Cameron Center Exp.

DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

LINDA CROCKETT LINGLE
Mayor
STEPHANIE AVEIRO
Director
MARK PERCELL
Deputy Director

200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • PHONE (808) 243-7805 • FAX (808) 243-7829

March 4, 1998

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OFC. OF ENVIRONMENTAL QUALITY CONTROL

Gary Gill, Director
Office of Environmental Quality Control
Department of Health
235 S. Beretania Street, #702
Honolulu, Hawaii 96813

Dear Mr. Blane:

Subject: **Cameron Center Expansion**
TMK (2) 3-8-46:15 and 27

In accordance with the requirements of Chapter 343, Hawaii Revised Statutes, and Chapter 200 of Title II, Department of Health Administrative Rules, a Final Environmental Assessment has been prepared for the subject project.

Notice of the availability of the Draft Environmental Assessment for the project was published in the January 8, 1998 edition of the Environmental Notice.

As the approving agency, we believe that there will be no significant impacts as a result of the proposed action and accordingly, are filing a Findings of No Significant Impact (FONSI). ✓ We are forwarding herewith, one (1) copy of the OEQC Publication Form and four (4) copies of the Final Environmental Assessment. Also, please note that the Project Summary will be transmitted to you under separate cover via e-mail. We respectfully request that the notice of the availability of the Final Environmental Assessment be published in the next edition of the Environmental Notice.

Very truly yours,

for STEPHANIE AVEIRO
Director of Housing and
Human Concerns

MP:tav
Attachments
xc: Audrey Rocha-Reed, J. Walter Cameron Center
(w/out attachments)
Michael Munekiyo, Munekiyo & Arakawa, Inc.(w/out attachments)
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1998-03-23-MA-FEA-Cameron Center

Final Environmental Assessment

CAMERON CENTER EXPANSION

Prepared for:

J. Walter Cameron Center

March 1998

MUNEKIYO, ARAKAWA & HIRAGA, INC.

Final Environmental Assessment

CAMERON CENTER EXPANSION

Prepared for:

J. Walter Cameron Center

March 1998

MUNEKIYO, ARAKAWA & HIRAGA, INC.

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Preface

The J. Walter Cameron Center proposes to implement master planned improvements at TMK 3-8-15:27, which will include a new Family Center facility for Maui Economic Opportunity, Inc. (MEO) and a proposed child care center. To establish appropriate land use entitlements for the proposed improvements, the Cameron Center has filed a County Special Use Permit application for the MEO Family Center project. In addition, to establishing long-term consistency with the underlying Public/Quasi-Public Community Plan designation, the Cameron Center has also filed an application for Change in Zoning for TMK 3-8-15:27, as well as for its existing facility at 95 Mahalani Street (TMK 3-8-46:15).

Since both Parcels 15 and 27 are owned by the County of Maui and leased to the Cameron Center, this environmental assessment (EA) has been prepared, as required by Chapter 343, Hawaii Revised Statutes. The EA will be used as the principal supporting technical document for both the County Special Use Permit and Change in Zoning applications.

Chapter I

Project Overview

I. PROJECT OVERVIEW

A. PROPERTY LOCATION, EXISTING USE, AND LAND OWNERSHIP

The J. Walter Cameron Center is proposing a master-planned expansion of their existing site and facilities in Wailuku, Maui, Hawaii to include a child-care center and a Family Center for Maui Economic Opportunity, Inc. (MEO). The Cameron Center provides comprehensive health, community, and cultural services to the general public, as well as individuals with physical, mental, social, and educational disabilities.

The project area includes the existing 5.0-acre Cameron Center parcel (TMK 3-8-46:15) and an adjoining 3.7-acre parcel (TMK 3-6-46:27), which is currently undeveloped and primarily vegetated with kiawe and koa haole. See Figure 1. Access to the subject property is provided by Mahalani Street, a two-lane County roadway.

The County of Maui is the owner of both the existing Cameron Center site as well as the adjoining expansion site. The Cameron Center has executed lease agreements with the County of Maui for the subject parcels.

B. BACKGROUND

In 1969, the Cameron Center was incorporated as a Federally exempt nonprofit organization. In addition to awarded government funds, contributions from the general public, as well as Hawaii's charitable foundations were utilized for the development of the Center.

In 1971, the County of Maui acted as an applicant on behalf of the Cameron Center for a Neighborhood Facilities grant from the U.S. Department of Housing and Urban Development (HUD) to fund the majority of construction costs for the Community Agencies and

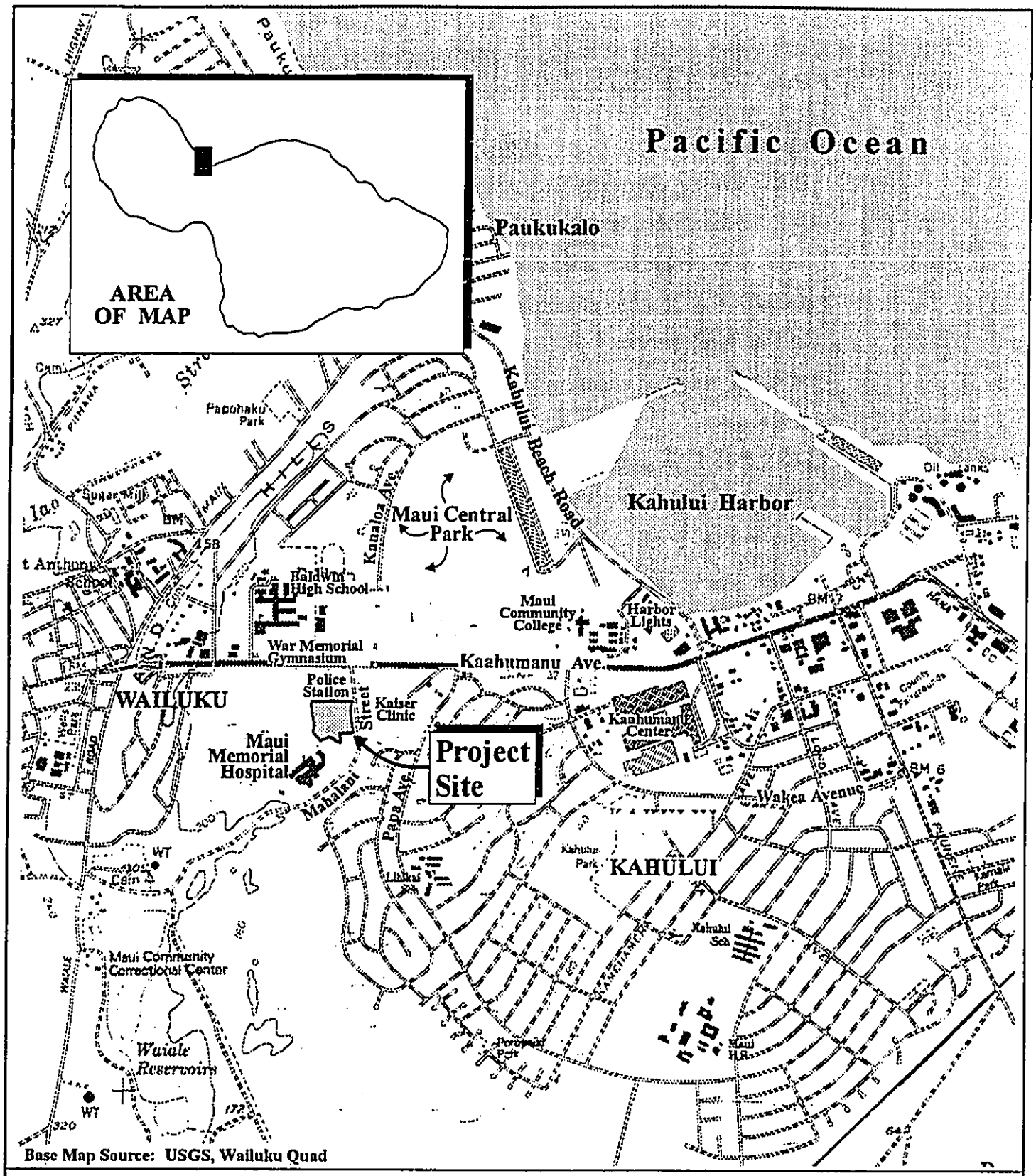


Figure 1

Cameron Center Expansion

Regional Location Map

MUNEKIYO, ARAKAWA & HIRAGA, INC.

1000 0 2000 4000 Feet

Prepared for: J. Walter Cameron Center

Neighborhood Facilities Buildings. The remaining four (4) buildings were partially funded through monies available from the U.S. Department of Health, Education, and Welfare (HEW) for mental health, mental retardation, and vocational rehabilitation programs.

