumes are the traffic volumes that would occur prior to opening the library.

D. TOTAL TRAFFIC

The site generated traffic (see Figure 5) was added to the future Without Project traffic (see Figure 6) to obtain the future With Project peak hour traffic volumes. Figure 7 presents the Year 2001 With Project peak hour turning movement volumes.

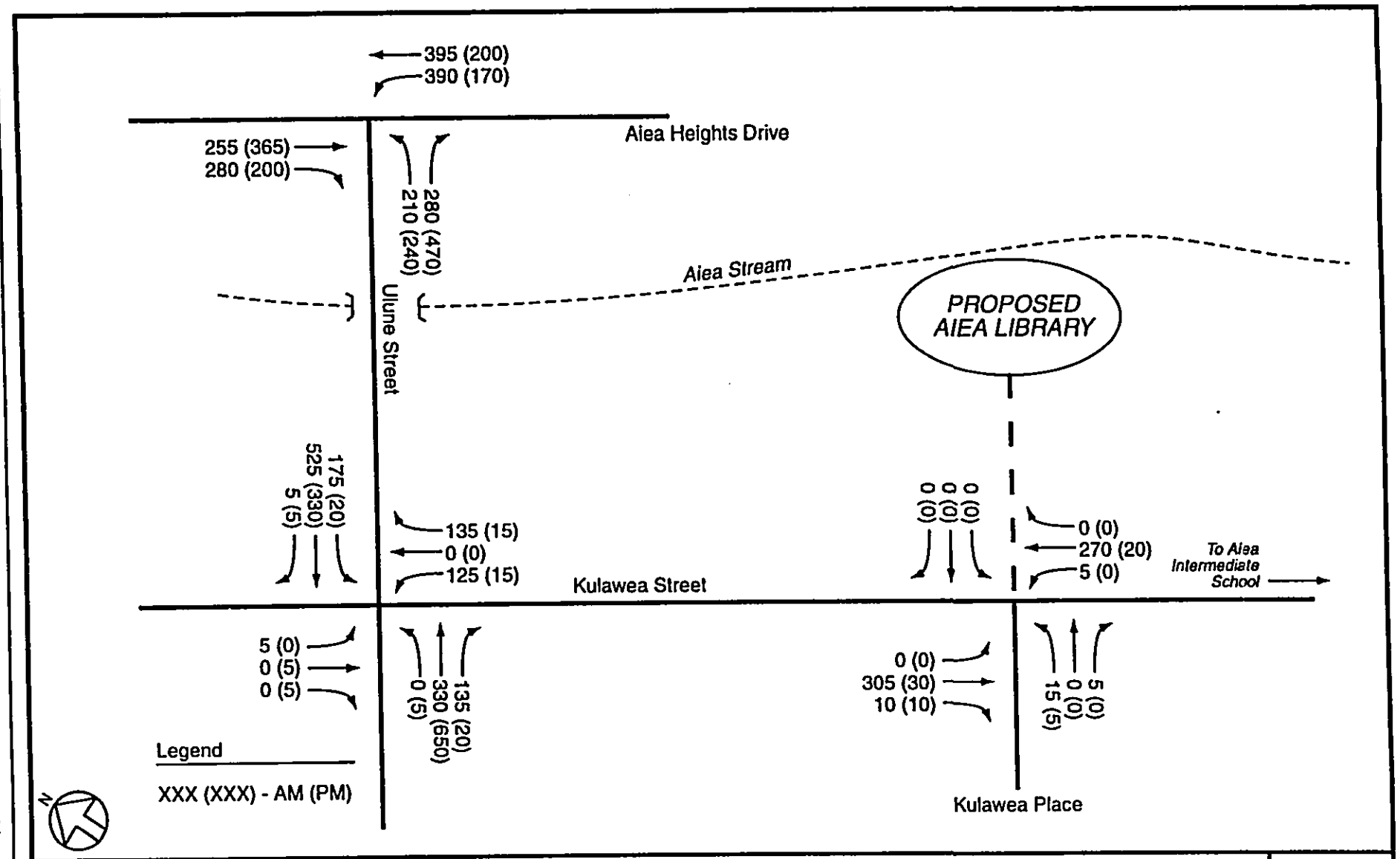
E. INTERSECTION OPERATIONS ANALYSIS RESULTS

The three study intersections were analyzed for the Without Project and With Project conditions using the *1994 Highway Capacity Manual* methods for signalized and unsignalized intersections. The intersection of Aiea Heights Drive and Ulune Street was analyzed as a signalized intersection with the modified Intersection lane configurations.



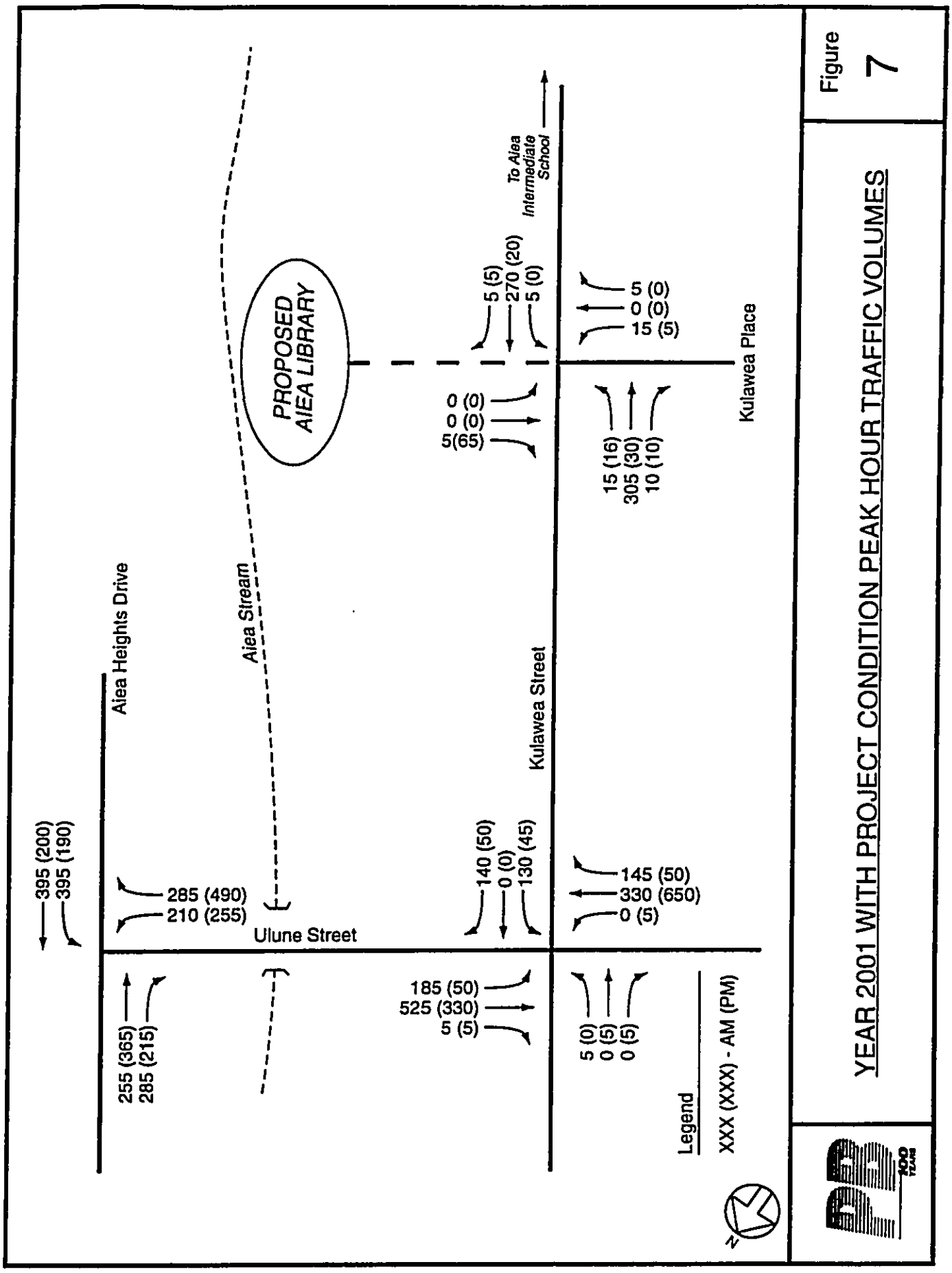
SITE GENERATED PEAK HOUR TRAFFIC VOLUMES

Figure 5



YEAR 2001 WITHOUT PROJECT PEAK HOUR TRAFFIC VOLUMES

Figure 6


PROPOSED AIEA LIBRARY
To Aiea Intermediate School
Kulawea Place
Aiea Heights Drive
Aiea Stream
Ulune Street
Kulawea Street
0 (0)
0 (0)
5(65)
5 (5)
270 (20)
5 (0)
15 (16)
305 (30)
10 (10)
5 (0)
0 (0)
15 (5)
395 (200)
395 (190)
285 (490)
210 (255)
255 (365)
285 (215)
140 (50)
0 (0)
130 (45)
185 (50)
525 (330)
5 (5)
145 (50)
330 (650)
0 (5)
5 (0)
0 (5)
0 (5)
Legend
XXX (XXX) - AM (PM)
YEAR 2001 WITH PROJECT CONDITION PEAK HOUR TRAFFIC VOLUMES
Figure
7