Since opening in 1973, the Cameron Center has provided a diverse range of services to the community and presently houses about 20 nonprofit agencies which provide health, community, and cultural services. The existing Cameron Center facility contains health program and information agencies, such as Imua Rehab, Ka Lima O Maui, American Cancer Society, American Heart Association, and American Lung Association, as well as community service agencies and cultural organizations including the American Red Cross, the ARC of Maui, and Maui Philharmonic Society.

MEO is a chartered, nonprofit agency established by Federal mandate under the Economic Opportunity Act of 1964 which administers 29 programs including Head Start, homeless, elderly, energy, community service, and employment and training programs, as well as venture projects and counseling services. In addition to providing transportation services for the elderly, children, and disabled for medical, social, educational, health, and recreational purposes, MEO has also been designated by the County of Maui as their mass transit provider and transportation coordinator for the Maui Civil Defense agency.

The proposed MEO Family Center at Cameron Center represents a relocation of MEO's existing operations at the old Kahului School site. This relocation has been programmed to accommodate the State of Hawaii's anticipated redevelopment of the old Kahului School site for State offices. It is noted that the transportation operations, including the

storage of vans and buses, will be relocated to MEO's transportation center at the old Puunene Airport site.

To meet long-term community needs for social services, the Cameron Center is proposing expansion improvements which will involve the development of the MEO Family Center and a future child care center on the undeveloped 3.7-acre parcel located adjacent to the existing Cameron Center site.

Both the existing Cameron Center site (TMK 3-8-46:15) and the adjoining undeveloped site (TMK 3-8-46:27) are presently zoned R-3, Residential. The Wailuku-Kahului Community Plan designates the subject properties as Public/Quasi-Public. Through consultation with the County's Department of Planning, it has been determined that a County Special Use Permit would be required for the MEO Family Center, as well as the child care center.

Since the development timetable for the MEO Family Center provides for a construction start of mid-1998, an application for a County Special Use Permit is being processed through the Department of Planning to enable the issuance of required construction permits in a timeframe consistent with the expected project start date.

The proposed child care center is not anticipated to be implemented until the year 2000, and, accordingly, is not included as part of the MEO Family Center County Special Use Permit application.

Instead, the Cameron Center has filed a request for Change In Zoning (CIZ) with the Department of Planning to establish a Public/Quasi-Public zoning designation for both Parcels 15 and 27. The CIZ process is

expected to be completed by the end of 1998. Upon establishment of the Public/Quasi-Public zoning designation for the subject parcels, the County Special Use Permit for the MEO Family Center would be extinguished.

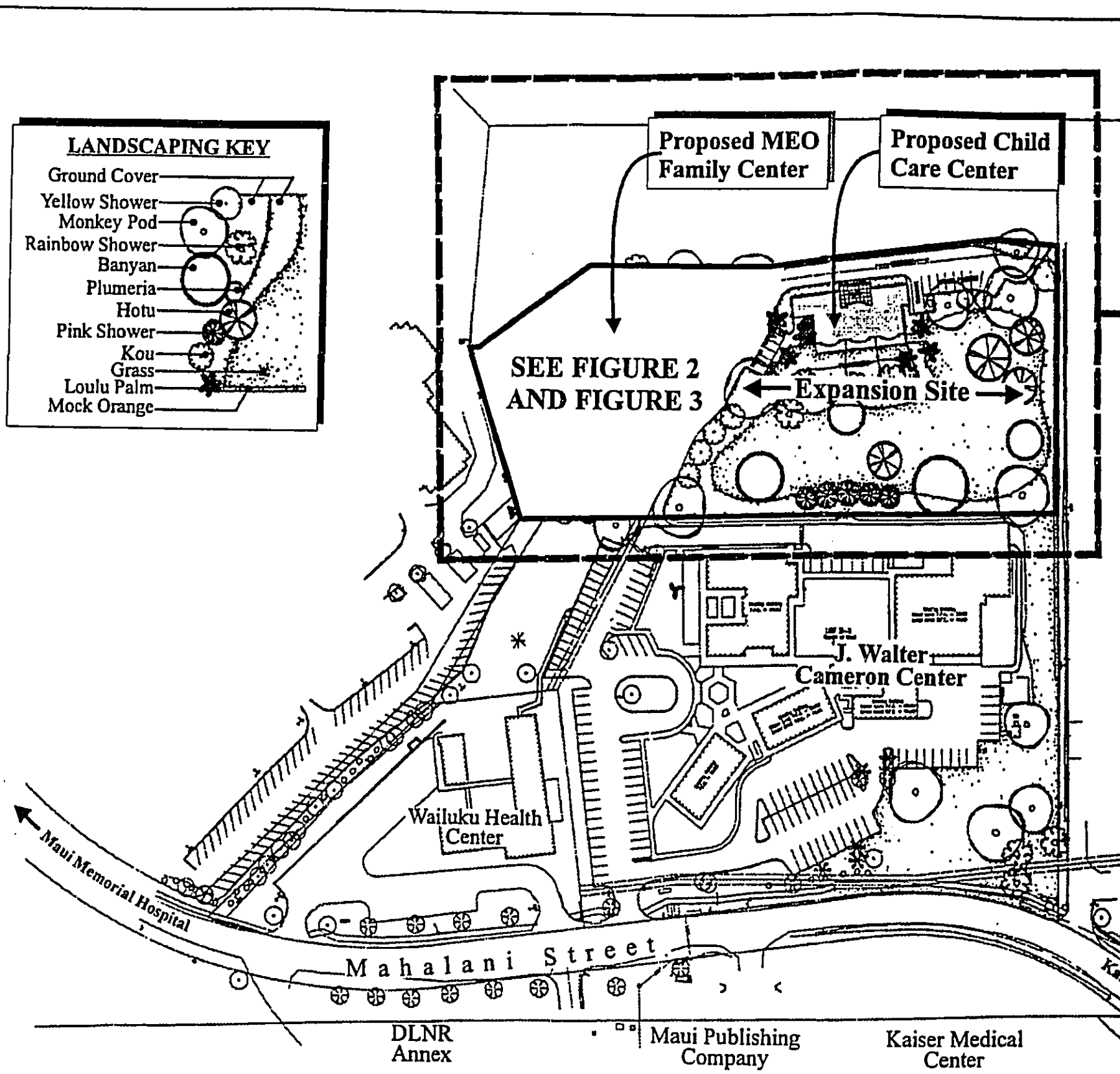
It is further noted that since the proposed action involves the use of land owned by the County, and therefore triggers Chapter 343, Hawaii Revised Statues (HRS), this Environmental Assessment (EA) has been prepared to comply with statutory requirements. The J. Walter Cameron Center is the applicant for the EA and the County of Maui, Department of Housing and Human Concerns (DHHC) is the approving agency.

C. ***PROPOSED ACTION***

Master-planned improvements which are proposed to be developed on the Center's 3.7-acre expansion area include an approximately 6,000 square foot child care center and the approximately 19,000 square foot MEO Family Center. See Figure 2, Figure 3, Figure 4. The Family Center site will occupy about 1.2 acres of the expansion area, while the child care center will be developed on the remaining 2.5-acre portion of the site.

The single-story, 6,000 square foot child care center is anticipated to provide child care services for about 40 infants, toddlers, and pre-school children for agencies and facilities in the general vicinity, such as the MPD headquarters, Wailuku Health Center, Kaiser Medical Clinic, Maui Publishing Company, Maui Memorial Hospital, as well as the Cameron Center. The child care center will ultimately operate on a 24-hour schedule and will include a staff of fourteen (14) employees. Refer to Figure 2, Figure 3, and Figure 4.

The conceptual site and design plans for the MEO Family Center



Source: GYA Architects, Inc.

Figure 2

Cameron Center Expansion

Overall Conceptual Site Plan

Prepared for: J. Walter Cameron Center

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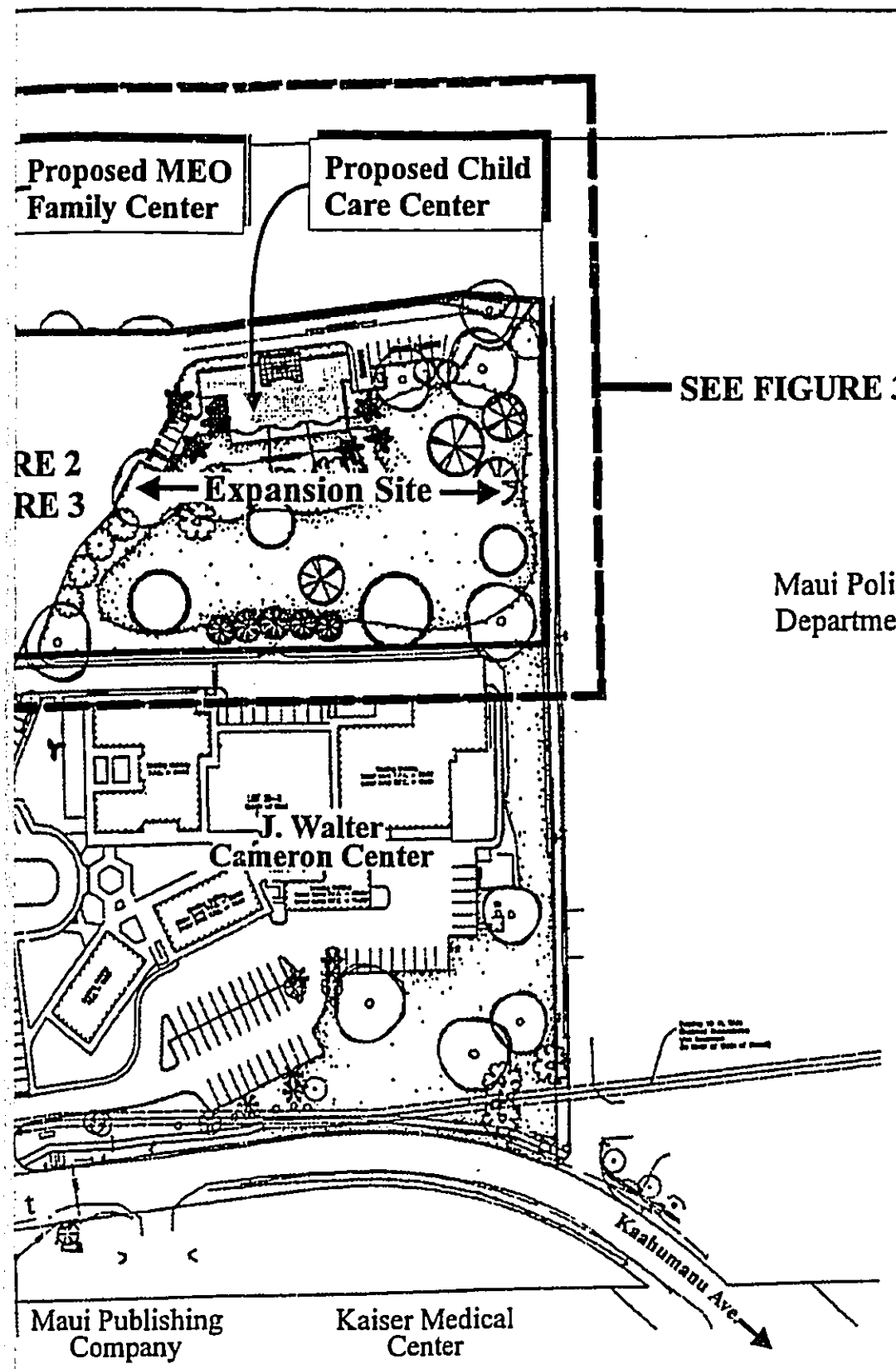

ron Center Expansion

all Conceptual Site Plan

MUNEKIYO, ARAKAWA & HIRAGA, INC.

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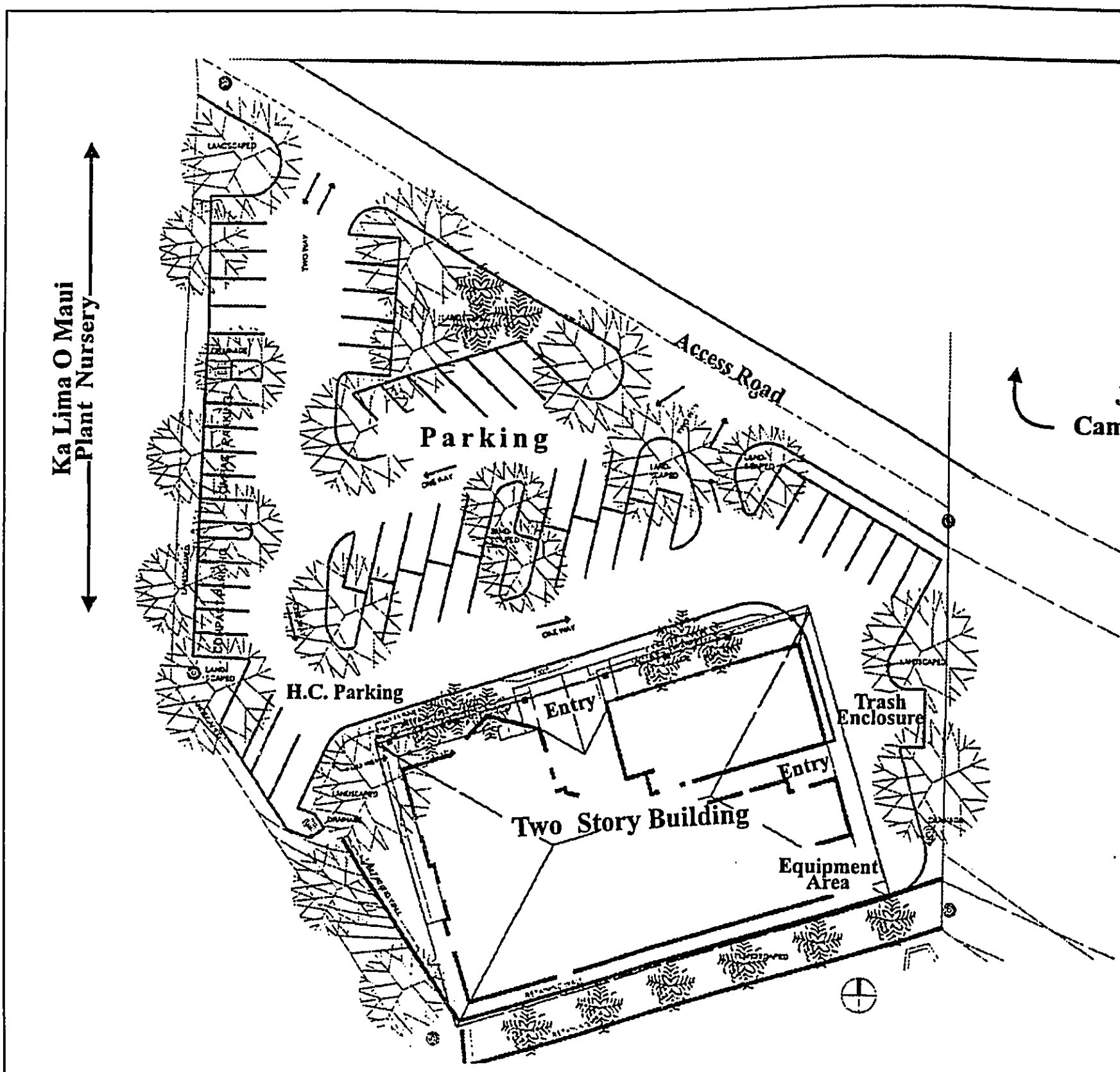

Source: Maui Architectural Group Inc.