The intersections of Ulune Street/Kulawea Street and Kulawea Street/Kulawea Place were assumed to have the same roadway conditions as analyzed in the existing analysis. Table 3 shows the results of the Without Project and With Project analyses, and the analysis worksheets are in Appendix C.

Table 3
Year 2001 Conditions Levels of Service

Intersection	Without Project		With Project	
	AM (delay)	PM (delay)	AM (delay)	PM (delay)
Signalized Intersections				
Aiea Heights Dr./Ulune St.	**B (12.7)**	**B (12.8)**	**B (13.2)**	**B (13.3)**
Mauka-bound Approach	A (4.9)	B (7.9)	A (4.9)	B (8.0)
Makai-bound Approach	B (14.7	B (9.1)	C (15.5)	B (10.1)
Ewa-bound Approach	D (25.5)	C (21.1)	D (25.4)	C (21.6)
Ulune St./Kulawea St.	**B (14.5)**	**B (8.5)**	**C (15.9)**	**B (9.6)**
Mauka-bound Approach	C (18.8)	C (18.9)	C (18.8)	C (19.0)
Makai-bound Approach	D (36.3)	C (19.1)	D (40.0)	C (21.6)
Ewa-bound Approach	B (6.4)	B (8.6)	B (8.6)	B (8.4)
Koko Head-bound Approach	B (11.1)	B (6.3)	B (12.3)	B (7.9)
Unsignalized Intersections				
Kulawea St./Kulawea Pl.	**A (0.4)**	**A (0.3)**	**A (0.5)**	**A (1.9)**
Ewa-bound Approach	B (9.9)	A (3.5)	C (10.9)	A (4.6)
Koko Head-bound Approach	-----	-----	B (7.6)	A (3.1)
Mauka-bound Approach	-----	-----	A (0.2)	A (1.4)
Makai-bound Approach	A (0.1)	A (0.1)	A (0.1)	A (0.1)

Note: Delay is expressed as seconds per vehicle.

F. SUMMARY OF RESULTS

The results of the intersection analysis indicate that the intersections in the study area will not change in performance levels as a result of the relocated library. The completion of construction on the Aiea Heights Drive bridge will restore the intersection lane

configuration of the Aiea Heights Drive/Ulune Street intersection to its original condition, and will help to provide acceptable levels of service during the peak hours.

All approaches to the intersection of Ulune Street and Kulawea Street are projected to experience no change in level of service but is projected to experience an slight increase in average delay with or without the proposed library. The intersection is projected to experience an overall change in level of service in the morning peak hour from LOS B to LOS C. The increase in overall average vehicle delay is 1.4 seconds/vehicle, and is attributed to the slight increase in traffic (15 vehicles) headed to the library. The Without Project level of service was close to the changing point from LOS B to LOS C so that the slightest increase in delay triggered the change in level of service.

The afternoon peak hour will not see a change in overall level of service or on any approach. The increase in overall average vehicle delay is 1.1 seconds/vehicle.

The intersection of Kulawea Street and Kulawea Place is projected to maintain overall LOS A operation during both peak hours. The addition of the fourth intersection approach is projected to reduce the level of service on the Kulawea Place approach during the morning peak hour from LOS B to LOS C. The increase in the average vehicle delay for Kulawea Place is 1.0 second/vehicle. The morning peak hour occurs before the library will be open to the public, and the additional traffic is attributed to library employees.

In the afternoon peak hour, the intersection is projected to maintain overall LOS A operations with all approaches projected to operate at the same LOS A. Kulawea Street experiences lower traffic volumes during this time period than during the morning peak hour as school is out for the day.

DRAFT

IV. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSION

It is concluded that the traffic generated by the relocated library can be accommodated by the surrounding roadway system. Operational analyses of the study area intersections project that the intersections will operate at almost the same overall levels of service with or without the proposed project. Some increases in average vehicle delays are forecasted, but the magnitude of the increases are less than four seconds/vehicle and are not significant.

The Aiea Heights Drive/Ulune Street intersection operates at LOS F in the morning peak hour largely because of lane closure impacts from the construction project on the Aiea Heights Drive bridge. The temporary lane closure will be removed by the time the library is relocated. The restoration of the exclusive right turn lane on Aiea Heights Drive, mauka-bound will improve intersection operations.

The relocated library is not projected to significantly change these levels of service, and the overall impact of the proposed development to the adjacent intersections is minimal. The current library does not open until 9:00 a.m. which minimizes the traffic impacts in the morning peak hour. In the afternoon peak hour, the Aiea Intermediate School is closed and traffic on Kulawea Street is low.

The relocated library does not interfere with the potential future schemes to realign Ulune Street and its generated traffic should not interfere with the operation of a reconfigured roadway layout.

B. RECOMMENDATIONS

The following recommendations identify specific improvements that help to enhance traffic operations related to access for the relocated library and improvements that could further enhance the overall traffic operations.

Site Related Improvements

Aiea Heights Drive/Ulune Street Intersection - The impact to the intersection by the relocated library will be minimal. The maximum projected increase in average vehicle delay will be 1.0 seconds/vehicle. Improvements needed as a result of relocating the

library should be limited to evaluating traffic signal timing to ensure sufficient green time to process the increased demand.

Ulune Street/Kulawea Street Intersection - The overall intersection is projected to operate well, but the makai-bound Kulawea Street approach is projected to experience a slight increase in delay due to the added traffic volumes from the library. Traffic signal timings should be evaluated to ensure adequate green time to process the increase in demand.

Kulawea Street/Kulawea Drive Intersection - The impact to the intersection by the relocated library will be the addition of a fourth intersection leg. The design of the access to the library should be consistent with the latest City & County of Honolulu standards. In the morning peak hour, the impact should be minimal as traffic to and from the library will be limited to employees. In the afternoon when traffic is heavier to and from the library, the traffic volumes on Kulawea Street are lighter and the net result is good traffic operations.

On Kulawea Street, on-street parking is permitted on the Ewa side between Kulawea Place and Ulune Street. The approximate distance between the two intersections is 250 feet. It would be desirable to prohibit parking on the Ewa side of Kulawea Street between Kulawea Place and Ulune Street to facilitate traffic operations and maintain sight distance.

Operational Enhancements for Consideration

The three intersections within the study are not significantly impacted by the proposed library.

Based upon field observations, however, it appears that traffic operations at selected intersections could be further improved by implementing the following operational enhancements.

Aiea Heights Drive/Ulune Street - Modify the existing traffic signal to install the appropriate equipment to allow an advance left-turn and through phase for makai-bound Aiea Heights Drive traffic. This would expedite the heavy demand for left-turns observed during the morning peak hour and could reduce vehicle queuing on Aiea Heights Drive. Additionally, it is recommended to separate left-turns and pedestrian movements across Ulune Street into different signal phases. This modification would better protect the significant number of students that cross Ulune Street at this intersection.

Ulune Street/Kulawea Street - The Koko Head-bound Ulune Street approach provides a wide pavement area that is used informally as separate left-turn and through/right-turn lanes when there are a large number of vehicles turning into Kulawea Street. This usually occurs during the peak drop off and pick up time periods for Aiea Intermediate School. The volume of left turns in the morning was approximately 170 vehicles/hour. Formally striping the Koko Head approach of Ulune Street for an exclusive left-turn lane will reduce potential driver confusion at this intersection and would probably increase intersection efficiency.