Figure 3

Cameron Center Expansion
Conceptual MEO Family Center

Prepared for: J. Walter Cameron Center

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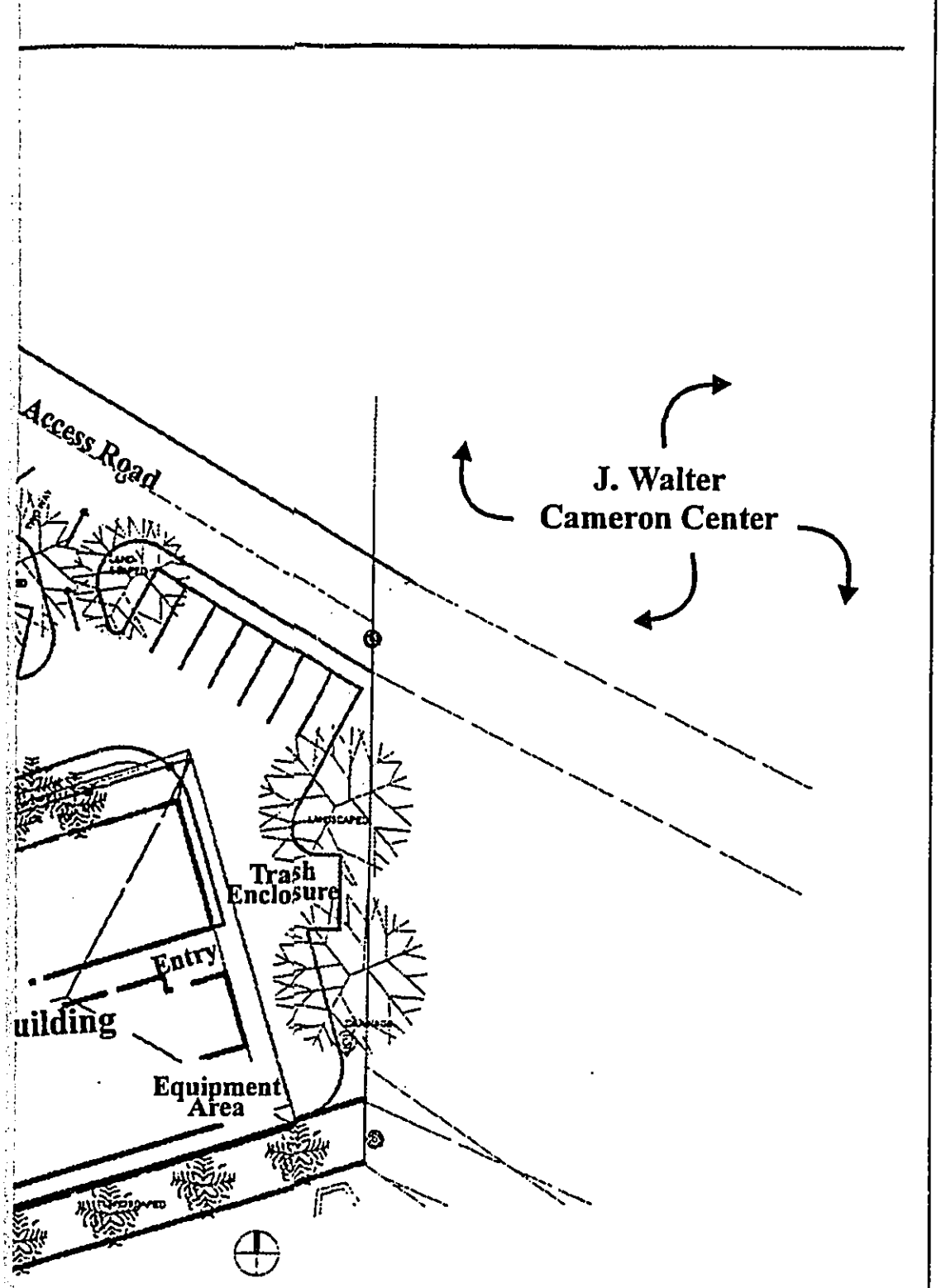

Center Expansion
MEO Family Center

MUNEKIYO, ARAKAWA & HIRAGA, INC.

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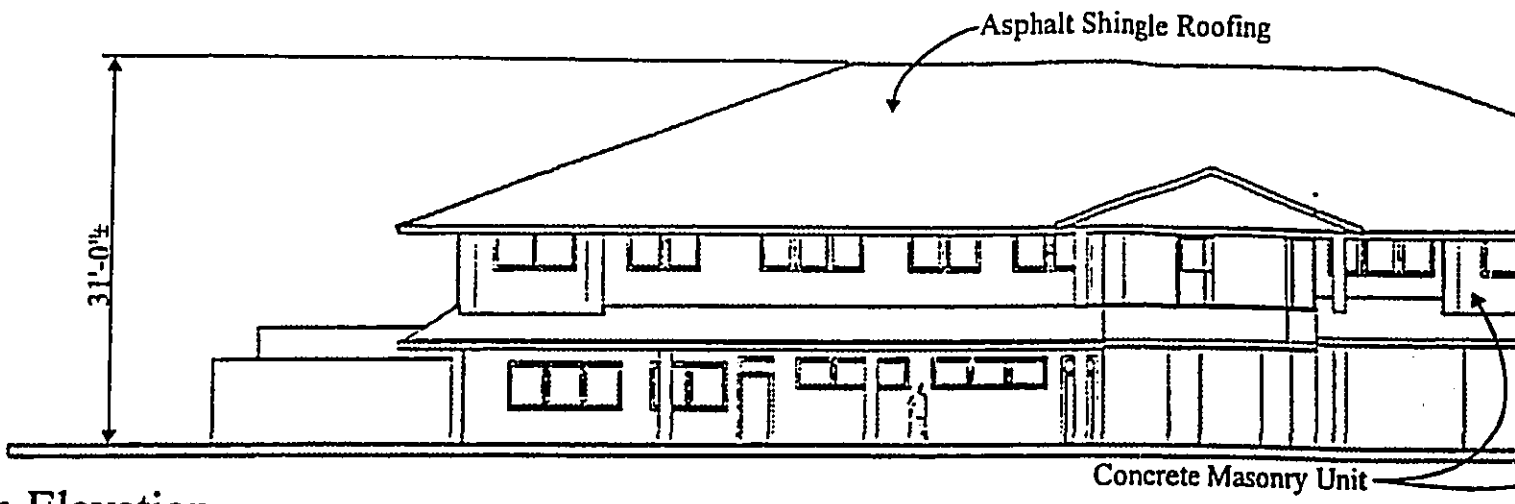
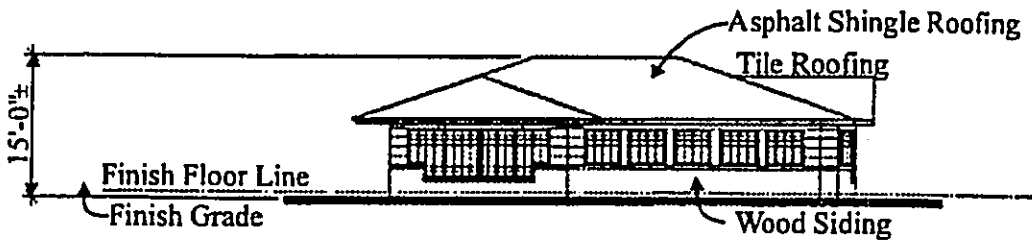
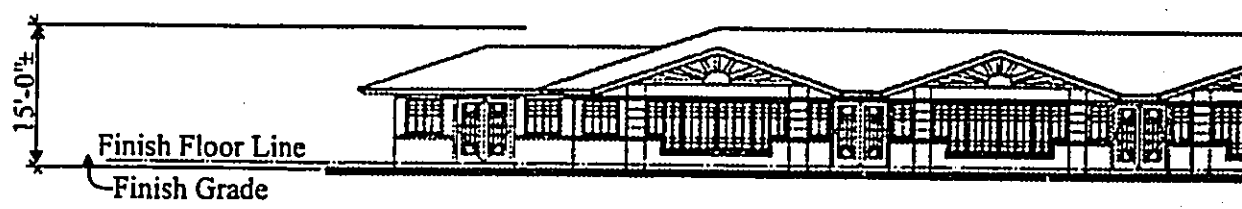


North Elevation

MEO Family Center



South Elevation



East Elevation

Child Care Center

Source: Maui Architectural Group Inc. (MEO Family Center)
GYA Architects, Inc. (Child Care Center)

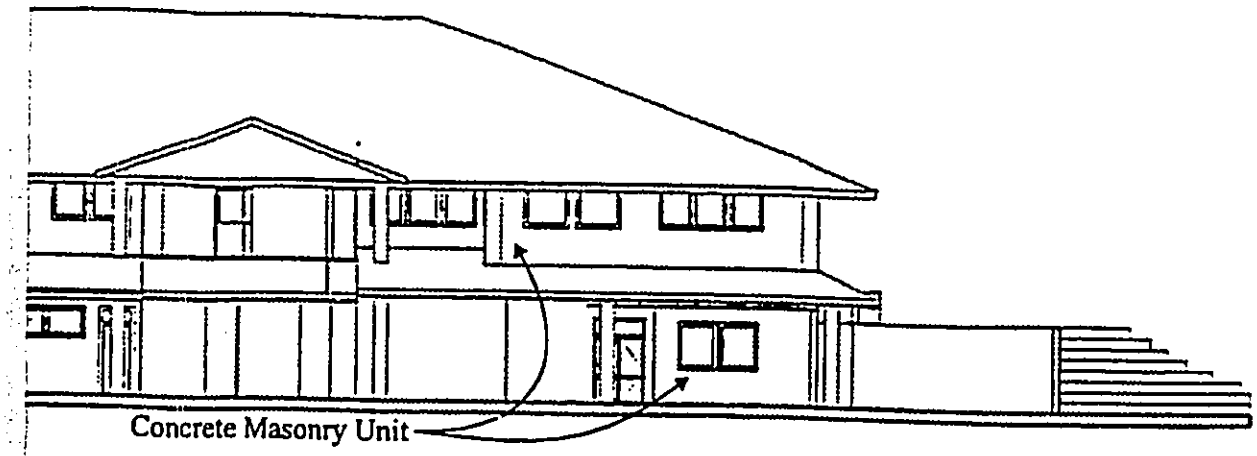
Figure 4

Cameron Center Expansion

Conceptual Elevations for MEO Family Center
Child Care Center

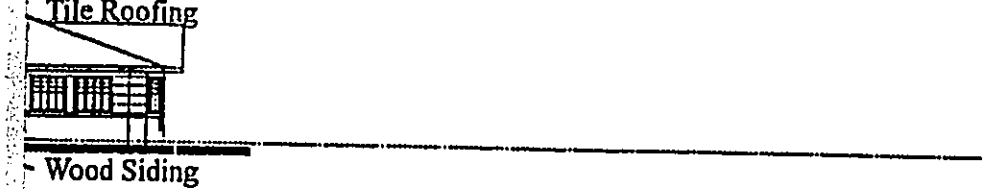
Prepared for: J. Walter Cameron Center

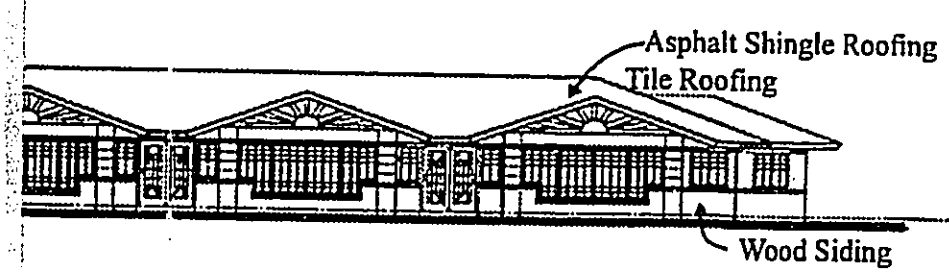
Asphalt Shingle Roofing



Family Center

Asphalt Shingle Roofing
Tile Roofing





Care Center

Center Expansion
for MEO Family Center and
Care Center

MUNEKIYO, ARAKAWA & HIRAGA, INC.

NOT TO SCALE

(included in the project's Draft EA) were recently re-evaluated and modified to provide for a two-story building instead of the one- and two-story structure that was initially proposed. While the conceptual plans have been modified to meet MEO's objectives, the floor area and uses proposed for the Family Center remain unchanged. The two-story, approximately 19,000 square foot MEO Family Center will include administrative and counseling offices, as well as library, meeting, conference, and children's playroom facilities. The Family Center will be open on weekdays from 7:45 a.m. to 4:30 p.m. and will include a staff of 40 employees. Refer to Figure 2, Figure 3, and Figure 4.

Construction of the MEO Family Center is targeted to begin by the summer of 1998, with completion estimated by mid-1999. Preliminarily, construction of the child care center is estimated to commence about the year 2000, with completion anticipated approximately six (6) to eight (8) months later. Cost estimates for the proposed improvements will be established in connection with the development of final detailed plans and specifications.

Chapter II

Description of the Existing Environment

II. DESCRIPTION OF THE EXISTING ENVIRONMENT

A. PHYSICAL ENVIRONMENT

1. Surrounding Land Uses

The project area is located in the Wailuku-Kahului area. Wailuku is the seat of government within the County. Wailuku is located on the foothills of the West Maui Mountains containing a diverse range of commercial, light industrial, and public uses, as well as older established residential areas. Kahului includes the Island's only deep water port and the second busiest airport in the State. With its proximity to Kahului Harbor and the Airport, the Kahului region contains a variety of heavy industrial, light industrial, and commercial wholesale and retail activities and services. Three (3) major shopping areas, the Kaahumanu Center, Maui Mall and the Kahului Shopping Center, are located in proximity to the project site.

The project area is bordered by the Maui Police Department's (MPD) headquarters to the north, Mahalani Street to the east, the Wailuku Health Center to the south, and the Ka Lima O Maui nursery to the west.

Beyond the MPD's headquarters to the north lies Kaahumanu Avenue and the War Memorial Complex. To the east, beyond Mahalani Street, lies the DLNR Annex, Kaiser Medical Clinic and the offices of the Maui Publishing Company, while to the south, beyond the Wailuku Health Center, lies the Maui Memorial Hospital and hospital parking lot. Situated beyond the Ka Lima O Maui Nursery to the west is the Maui Lani Project District, which is currently undergoing site development.

2. ***Climate***

Like most areas of Hawaii, Maui's climate is relatively uniform year round. Characteristic of Hawaii's climate, the project area experiences mild and uniform temperatures, moderate humidity and relatively consistent tradewinds. Variations in the Island's climate are largely left to local terrain.

Average temperatures in the project area (based on temperatures recorded at Kahului Airport) range from the low 60s to the high 80s. August is historically the warmest month, while January and February are the coolest. Rainfall in the project area averages approximately 20 inches per year. Winds in the Kahului region are predominantly out of the north and northeast. When the trades are blowing, portions of the project site near the shoreline experience brisk winds with velocity decreasing further inland.

3. ***Topography and Soil Characteristics***

The existing Cameron Center portion of the subject property is generally flat with a few gentle slopes, while the portion which includes the expansion area is roughly bowl-shaped with the lowest point lying in the center of the parcel. The existing ground on the southerly portion of the expansion site slopes in a southerly to northerly direction from an elevation of approximately 104 feet above mean sea level (a.m.s.l.) to about 74 feet a.m.s.l. with an average slope of approximately 11 percent. The existing ground on the northerly portion of the project site slopes in a southwesterly to northerly direction from an elevation of approximately 97 feet a.m.s.l. to about 74 feet a.m.s.l. with an average slope of approximately 14 percent. See Appendix B.

Underlying the project area and surrounding lands are soils belonging to the Pulehu-Ewa-Jaucas association. See Figure 5. This soil association is characteristically deep and well-drained and located on alluvial fans and basins. The soil type specific to the project area is of the Puuone Sand classification (PZUE). See Figure 6. PZUE soils are predominant in the region and are typified by a sandy layer and a cemented sand underlayment. Vegetation associated with this series include bermuda grass, kiawe, and lantana.

4. *Flood and Tsunami Hazard*

The project area is situated within lands that are designated Zone "C" by the Flood Insurance Rate Map. See Figure 7. Zone "C" is an area of minimal flooding.

5. *Flora and Fauna*

The existing Cameron Center site is landscaped and irrigated, while the adjoining expansion area is undeveloped and predominantly vegetated with kiawe and koa haole.

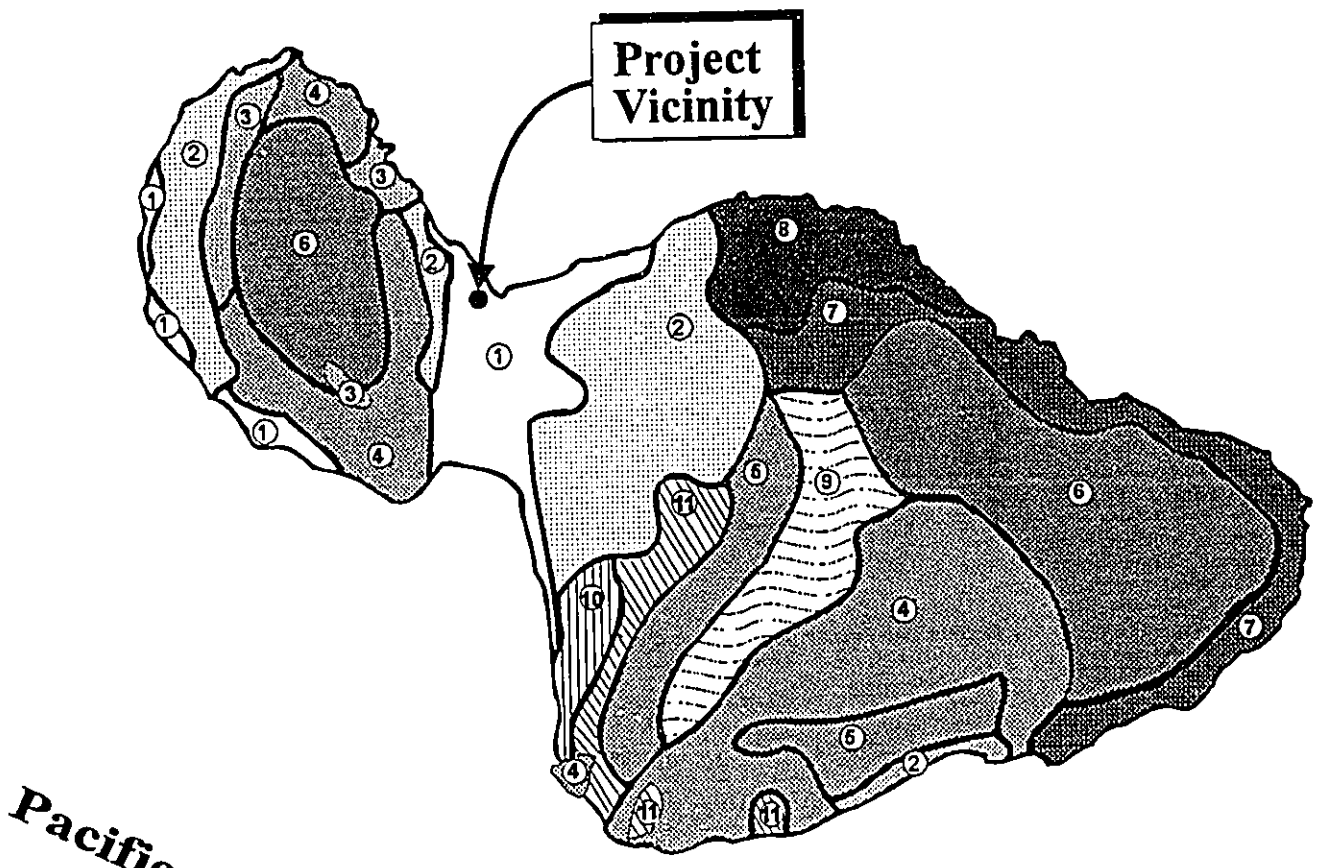
Fauna and avifauna that are found in the vicinity of the project area are typical of Wailuku's urban setting. Fauna typically found in the vicinity include mongoose, cats, dogs and rats. Avifauna typically include mynas, several types of doves, house sparrows, and francolin.