APPENDIX

Appendix A Traffic Count Data

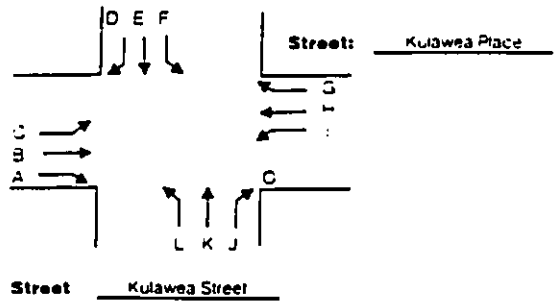
AM COUNT SHEET

Intersection: Kulawea St./Kulawea Pl

Date: 1/21/99

By: Susan Gesler

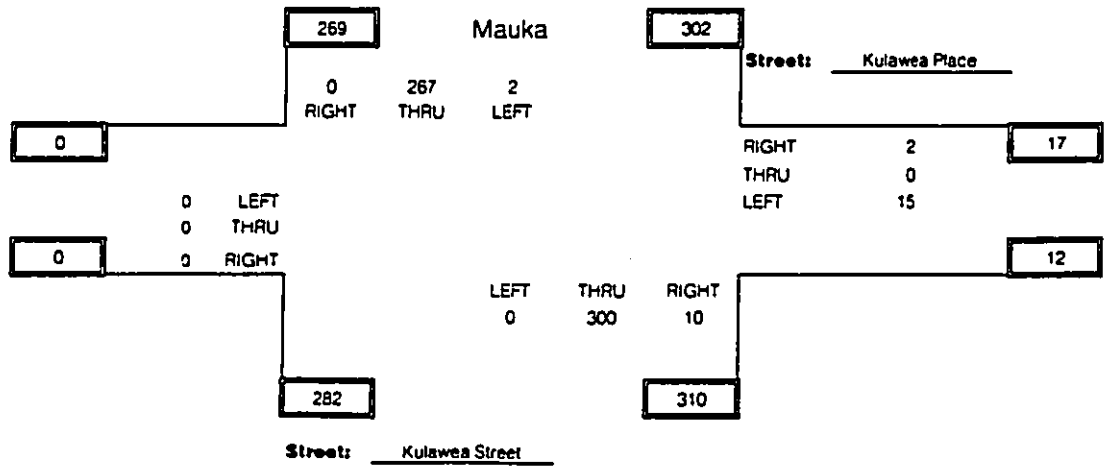
Weather: Clear



TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
6:30 - 6:40					6	0	0		6	2	5		19	307
6:40 - 6:50					7	0	0		1	1	6		15	435
6:50 - 7:00					10	0	0		1	1	18		30	568
7:00 - 7:10					22	0	0		2	1	26		51	596
7:10 - 7:20					36	0	0		1	1	41		79	560
7:20 - 7:30					46	0	0		0	2	65		113	491
7:30 - 7:40					66	1	2		5	3	70		147	381
7:40 - 7:50					64	1	0		4	3	76		148	
7:50 - 8:00					33	0	0		3	0	22		58	
8:00 - 8:10					4	0	0		1	3	7		15	
8:10 - 8:20					3	0	0		0	1	6		10	
8:20 - 8:30					0	0	0		0	1	2		3	
Phf					0.674	0.333	0.167		0.500	0.556	0.658		Peak	Phf
7:00 - 8:00					267	2	2		15	10	300		596	0.671

Peak Hour

7:00 - 8:00



PARSONS BRINCKERHOFF

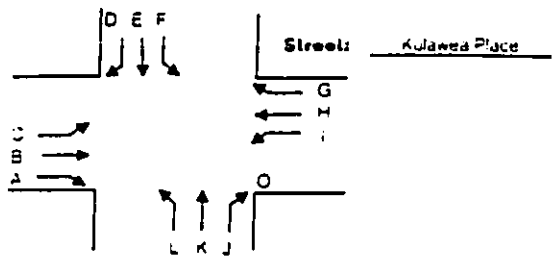
PM COUNT SHEET

Intersection: Kulawea St /Kulawea Pl

Date: 1/21/99

By: Susan Cister

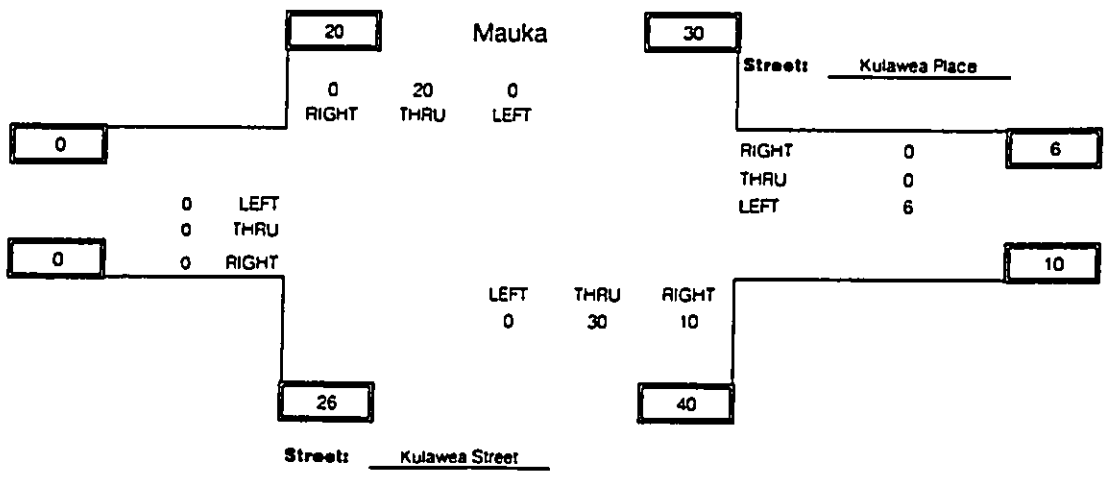
Weather: Clear



TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
3:30 - 3:45					15	0	0		1	1	7		24	89
3:45 - 4:00					7	0	0		4	3	4		18	86
4:00 - 4:15					15	0	0		2	7	4		28	84
4:15 - 4:30					7	0	0		2	2	8		19	66
4:30 - 4:45					3	0	0		2	4	12		21	55
4:45 - 5:00					7	0	0		1	1	7		16	
5:00 - 5:15					3	0	0		1	3	3		10	
5:15 - 5:30					2	0	0		1	1	4		8	
Phf					0.714	0.000	0.000		0.750	0.625	0.625		Peak	Phf
4:15 - 5:15					20	0	0		6	10	30		66	0.786