6. *Archaeological Resources*

The existing Cameron Center site had been previously disturbed during construction of the Center's present facilities. Accordingly, no surface archaeological features or artifacts are located within

LEGEND

- ① Pulehu-Ewa-Jaucas association
- ② Waiakoa-Keahua-Molokai association
- ③ Honolua-Olelo association
- ④ Rock land-Rough mountainous land association
- ⑤ Puu Pa-Kula-Pane association
- ⑥ Hydrandepts-Tropaquods association
- ⑦ Hana-Makaalae-Kailua association
- ⑧ Pauwela-Haiku association
- ⑨ Laumaia-Kaipoipoi-Olinda association
- ⑩ Keawakapu-Makena association
- ⑪ Kamaole-Oanapuka association



Map Source: USDA Soil Conservation Service

Figure 5 Cameron Center Expansion
Soil Association Map

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Prepared for: J. Walter Cameron Center

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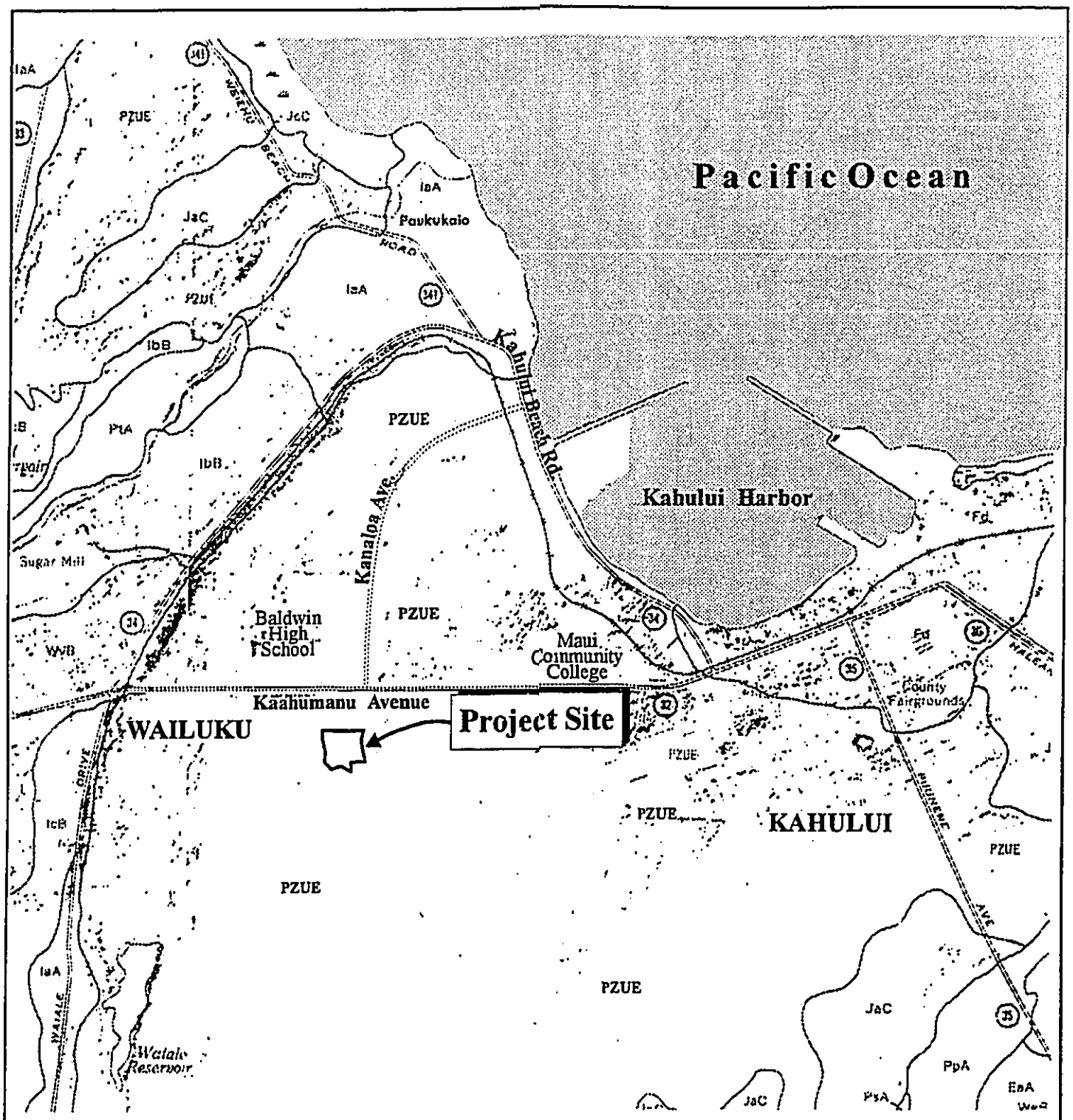