Peak Hour

4:15 - 5:15



PARSONS BRINCKERHOFF

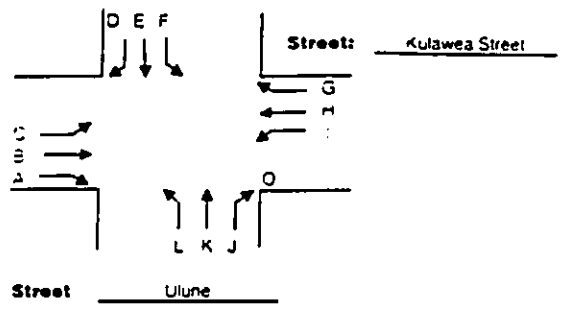
AM COUNT SHEET

Intersection: Ulune St /Kulawea

Date: 1/21/99

By: Alex Gilster

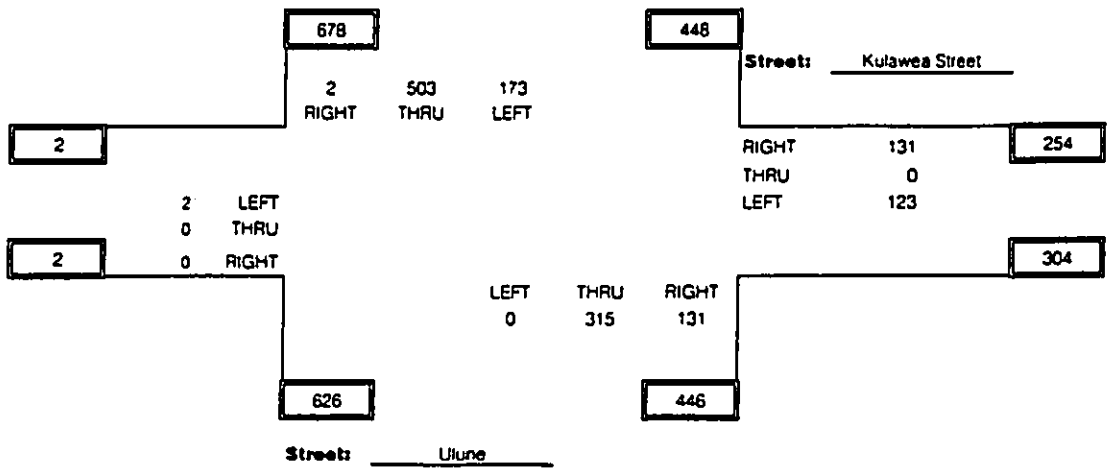
Weather: Clear



TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
6 30 - 6 45	0	0	0	0	182	9	8	0	7	2	45	0	253	1183
6 45 - 7 00	1	0	0	2	134	21	9	0	14	8	43	0	232	1334
7 00 - 7 15	0	0	1	0	156	32	21	0	23	29	73	0	335	1380
7 15 - 7 30	0	0	1	1	117	60	44	0	34	35	71	0	363	1188
7 30 - 7 45	0	0	0	1	111	46	42	0	43	51	110	0	404	963
7 45 - 8 00	0	0	0	0	119	35	24	0	23	16	61	0	278	
8 00 - 8 15	0	0	1	1	82	5	1	0	4	4	45	0	143	
8 15 - 8 30	0	0	0	0	68	0	1	0	1	4	64	0	138	
Phf	0.000	0.000	0.500	0.500	0 806	0.721	0 744	0 000	0.715	0 642	0 716	0.000	Peak	Phf
7 00 - 8 00	0	0	2	2	503	173	131	0	123	131	315	0	1380	0 854

Peak Hour

7 00 - 8 00



PARSONS BRINCKERHOFF

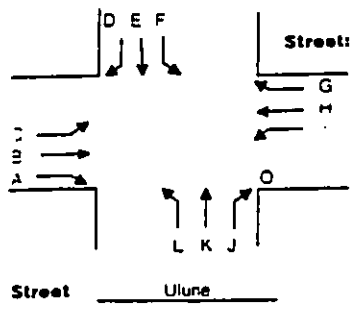
PM COUNT SHEET

Intersection: Ulune St /Kulawea

Date: 1/21/99

By: Alex Closter

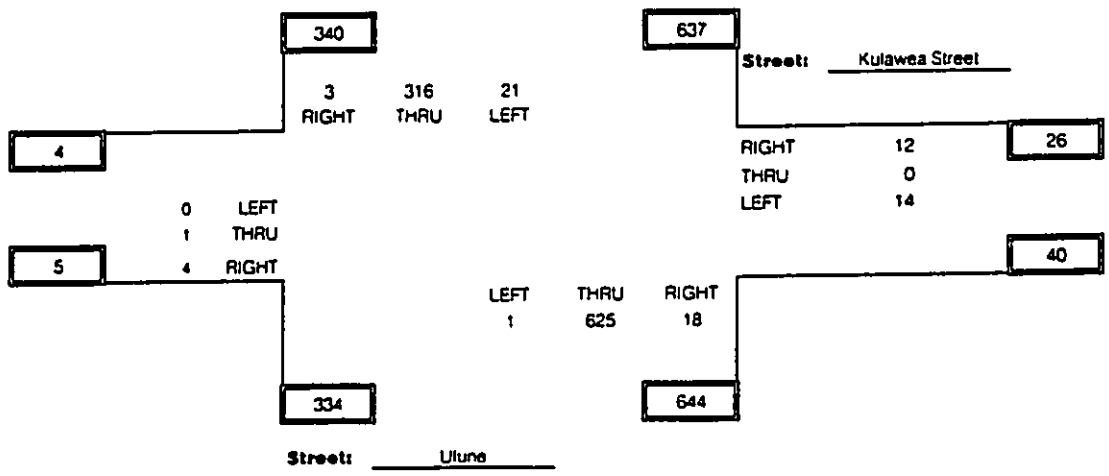
Weather: Clear



TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
3:30 - 3:45	0	0	0	0	79	2	5	0	3	2	103	1	195	950
3:45 - 4:00	0	0	1	1	82	5	5	0	6	2	141	0	243	1015
4:00 - 4:15	0	0	0	0	87	8	6	0	13	4	138	0	256	1010
4:15 - 4:30	0	0	0	0	81	6	4	0	2	8	155	0	256	1015
4:30 - 4:45	1	0	0	1	86	6	4	0	4	6	152	0	260	990
4:45 - 5:00	1	0	0	0	64	7	4	0	5	3	153	1	238	
5:00 - 5:15	2	1	0	2	85	2	0	0	3	1	165	0	261	
5:15 - 5:30	2	0	1	2	70	3	2	0	4	3	142	2	231	
Phf	0.500	0.250	#DIV/0!	0.375	0.919	0.750	0.750	#DIV/0!	0.700	0.563	0.947	0.250	Peak	Phf
4:15 - 5:15	4	1	0	3	316	21	12	0	14	18	625	1	1015	0.972

Peak Hour

4:15 - 5:15



PARSONS BRINCKERHOFF

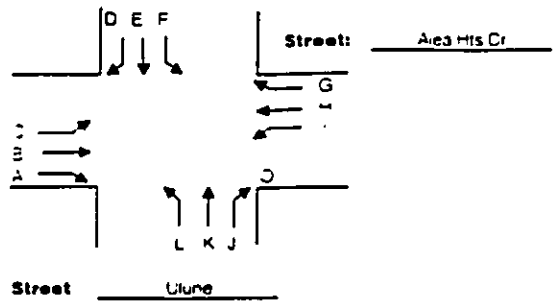
AM COUNT SHEET

Intersection: Aiea Hts Dr/Ulune St

Date: 1/21/99

By: Apaga/Carter

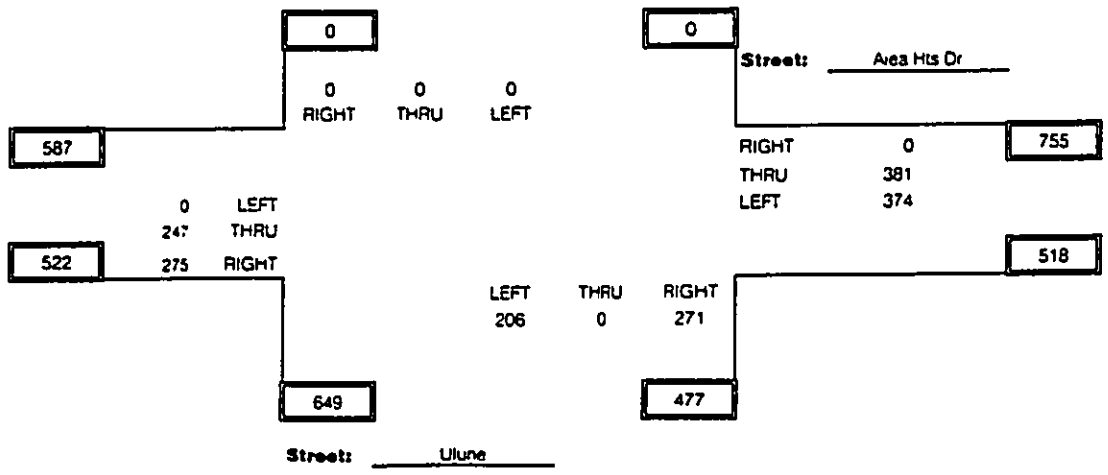
Weather: Clear



TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
6:30 - 6:45	24	19						79	106	28		11	267	1493
6:45 - 7:00	43	25						103	123	32		21	347	1720
7:00 - 7:15	64	46						96	111	50		41	408	1754
7:15 - 7:30	82	65						103	97	70		54	471	1554
7:30 - 7:45	74	77						94	86	100		63	494	1315
7:45 - 8:00	55	59						88	80	51		48	381	
8:00 - 8:15	31	34						48	53	19		23	208	
8:15 - 8:30	20	36						56	55	34		31	232	
													0	
													0	
													0	
													0	
Phf	0.838	0.802						0.925	0.842	0.678		0.817	Peak	Phf
7:00 - 8:00	275	247						381	374	271		206	1754	0.888

Peak Hour

7:00 - 8:00



PARSONS BRINCKERHOFF

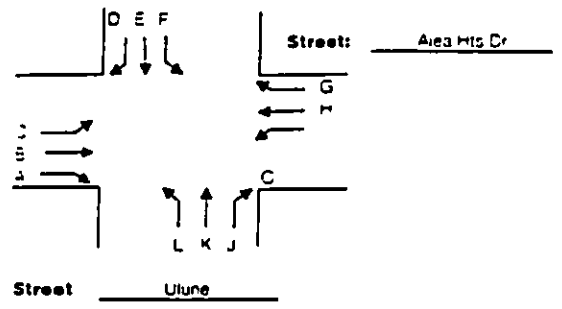
PM COUNT SHEET

Intersection: Aiea Hts Dr /Ulune St

Date: 1/21/99

By: Acacia Data

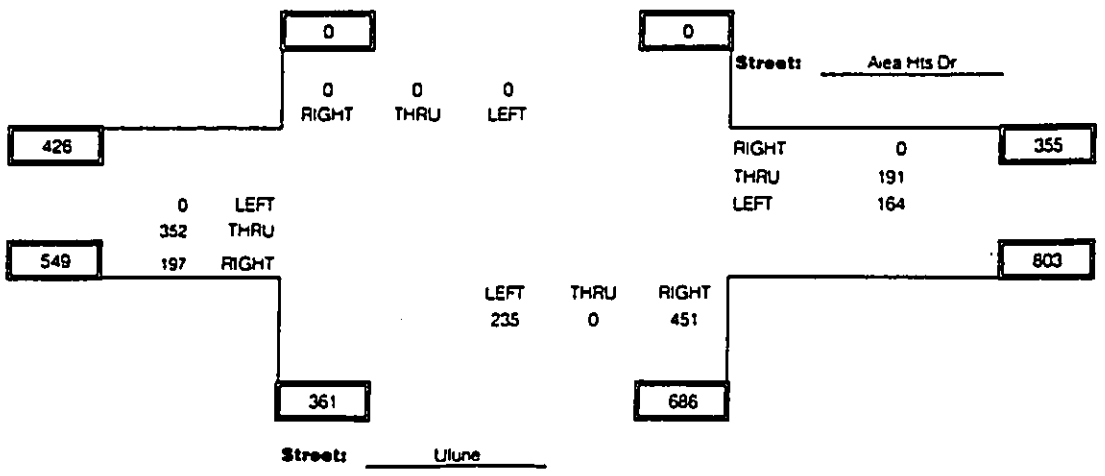
Weather: Clear



TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
3:30 - 3:45	37	70						38	47	64		50	306	1436
3:45 - 4:00	51	88						44	42	85		39	349	1525
4:00 - 4:15	43	89						40	52	106		67	397	1562
4:15 - 4:30	51	82						51	43	106		51	384	1590
4:30 - 4:45	50	86						40	44	117		58	395	1574
4:45 - 5:00	57	81						39	35	110		64	386	
5:00 - 5:15	39	103						61	42	118		62	425	
5:15 - 5:30	30	88						51	41	103		55	368	
Phf	0.864	0.854						0.783	0.932	0.956		0.918	Peak	Phf
4:15 - 5:15	197	352						191	164	451		235	1590	0.935

Peak Hour

4:15 - 5:15



PARSONS BRINCKERHOFF

Appendix B Levels of Service Definitions

The *Highway Capacity Manual* defines six Levels of Service (LOS), labeled A through F, from best to worst conditions. Levels of Service for signalized and unsignalized intersections are defined in terms of average user delays. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

For unsignalized intersections, the *Highway Capacity Manual* evaluates gaps in the major street traffic flow and calculates available gaps for left-turns across oncoming traffic and for the left and right-turns onto the major roadway from the minor street.

LEVEL-OF-SERVICE A: Little or no delay.

LEVEL-OF-SERVICE B: Short traffic delays.

LEVEL-OF-SERVICE C: Average traffic delays.

LEVEL-OF-SERVICE D: Long traffic delays.

LEVEL-OF-SERVICE E: Very long traffic delays.

LEVEL-OF-SERVICE F: Demand volume exceeds capacity, resulting in extreme delays with queuing that may cause severe congestion and affect other movements at the intersection.

Appendix C Intersection Capacity Analysis Worksheets

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) Kulawea Place (E-W) Kulawea Street
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... Miyamoto
Date of Analysis..... 2/1/99
Other Information..... Year 2001 Condition, AM Peak Hour, w/o Project

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	0	> 1	0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes		305	10	5	270		15		5			
PHF		.66	.56	.333	.67		.5		.25			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	471	
Potential Capacity: (pcph)	799	
Movement Capacity: (pcph)	799	
Prob. of Queue-Free State:	0.97	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	480	
Potential Capacity: (pcph)	1012	
Movement Capacity: (pcph)	1012	
Prob. of Queue-Free State:	0.98	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.98	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	889	
Potential Capacity: (pcph)	324	
Major LT, Minor TH Impedance Factor:	0.98	
Adjusted Impedance Factor:	0.98	
Capacity Adjustment Factor due to Impeding Movements	0.98	
Movement Capacity: (pcph)	317	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	33	317 >	418	9.9	0.5	B	9.9
NB R	22	799 >					
WB L	17	1012		3.6	0.0	A	0.1

Intersection Delay = 0.4 sec/veh

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) Kulawea Place (E-W) Kulawea Street
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... Miyamoto
Date of Analysis..... 2/1/99
Other Information..... Year 2001 Condition, PM Peak Hour, w/o Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 < 0		0	> 1	0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes		30	10	1	20		5		1			
PHF		.63	.63	.25	.71		.75		.25			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	56	
Potential Capacity: (pcph)	1297	
Movement Capacity: (pcph)	1297	
Prob. of Queue-Free State:	1.00	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	64	
Potential Capacity: (pcph)	1598	
Movement Capacity: (pcph)	1598	
Prob. of Queue-Free State:	1.00	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	1.00	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	88	
Potential Capacity: (pcph)	942	
Major LT, Minor TH Impedance Factor:	1.00	
Adjusted Impedance Factor:	1.00	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	940	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	8	940 >					
NB R	4	1297 >	1035	3.5	0.0	A	3.5
WB L	4	1598		2.3	0.0	A	0.1

Intersection Delay = 0.3 sec/veh

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 02-03-1999
Center For Microcomputers In Transportation

Streets: (E-W) Kulawea Street (N-S) Ulune Street
Analyst: Miyamoto File Name: ULKUBAM.HC9
Area Type: Other 2-1-99 Morning
Comment: Year 2001 Condition, AM Peak Hour, w/o Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	1	1	1	< 0
Volumes	5	1	1	125	1	135	1	330	135	175	525	5
PHF or PK15	0.50	0.25	0.25	0.72	0.25	0.64	0.25	0.72	0.64	0.72	0.81	0.50
Lane W (ft)		12.0			12.0			12.0	12.0	12.0	12.0	
Grade		0			0			-2			2	
% Heavy Veh	1	1	1	1	1	1	2	2	2	2	2	2
Parking	N		N	N		N	N		N	N		
Bus Stops			0			0			0			0
Con. Peds			2			13			16			18
Ped Button	(Y/N)	Y	11.5 s	(Y/N)	Y	11.5 s	(Y/N)	Y	8.5 s	(Y/N)	Y	8.5
Arr Type		3			3			3	3	3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	*				NB Left *			
	Thru	*				Thru *			
	Right	*				Right *			
	Peds	*				Peds *			
WB	Left	*				SB Left *			
	Thru	*				Thru *			
	Right	*				Right *			
	Peds	*				Peds *			
NB	Right					EB Right			
SB	Right					WB Right			
Green		35.0A				Green 75.0A			
Yellow/AR		5.0				Yellow/AR 5.0			

Cycle Length: 120 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LTR	385	1249	0.047	0.308	18.8	C	18.8	C
WB	LTR	450	1460	0.864	0.308	36.3	D	36.3	D
NB	LT	1187	1850	0.389	0.642	6.7	B	6.4	B
	R	1017	1585	0.207	0.642	5.8	B		
SB	L	308	480	0.789	0.642	18.9	C	11.1	B
	TR	1180	1840	0.557	0.642	8.2	B		

Intersection Delay = 14.5 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.813