Base Map Source: USDA Soil Conservation Service

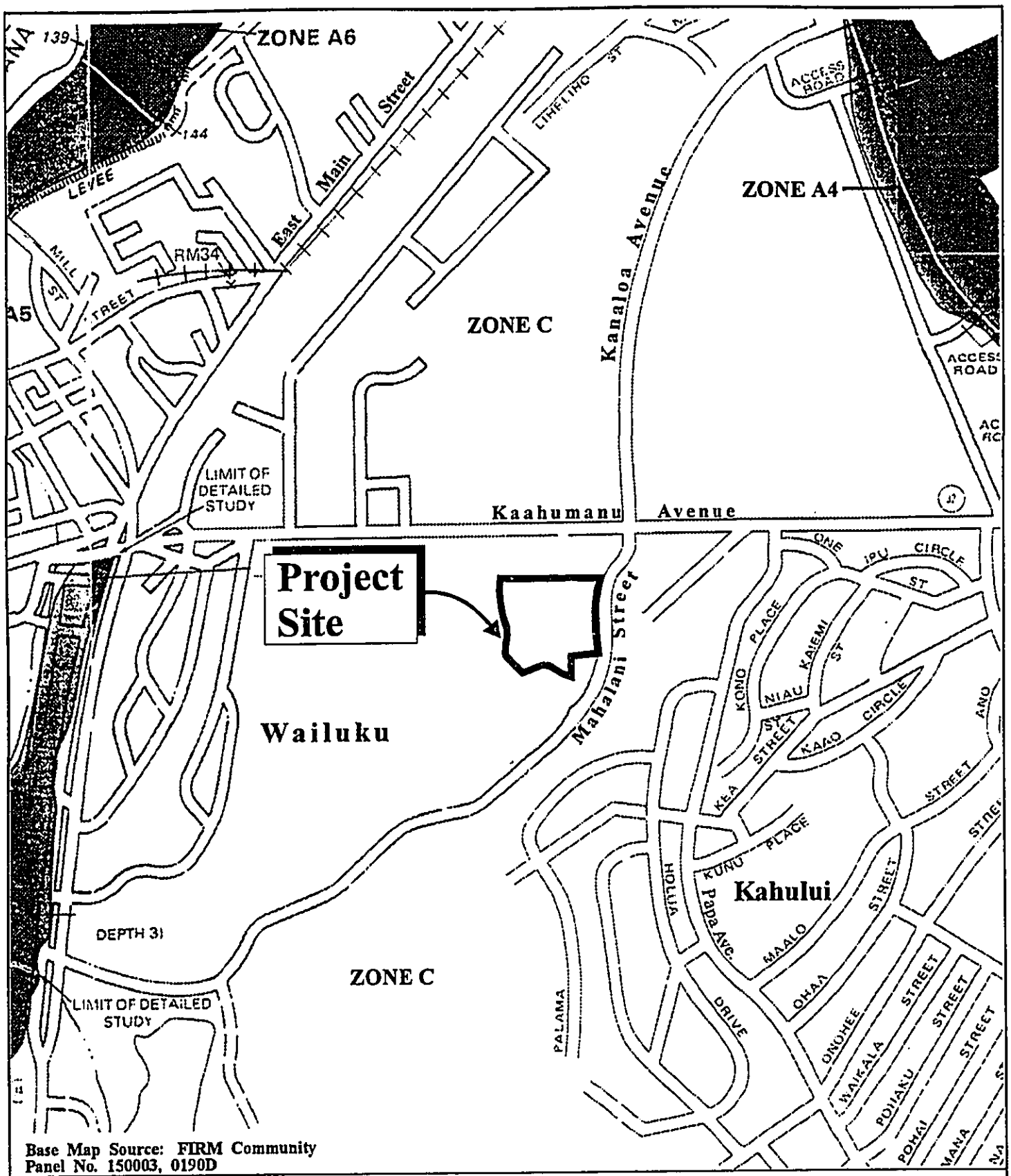
Figure 6 Cameron Center Expansion

Soils Classifications Map

MUNEKIYO, ARAKAWA & HIRAGA, INC.

1000 0 2000 4000 Feet

Prepared for: J. Walter Cameron Center



Base Map Source: FIRM Community
Panel No. 150003, 0190D

Figure 7

Cameron Center Expansion

Flood Insurance Rate Map

MUNEKIYO, ARAKAWA & HIRAGA, INC.

500 0 1000 2000 Feet

Prepared for: J. Walter Cameron Center

this portion of the subject property.

An archaeological inventory survey of the expansion area was completed by Cultural Surveys Hawaii in November 1997 and was recently updated in February 1998 based on the State Historic Preservation Division's (SHPD) review of the survey. See Appendix A and Appendix A-1. As indicated by the survey, the project area is a portion of the Wailuku Sand Hills and sandy deposits are clearly shown both on the surface and in various cut banks throughout the property. The terrain is roughly bowl-shaped with the lowest-lying area in the center of the parcel. This low-lying area supports a grass vegetation with an overstory of koa haole and kiawe. In the higher portions of the project area are mature kiawe trees with a short grass understory.

Previous grubbing and grading are apparent on most of the perimeter of the property, particularly in the northern one-third where the Ka Lima O Maui nursery is located. Bulldozing is also apparent on the west side where there is a steep graded bank and an existing road and sewerline easement.

Disturbance is also apparent on the south side where there is grading within the property adjacent to the Maui Memorial Hospital parking lot. This is also the location of an existing sewerline easement. A stone and mortar drain exits the hospital parking lot and enters the project area at the southeast corner. Water from the parking lot flows along the drain into the low-lying central portion of the project area. This drainageway traverses south to north through the project area; stormwater exits to the north into the parcel occupied by MPD headquarters.

The results of the surface survey and limited subsurface testing show no archaeological sites or features present within the project area. Previous grubbing and grading of one-third to one-half of the property was documented during the surface survey. No archaeological materials were encountered in either of the two (2) hand-excavated trenches. In addition, other cut banks and disturbed areas were carefully examined for signs of subsurface archaeological materials. None were encountered.

The two (2) areas designated for future grading were carefully examined for potential of containing archaeological materials (refer to Appendix A, Figure 17). One of these areas, Area A, in the northeastern portion of the project area, is a high dune ridge extending to 97.3 feet a.m.s.l. and is oriented north/south paralleling this project boundary. This area was determined to be a lithified dune whose sediments are clearly exposed on the western side, adjacent to the sewerline easement road (refer to Appendix A, Figure 18). Because of the obvious lithified dune deposits, archaeological testing was not considered appropriate in this area. No archaeological materials were encountered on the surface or in the cut bank of this dune.

The other area designated for grading, Area B, borders the southern and southwestern boundary of the project area, adjacent to the Maui Memorial Hospital parking lot and an existing sewerline easement. The southern portion of this area has already been graded level, probably by the construction of the hospital parking lot and for the installation of the existing sewerline (refer to Appendix A, Figure 19). Further downslope to the north, the area designated for future grading appears to be relatively undisturbed.

This undisturbed area was chosen for subsurface testing with the excavation of two (2) hand-dug test trenches.

The proposed expansion site is not likely to contain or affect any archaeological resources of significance.

7. ***Air Quality***

Air quality in the Wailuku-Kahului region is considered good as point sources (e.g., Maui Electric Power Plant, HC&S Mill) and non-point sources (e.g., automobile emissions) of emission do not generate problematic high concentrations of pollutants. The relatively high quality of air can also be attributed to the region's constant exposure to winds which quickly disperse concentrations of emissions. This rapid dispersion is evident during sugar cane burning operations in fields southeast of Kahului's residential district.

8. ***Noise***

Traffic noise generated by vehicles traveling along Mahalani Street is a source of background noise in the vicinity of the project. Another noise source is the recreational activity from the Iron Maehara Baseball Stadium, War Memorial Little League fields, and War Memorial gym, tennis courts and swimming pool. To the east, Kahului Harbor operations occasionally add to the background noise level in the surrounding region.

9. ***Scenic and Open Space Resources***

Scenic resources to the west of the project area include Iao Valley and the West Maui Mountains. Looking southeast, Haleakala is clearly visible. To the east, lies Kahului Harbor and the Pacific

Ocean.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Population

The population of the County of Maui has exhibited relatively strong growth over the past decade with the 1990 resident population of 100,374 , a 41.7 percent increase over the 1980 population of 70,847 (State of Hawaii Data Book, 1992). Growth in the County is expected to continue, with resident population projections to the years 2000 and 2010 estimated to be 112,349 and 133,459, respectively (Community Resources, Inc., January 1994).

The Wailuku-Kahului Community Plan region is anticipated to follow the Countywide pattern of population growth, with the region's 1990 population of 32,816 expected to rise to 40,452 by the year 2000 and to 48,132 by the year 2010 (Community Resources, Inc., January 1994).

2. Economy

The Kahului region is the Island's center of commerce. Combined with neighboring Wailuku, the region's economic character encompasses a broad range of commercial, service, and governmental activities. In addition, the region is surrounded by agricultural lands which include macadamia nut orchards and sugar cane and pineapple fields. This vast expanse of agricultural land, managed by Hawaiian Commercial & Sugar (HC&S) and Wailuku Agribusiness, is considered a key component of the local economy.

C. PUBLIC SERVICES

1. Recreational Facilities

The Wailuku-Kahului region provides a range of recreational opportunities, including shoreline and boating activities at Kahului Harbor and nearby beach parks, and individual and organized athletic activities available at numerous County parks. The War Memorial complex includes an Olympic-sized swimming pool, locker room, a gymnasium, five (5) Little League baseball fields, a practice soccer field, tennis courts, sumo ring, baseball stadium, as well as the football stadium. The project area is in close proximity to County facilities such as Keopuolani Park (currently under construction and formerly called Maui Central Park), Kahului Community Center and Kanaha Beach Park, as well as Iao Valley State Park.

2. Police and Fire Protection

Police protection for the Wailuku-Kahului region is provided by MPD headquarters in Wailuku (adjacent to the project site). The region is served by the MPD's Wailuku patrol division.

Fire prevention, suppression, and protection services for the Wailuku-Kahului region are provided by the Maui Fire Department's (MFD) Wailuku Station, located approximately 1.0 mile from the project site. In addition, the MFD's new Kahului Station (located on Dairy Road), is approximately 3.0 miles from the project site.

3. Solid Waste

Single-family residential solid waste collection service is provided by the County of Maui on a once-a-week basis. Residential solid waste collected by County crews is transported to the County's 55-

acre Central Maui Landfill, located four (4) miles southeast of the Kahului Airport. The Central Maui Landfill also accepts commercial waste from private collection companies.

4. *Health Care*

Maui Memorial Hospital, the Island's only major medical facility, also services the Wailuku-Kahului region. Acute, general and emergency care services are provided by the 185-bed facility. In addition, numerous privately operated medical/dental clinics and offices are located in the area to serve the region's residents.

5. *Schools*

The Wailuku-Kahului region is served by the State Department of Education's (DOE) public school system as well as several privately operated schools. DOE facilities in the Kahului area include Lihikai and Kahului Schools (Grades K-5), Maui Waena Intermediate School (Grades 6-8), and Maui High School (Grades 9-12). Existing facilities in the Wailuku area include Wailuku Elementary School (Grades K-5), Iao Intermediate School (Grades 6-8), and Baldwin High School (Grades 9-12). Maui Community College, a branch of the University of Hawaii, serves as the Island's only higher education facility.