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 02-03-1999
Center For Microcomputers In Transportation

Streets: (E-W) Kulawea Street (N-S) Ulune Street
Analyst: Miyamoto File Name: ULKUBPM.HC9
Area Type: Other 2-1-99 Evening
Comment: Year 2001 Condition, PM Peak Hour, w/o Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	1	1	1	< 0
Volumes	1	5	5	15	1	15	5	650	20	20	330	5
PHF or PK15	0.25	0.25	0.50	0.70	0.25	0.75	0.25	0.95	0.56	0.75	0.92	0.38
Lane W (ft)		12.0			12.0			12.0	12.0	12.0	12.0	
Grade		0			0			-2			2	
% Heavy Veh	1	1	1	1	1	1	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			2			13			16			18
Ped Button	(Y/N)	Y	11.5 s	(Y/N)	Y	11.5 s	(Y/N)	Y	8.5 s	(Y/N)	Y	8.5
Arr Type		3			3			3	3	3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	*							
Thru	*							
Right	*							
Peds	*							
WB Left	*							
Thru	*							
Right	*							
Peds	*							
NB Right								
SB Right								
Green	35.0A				75.0A			
Yellow/AR	5.0				5.0			

Cycle Length: 120 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LTR	494	1601	0.069	0.308	18.9	C	18.9	C
WB	LTR	459	1489	0.098	0.308	19.1	C	19.1	C
NB	LT	1171	1824	0.601	0.642	8.7	B	8.6	B
	R	1017	1585	0.035	0.642	5.1	B		
SB	L	105	164	0.257	0.642	6.3	B	6.3	B
	TR	1177	1834	0.316	0.642	6.3	B		

Intersection Delay = 8.5 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.438

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 02-03-1999
Center For Microcomputers In Transportation

Streets: (E-W) Aiea Heights Drive (N-S) Ulune Street
Analyst: Miyamoto File Name: AHULBAM.HC9
Area Type: Other 2-1-99 Morning
Comment: Year 2001 Condition, AM Peak Hour, w/o Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	0	1	0	0	0
Volumes		255	280	390	395		210		280			
PHF or PK15		0.80	0.84	0.84	0.93		0.82		0.68			
Lane W (ft)		12.0	12.0	11.0	11.0		11.0		11.0			
Grade		0			0			1				
% Heavy Veh		2	2	2	2		2		2			
Parking	N	N		N	N		N	N				
Bus Stops			0			0			0			
Con. Peds			34			0			19			0
Ped Button	(Y/N)	Y	8.1 s	(Y/N)	N		(Y/N)	Y	11.1 s			
Arr Type		3	3	3	3		3		3			
RTOR Vols			0			0			271			
Lost Time		3.00	3.00	3.00	3.00		3.00		3.00			
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	*		
Thru	*				Thru			
Right	*				Right	*		
Peds	*				Peds	*		
WB Left	*				SB Left			
Thru	*				Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	80.0A				Green	30.0A		
Yellow/AR	5.0				Yellow/AR	5.0		

Cycle Length: 120 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	T	1273	1863	0.251	0.683	4.7	A	4.9	A
	R	1061	1553	0.314	0.683	5.0	A		
WB	L	516	755	0.900	0.683	23.4	C	14.7	B
	T	1230	1801	0.345	0.683	5.2	B		
NB	L	454	1702	0.564	0.267	25.8	D	25.5	D
	R	402	1507	0.032	0.267	21.0	C		

Intersection Delay = 12.7 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.806

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 02-03-1999
Center For Microcomputers In Transportation

Streets: (E-W) Aiea Heights Drive (N-S) Ulune Street
Analyst: Miyamoto File Name: AHULBPM.HC9
Area Type: Other 2-1-99 Evening
Comment: Year 2001 Condition, PM Peak Hour, w/o Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	0	1	0	0	0
Volumes		365	200	170	200		240		470			
PHF or PK15		0.85	0.86	0.93	0.78		0.92		0.96			
Lane W (ft)		11.0	12.0	11.0	11.0		11.0		11.0			
Grade		0			0			1				
% Heavy Veh		2	2	2	2		2		2			
Parking	N	N		N	N		N	N				
Bus Stops			0			0			0			
Con. Peds			26			0			16			0
Ped Button	(Y/N)	Y	8.1 s	(Y/N)	N		(Y/N)	Y	10.9 s			
Arr Type		3	3	3	3		3		3			
RTOR Vols			0			0			164			
Lost Time		3.00	3.00	3.00	3.00		3.00		3.00			
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	*		
Thru	*				Thru			
Right	*				Right	*		
Peds	*				Peds	*		
WB Left	*				SB Left			
Thru	*				Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	70.0A				Green	40.0A		
Yellow/AR	5.0				Yellow/AR	5.0		

Cycle Length: 120 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	T	1080	1801	0.397	0.600	8.3	B	7.9	B
	R	936	1560	0.249	0.600	7.3	B		
WB	L	310	516	0.591	0.600	11.8	B	9.1	B
	T	1080	1801	0.237	0.600	7.3	B		
NB	L	596	1702	0.438	0.350	19.7	C	21.1	C
	R	528	1509	0.604	0.350	22.2	C		

Intersection Delay = 12.8 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.595

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512 Weil Hall
Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) Kulawea Place (E-W) Kulawea Street
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... Miyamoto
Date of Analysis..... 2/1/99
Other Information.....Existing Conditions, AM Peak Hour
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 < 0		0	> 1	0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes		300	10	2	267		15		2			
PHF		.66	.56	.333	.67		.5		.25			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	464	
Potential Capacity: (pcph)	806	
Movement Capacity: (pcph)	806	
Prob. of Queue-Free State:	0.99	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	473	
Potential Capacity: (pcph)	1020	
Movement Capacity: (pcph)	1020	
Prob. of Queue-Free State:	0.99	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.99	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	869	
Potential Capacity: (pcph)	332	
Major LT, Minor TH Impedance Factor:	0.99	
Adjusted Impedance Factor:	0.99	
Capacity Adjustment Factor due to Impeding Movements	0.99	
Movement Capacity: (pcph)	329	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	33	329 >	377	10.7	0.4	C	10.7
NB R	9	806 >					
WB L	7	1020		3.6	0.0	A	0.0

Intersection Delay = 0.3 sec/veh

Center For Microcomputers In Transportation
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Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) Kulawea Place (E-W) Kulawea Street
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... Miyamoto
Date of Analysis..... 2/1/99
Other Information.....Existing Conditions, PM Peak Hour
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 < 0		0	> 1	0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes		30	10	1	20		6		1			
PHF		.63	.63	.25	.71		.75		.25			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	56	
Potential Capacity: (pcph)	1297	
Movement Capacity: (pcph)	1297	
Prob. of Queue-Free State:	1.00	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	64	
Potential Capacity: (pcph)	1598	
Movement Capacity: (pcph)	1598	
Prob. of Queue-Free State:	1.00	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	1.00	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	88	
Potential Capacity: (pcph)	942	
Major LT, Minor TH Impedance Factor:	1.00	
Adjusted Impedance Factor:	1.00	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	940	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	9	940 >	1027	3.6	0.0	A	3.6
NB R	4	1297 >					
WB L	4	1598		2.3	0.0	A	0.1

Intersection Delay = 0.4 sec/veh

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 02-03-1999
Center For Microcomputers In Transportation

Streets: (E-W) Kulawea Street (N-S) Ulune Street
Analyst: Miyamoto File Name: ULKUAM.HC9
Area Type: Other 2-1-99 Morning
Comment: Existing 7-8 AM Peak Hour

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	1	1	1	< 0
Volumes	2	1	1	123	1	131	1	315	131	173	503	2
PHF or PK15	0.50	0.25	0.25	0.72	0.25	0.64	0.25	0.72	0.64	0.72	0.81	0.50
Lane W (ft)		12.0			12.0			12.0	12.0	12.0	12.0	
Grade		0			0			-2			2	
% Heavy Veh	1	1	1	1	1	1	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			2			13			16			18
Ped Button	(Y/N)	Y	11.5 s	(Y/N)	Y	11.5 s	(Y/N)	Y	8.5 s	(Y/N)	Y	8.5
Arr Type		3			3			3	3	3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	*				NB Left	*		
Thru	*				Thru	*		
Right	*				Right	*		
Peds	*				Peds	*		
WB Left	*				SB Left	*		
Thru	*				Thru	*		
Right	*				Right	*		
Peds	*				Peds	*		
NB Right					EB Right			
SB Right					WB Right			
Green	35.0A				Green	75.0A		
Yellow/AR	5.0				Yellow/AR	5.0		

Cycle Length: 120 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LTR	425	1379	0.028	0.308	18.7	C	18.7	C
WB	LTR	456	1479	0.834	0.308	33.6	D	33.6	D
NB	LT	1190	1855	0.371	0.642	6.6	B	6.3	B
	R	1017	1585	0.202	0.642	5.7	B		
SB	L	335	522	0.717	0.642	14.1	B	9.6	B
	TR	1182	1842	0.529	0.642	7.9	B		

Intersection Delay = 13.4 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.755

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 02-03-1999
Center For Microcomputers In Transportation

Streets: (E-W) Kulawea Street (N-S) Ulune Street
Analyst: Miyamoto File Name: ULKUPM.HC9
Area Type: Other 2-1-99 Evening
Comment: Existing 4:15-5:15 PM Peak Hour

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	1	1	1	< 0
Volumes	1	1	4	14	1	12	1	625	18	21	316	3
PHF or PK15	0.25	0.25	0.50	0.70	0.25	0.75	0.25	0.95	0.56	0.75	0.92	0.38
Lane W (ft)		12.0			12.0			12.0	12.0	12.0	12.0	
Grade		0			0			-2			2	
% Heavy Veh	1	1	1	1	1	1	2	2	2	2	2	2
Parking	N		N	N		N	N		N	N		N
Bus Stops			0			0			0			0
Con. Peds			6			13			16			18
Ped Button	(Y/N)	Y	11.5 s	(Y/N)	Y	11.5 s	(Y/N)	Y	8.5 s	(Y/N)	Y	8.5
Arr Type		3			3			3	3	3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
WB Left	*				SB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
NB Right					EB Right				
SB Right					WB Right				
Green	35.0A				Green	75.0A			
Yellow/AR	5.0				Yellow/AR	5.0			

Cycle Length: 120 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LTR	473	1533	0.034	0.308	18.7	C	18.7	C
WB	LTR	472	1531	0.085	0.308	19.0	C	19.0	C
NB	LT	1204	1876	0.550	0.642	8.1	B	8.0	B
	R	1017	1585	0.031	0.642	5.1	B		
SB	L	131	204	0.214	0.642	5.9	B	6.2	B
	TR	1179	1837	0.298	0.642	6.2	B		

Intersection Delay = 7.9 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.399

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 02-01-1999
Center For Microcomputers In Transportation

Streets: (E-W) Aiea Heights Drive (N-S) Ulune Street
Analyst: Miyamoto File Name: AHULAM.HC9
Area Type: Other 2-1-99 Morning
Comment: Existing 7-8 AM Peak Hour

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	1	1	0	1	0	1	0	0	0
Volumes		247	275	374	381		206		271			
PHF or PK15		0.80	0.84	0.84	0.93		0.82		0.68			
Lane W (ft)		11.0		11.0	11.0		11.0		11.0			
Grade		0			0			1				
% Heavy Veh		2	2	2	2		2		2			
Parking	N	N		N	N		N	N				
Bus Stops			0			0			0			
Con. Peds			34			0			19			0
Ped Button	(Y/N)	Y	8.1 s	(Y/N)	N		(Y/N)	Y	10.9 s			
Arr Type		3		3	3		3		3			
RTOR Vols			0			0			271			
Lost Time		3.00	3.00	3.00	3.00		3.00		3.00			
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left *			
Thru	*				Thru			
Right	*				Right *			
Peds	*				Peds *			
WB Left	*				SB Left			
Thru	*				Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	85.0A				Green 25.0A			
Yellow/AR	5.0				Yellow/AR 5.0			

Cycle Length: 120 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	Approach: LOS
EB	TR	1073	1481	0.592	0.725	5.8	B	5.8	B
WB	L	202	279	2.202	0.725	*	*	*	*
	T	1305	1801	0.314	0.725	3.8	A		
NB	L	383	1702	0.655	0.225	30.1	D	30.1	D
	R	403	1792	0.000	0.225	0.0	A		

Intersection Delay = * (sec/veh) Intersection LOS = *

(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 02-01-1999
Center For Microcomputers In Transportation

Streets: (E-W) Aiea Heights Drive (N-S) Ulune Street
Analyst: Miyamoto File Name: AHULPM.HC9
Area Type: Other 2-1-99 Evening
Comment: Existing 4:15-5:15 PM Peak Hour

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	1	1	0	1	0	1	0	0	0
Volumes		352	197	164	191		235		451			
PHF or PK15		0.85	0.86	0.93	0.78		0.92		0.96			
Lane W (ft)		11.0		11.0	11.0		11.0		11.0			
Grade		0			0			1				
% Heavy Veh		2	2	2	2		2		2			
Parking	N		N	N		N	N					
Bus Stops			0			0			0			
Con. Peds			26			0			16			0
Ped Button	(Y/N)	Y	8.1 s	(Y/N)	N		(Y/N)	Y	10.9 s			
Arr Type		3		3	3		3		3			
RTOR Vols			0			0			164			
Lost Time		3.00	3.00	3.00	3.00		3.00		3.00			
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left *			
Thru	*				Thru			
Right	*				Right *			
Peds	*				Peds *			
WB Left	*				SB Left			
Thru	*				Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			

Green 84.0A Green 26.0A
Yellow/AR 5.0 Yellow/AR 5.0
Cycle Length: 120 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	TR	1094	1526	0.588	0.717	6.0	B	6.0	B
WB	L	191	267	0.919	0.717	39.5	D	18.6	C
	T	1290	1801	0.190	0.717	3.6	A		
NB	L	397	1702	0.642	0.233	29.3	D	35.3	D
	R	352	1509	0.849	0.233	40.5	E		

Intersection Delay = 19.3 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.902

Center For Microcomputers In Transportation
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Streets: (N-S) Kulawea Place (E-W) Kulawea Street
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... Miyamoto
Date of Analysis..... 2/1/99
Other Information..... Year 2001 Condition, AM Peak Hour, w/ Project

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	15	305	10	5	270	5	15	1	5	1	1	5
PHF	.66	.66	.56	.333	.67	.67	.5	.5	.25	.25	.25	.5
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	471	406
Potential Capacity: (pcph)	799	862
Movement Capacity: (pcph)	799	862
Prob. of Queue-Free State:	0.97	0.99
Step 2: LT from Major Street	**WB**	**EB**
Conflicting Flows: (vph)	480	410
Potential Capacity: (pcph)	1012	1093
Movement Capacity: (pcph)	1012	1093
Prob. of Queue-Free State:	0.98	0.98
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.98	0.97
Step 3: TH from Minor Street	**NB**	**SB**
Conflicting Flows: (vph)	919	924
Potential Capacity: (pcph)	359	357
Capacity Adjustment Factor due to Impeding Movements	0.95	0.95
Movement Capacity: (pcph)	340	338
Prob. of Queue-Free State:	0.99	0.99
Step 4: LT from Minor Street	**NB**	**SB**
Conflicting Flows: (vph)	922	926
Potential Capacity: (pcph)	310	308
Major LT, Minor TH Impedance Factor:	0.94	0.94
Adjusted Impedance Factor:	0.95	0.96
Capacity Adjustment Factor due to Impeding Movements	0.94	0.93
Movement Capacity: (pcph)	291	286

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	33	291 >					
NB	T	2	340 >	388	10.9	0.5	C	10.9
NB	R	22	799 >					
SB	L	4	286 >					
SB	T	4	338 >	492	7.6	0.0	B	7.6
SB	R	11	862 >					
EB	L	25	1093		3.4	0.0	A	0.2
WB	L	17	1012		3.6	0.0	A	0.1

Intersection Delay = 0.5 sec/veh

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Ph: (352) 392-0378

Streets: (N-S) Kulawea Place (E-W) Kulawea Street
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... Miyamoto
Date of Analysis..... 2/1/99
Other Information..... Year 2001 Condition, PM Peak Hour, w/o Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	60	30	10	1	20	5	5	1	1	1	1	65
PHF	.63	.63	.63	.25	.71	.71	.75	.25	.25	.25	.25	.63
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	56	32
Potential Capacity: (pcph)	1297	1334
Movement Capacity: (pcph)	1297	1334
Prob. of Queue-Free State:	1.00	0.92

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	64	35
Potential Capacity: (pcph)	1598	1650
Movement Capacity: (pcph)	1598	1650
Prob. of Queue-Free State:	1.00	0.94
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	1.00	0.93

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	190	194
Potential Capacity: (pcph)	867	863
Capacity Adjustment Factor due to Impeding Movements	0.93	0.93
Movement Capacity: (pcph)	808	804
Prob. of Queue-Free State:	1.00	1.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	240	190
Potential Capacity: (pcph)	769	822
Major LT, Minor TH Impedance Factor:	0.93	0.93
Adjusted Impedance Factor:	0.94	0.94
Capacity Adjustment Factor due to Impeding Movements	0.86	0.94
Movement Capacity: (pcph)	664	774

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	8	664 >					
NB	T	4	808 >	797	4.6	0.0	A	4.6
NB	R	4	1297 >					
SB	L	4	774 >					
SB	T	4	804 >	1276	3.1	0.3	A	3.1
SB	R	113	1334 >					
EB	L	105	1650		2.3	0.1	A	1.4
WB	L	4	1598		2.3	0.0	A	0.1

Intersection Delay = 1.9 sec/veh

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 02-03-1999
Center For Microcomputers In Transportation

Streets: (E-W) Kulawea Street (N-S) Ulune Street
Analyst: Miyamoto File Name: ULKUPAM.HC9
Area Type: Other 2-1-99 Morning
Comment: Year 2001 Condition, AM Peak Hour, w/ Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	1	1	1	< 0
Volumes	5	1	1	130	1	140	1	330	145	185	525	5
PHF or PK15	0.50	0.25	0.25	0.72	0.25	0.64	0.25	0.72	0.64	0.72	0.81	0.50
Lane W (ft)		12.0			12.0			12.0	12.0	12.0	12.0	
Grade		0			0			-2			2	
% Heavy Veh	1	1	1	1	1	1	2	2	2	2	2	2
Parking	N		N	N		N	N		N	N		N
Bus Stops			0			0			0			0
Con. Peds			2			13			16			18
Ped Button	(Y/N)	Y	11.5 s	(Y/N)	Y	11.5 s	(Y/N)	Y	8.5 s	(Y/N)	Y	8.5
Arr Type		3			3			3	3	3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	*				NB Left *			
Thru	*				Thru *			
Right	*				Right *			
Peds	*				Peds *			
WB Left	*				SB Left *			
Thru	*				Thru *			
Right	*				Right *			
Peds	*				Peds *			
NB Right					EB Right			
SB Right					WB Right			
Green	35.0A				Green 75.0A			
Yellow/AR	5.0				Yellow/AR 5.0			

Cycle Length: 120 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LTR	385	1249	0.047	0.308	18.8	C	18.8	C
WB	LTR	450	1460	0.897	0.308	40.0	D	40.0	D
NB	LT	1187	1850	0.389	0.642	6.7	B	6.4	B
	R	1017	1585	0.223	0.642	5.8	B		
SB	L	308	480	0.834	0.642	22.8	C	12.3	B
	TR	1180	1840	0.557	0.642	8.2	B		

Intersection Delay = 15.9 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.855

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 02-03-1999
Center For Microcomputers In Transportation

Streets: (E-W) Kulawea Street (N-S) Ulune Street
Analyst: Miyamoto File Name: ULKUPPM.HC9
Area Type: Other 2-1-99 Evening
Comment: Year 2001 Condition, PM Peak Hour, w/ Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	1	1	1	< 0
Volumes	1	5	5	45	1	50	5	650	50	50	330	5
PHF or PK15	0.25	0.25	0.50	0.70	0.25	0.75	0.25	0.95	0.56	0.75	0.92	0.38
Lane W (ft)		12.0			12.0			12.0	12.0	12.0	12.0	
Grade		0			0			-2			2	
% Heavy Veh	1	1	1	1	1	1	2	2	2	2	2	2
Parking	N		N	N		N	N		N	N		N
Bus Stops			0			0			0			0
Con. Peds			2			13			16			18
Ped Button	(Y/N)	Y	11.5 s	(Y/N)	Y	11.5 s	(Y/N)	Y	8.5 s	(Y/N)	Y	8.5
Arr Type		3			3			3	3	3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
WB Left	*				SB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
NB Right					EB Right				
SB Right					WB Right				
Green	35.0A				Green	75.0A			
Yellow/AR	5.0				Yellow/AR	5.0			

Cycle Length: 120 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LTR	486	1577	0.070	0.308	19.0	C	19.0	C
WB	LTR	444	1441	0.304	0.308	20.6	C	20.6	C
NB	LT	1171	1824	0.601	0.642	8.7	B	8.4	B
	R	1017	1585	0.088	0.642	5.3	B		
SB	L	105	164	0.638	0.642	16.6	C	7.9	B
	TR	1177	1834	0.316	0.642	6.3	B		

Intersection Delay = 9.6 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.529

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 02-03-1999
Center For Microcomputers In Transportation

Streets: (E-W) Aiea Heights Drive (N-S) Ulune Street
Analyst: Miyamoto File Name: AHULPAM.HC9
Area Type: Other 2-1-99 Morning
Comment: Year 2001 Condition, AM Peak Hour, w/ Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	0	1	0	0	0
Volumes		255	285	395	395		210		285			
PHF or PK15		0.80	0.84	0.84	0.93		0.82		0.68			
Lane W (ft)		12.0	12.0	11.0	11.0		11.0		11.0			
Grade		0			0			1				
% Heavy Veh		2	2	2	2		2		2			
Parking	N	N		N	N		N	N				
Bus Stops			0			0			0			
Con. Peds			34			0			19			0
Ped Button	(Y/N)	Y	8.1 s	(Y/N)	N		(Y/N)	Y	11.1 s			
Arr Type		3	3	3	3		3		3			
RTOR Vols			0			0			271			
Lost Time		3.00	3.00	3.00	3.00		3.00		3.00			
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left *			
Thru	*				Thru			
Right	*				Right *			
Peds	*				Peds *			
WB Left	*				SB Left			
Thru	*				Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	80.0A				Green 30.0A			
Yellow/AR	5.0				Yellow/AR 5.0			

Cycle Length: 120 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	T	1273	1863	0.251	0.683	4.7	A	4.9	A
	R	1061	1553	0.319	0.683	5.0	A		
WB	L	516	755	0.912	0.683	24.9	C	15.5	C
	T	1230	1801	0.345	0.683	5.2	B		
NB	L	454	1702	0.564	0.267	25.8	D	25.4	D
	R	402	1507	0.050	0.267	21.1	C		

Intersection Delay = 13.2 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.814

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 02-03-1999
Center For Microcomputers In Transportation

Streets: (E-W) Aiea Heights Drive (N-S) Ulune Street
Analyst: Miyamoto File Name: AHULPPM.HC9
Area Type: Other 2-1-99 Evening
Comment: Year 2001 Condition, PM Peak Hour, w/ Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	0	1	0	0	0
Volumes		365	215	190	200		255		490			
PHF or PK15		0.85	0.86	0.93	0.78		0.92		0.96			
Lane W (ft)		11.0	12.0	11.0	11.0		11.0		11.0			
Grade		0			0			1				
% Heavy Veh		2	2	2	2		2		2			
Parking	N		N	N		N	N		N			
Bus Stops			0			0			0			
Con. Peds			26			0			16			0
Ped Button	(Y/N)	Y	8.1 s	(Y/N)	N		(Y/N)	Y	10.9 s			
Arr Type		3	3	3	3		3		3			
RTOR Vols			0			0			164			
Lost Time		3.00	3.00	3.00	3.00		3.00		3.00			
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left *			
Thru	*				Thru			
Right	*				Right *			
Peds	*				Peds *			
WB Left	*				SB Left			
Thru	*				Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	70.0A				Green 40.0A			
Yellow/AR	5.0				Yellow/AR 5.0			

Cycle Length: 120 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	T	1080	1801	0.397	0.600	8.3	B	8.0	B
	R	936	1560	0.267	0.600	7.4	B		
WB	L	310	516	0.658	0.600	13.7	B	10.1	B
	T	1080	1801	0.237	0.600	7.3	B		
NB	L	596	1702	0.465	0.350	20.0	C	21.6	C
	R	528	1509	0.642	0.350	23.0	C		

Intersection Delay = 13.3 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.652