D. *INFRASTRUCTURE*

1. *Roadways*

Access to the Cameron Center from Mahalani Street is provided by an existing driveway near the Center's southern boundary, while access to the expansion site from the street will be provided over and across the Center's south parking lot. An access and utility easement will be created for this purpose.

Roadways in the immediate vicinity of the proposed project include Kaahumanu Avenue, Mahalani Street, and Kanaloa Avenue. Kaahumanu Avenue is the main highway arterial that links Wailuku to Kahului and is a four-lane, east-west, divided, major State arterial between Wells Street in Wailuku and Kahului Beach Road in Kahului. See Appendix C. East of Kahului Beach Road it is a six-lane divided arterial to Hana Highway. Traffic signal systems, left-turn lanes and right-turn lanes are provided at the major intersections on Kaahumanu Avenue. The posted speed on Kaahumanu Avenue, in the project vicinity, is 45 miles per hour.

Mahalani Street begins at a signalized intersection with Kaahumanu Avenue approximately 800 feet northeast of the project site. Mahalani Street is a County two-lane collector road which currently terminates just south of the Hale O Mana'O Lana Hou housing facility and the Hui Malama Learning Center. It provides access from Kaahumanu Avenue to MPD headquarters, Maui Memorial Hospital, Kaiser Medical Clinic, the Maui Publishing Company offices, DLNR Annex, and the Wailuku Health Center, as well as the Cameron Center. At its approach to Kaahumanu Avenue, Mahalani Street has a shared left-turn/through lane, and a right-turn lane. Roadside parking is permitted on Mahalani Street from a point south of the MPD driveway. North of Kaahumanu Avenue, Mahalani Street becomes Kanaloa Avenue. Mahalani Street is proposed to be widened to a four-lane roadway and extended to ultimately intersect with Waiale Road. It will also connect to the new Maui Lani Parkway. The existing right-of-way of Mahalani Street is about 42 feet. The pavement width varies between 24 and 30 feet.

Kanaloa Avenue is a four-lane, north-south County collector road between Kaahumanu Avenue and the makai limits of the War Memorial Center area where it narrows to a two-lane wide roadway to its intersection with Kahului Beach Road. At its intersection with Kaahumanu Avenue, a dedicated left, a shared left-through and a dedicated right-turn lane are provided for the southbound traffic.

The intersection of Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue is controlled by a traffic signal system. Kaahumanu Avenue at this intersection has exclusive left-turn lanes to southbound Mahalani Street and northbound Kanaloa Avenue. Right-turn deceleration and acceleration lanes on westbound and eastbound Kaahumanu Avenue are provided.

2. ***Wastewater***

There is an 8-inch gravity sewer line located along the westerly boundary of the expansion site. Refer to Appendix B. This line presently serves the Maui Memorial Hospital and the Wailuku Health Center. An 8-inch gravity sewer line from Wailuku Health Center also runs along the south boundary of this site. This line will have to be relocated to facilitate grading of the expansion site.

Wastewater generated by these institutions is conveyed across the MPD parking lot, across Kaahumanu Avenue to the gravity system south of the War Memorial Center and Kanaloa Avenue. The other gravity system in the vicinity of the project is located on Mahalani Street about 400 feet east of the project site. This 12-inch line, which was installed to serve the Cameron Center facility, extends across Kaahumanu Avenue and connects to the 12-inch gravity line on Kanaloa Avenue. This line also handles wastewater generated

by Maui Publishing Company, Kaiser Medical Clinic and the MPD.

Domestic wastewater generated in the Wailuku-Kahului region is conveyed to the County's Wailuku-Kahului Wastewater Treatment Facility located one-half mile east of Kahului Harbor. The design capacity of the facility is 7.9 million gallons per day (MGD). Average daily flow currently processed through the plant is approximately 6.58 MGD (telephone conversation with Dave Taylor, Wastewater Reclamation Division, November 1997).

3. ***Water***

The Wailuku-Kahului region is served by the Department of Water Supply's (DWS) domestic water system. Refer to Appendix B. Water for the Central Maui water system is provided by wells in Mokuhau in Iao Valley and in Upper Waiehu. These well sources draw water from the basal lens referred to as the Iao Aquifer, which has an estimated sustainable yield of 20 MGD. These wells are augmented by a tunnel source in Iao Valley that tap high-level perched or dyke water.

The DWS recently developed two (2) new deep wells in North Waihee. These wells, with a pumping capacity of approximately 1.0 MGD each, are currently drawing water from the heretofore undeveloped North Waihee aquifer and pumping it into the Central Maui system at Waihee Village. With the completion of the new 24-inch transmission line and the 1.0 MG storage reservoir and pumping facility now under construction in North Waihee, water will be pumped from the North Waihee aquifer to the Central Maui system in Upper Waiehu, supplementing water being drawn from the Iao Aquifer sources.

Water for the project site and vicinity is provided by the Mokuhau Source. A series of 24-, 18- and 16-inch transmission lines convey water from this source to a 1.3 MG storage tank located approximately 3,000 feet southwest of the expansion site. A 12-inch line then transports water to the vicinity of the project site on Mahalani Street.

4. ***Drainage***

The existing Cameron Center site is developed, while the expansion site is undeveloped and ranges in elevation from about 104 feet a.m.s.l. to 74 feet a.m.s.l. Refer to Appendix B.

In addition, the existing Cameron Center site is landscaped and irrigated, while the expansion area is undeveloped and primarily vegetated with kiawe and koa haole.

While a drainage system presently serves the Cameron Center site, there are no existing drainage improvements located within the expansion area.

Runoff from the expansion site and Maui Memorial Hospital property currently sheet flows into a 90-inch drainline at the north boundary of the expansion site. In addition to runoff from these areas, this drainline was sized to handle runoff from a portion of the Maui Lani project site. However, according to Maui Lani's drainage master plan, all runoff from Maui Lani will be retained onsite within the golf course fairways. This will result in a substantial reduction of offsite flows. Runoff collected by the existing system, including flow from the MPD parking lot, is presently being conveyed across Kaahumanu Avenue and Kanaloa

Avenue into a natural depression in the new Keopuolani Park area that serves as a detention/desilting basin.

For a 50 year, one (1) hour rainfall, present runoff from Maui Memorial Hospital grounds and other offsite contributory areas is 51.8 cubic feet per second (cfs). Runoff from the expansion site alone is 2.94 cfs.

5. ***Electricity and Telephone Systems***

Electrical and telephone overhead distribution lines are available on Mahalani Street approximately 400 feet east of the expansion site. Refer to Appendix B.

Chapter III

Potential Impacts and Mitigation Measures

III. POTENTIAL IMPACTS AND MITIGATION MEASURES

A. PHYSICAL ENVIRONMENT

1. Surrounding Land Uses

The proposed project expands an already existing use and is located within an area of predominantly recreational, educational, and public uses. Located to the north, beyond the subject property and the adjacent MPD headquarters, is Kaahumanu Avenue and the War Memorial Complex. The Maui Family YMCA, located in the vicinity along Kanaloa Avenue, provide numerous recreational programs. In addition, the nearby Maui Botanical Garden and Central Maui Youth Center provide opportunities for recreational endeavors. The County of Maui is also proceeding with the new Keopuolani Park, a regional recreational facility, which extends into lands makai of the YMCA, Botanical Garden and Youth Center. Closer to Kahului Beach Road, the Maui Arts and Cultural Center (MACC) hosts a number of cultural and performing arts events. Maui Community College, a branch of the University of Hawaii campus, is located adjacent to MACC.

Baldwin High School is located to the north of the subject property and west of the War Memorial Center Complex. The Maui Lani Project District, which is currently being developed, and the Sand Hills residential area are located to the west of the project area, beyond the Ka Lima O Maui Nursery. Further to the south of the subject property, beyond the Wailuku Health Center, lies the Maui Memorial Hospital and hospital parking lot, as well as the hospital's employee housing facility. In addition, to the east of the subject property, beyond Mahalani Street, lies the DLNR Annex, Kaiser Medical Clinic and the offices of the Maui Publishing Company.

The proposed project is not anticipated to have an adverse effect on surrounding land uses and activities.

2. ***Topography***

Site work for the proposed child care center and the MEO Family Center will involve clearing, grubbing, and grading, as well as excavation and fill. To the extent practicable, finished contours will follow existing grades to minimize earthwork costs and maintain existing drainage patterns.

While terrain will be locally modified to meet design requirements, the proposed master-planned improvements are not anticipated to adversely alter topographic characteristics in the vicinity.

3. ***Flora and Fauna***

There are no known significant habitats or rare, threatened, or endangered species of flora, fauna, or avifauna on the subject property.

The Cameron Center site is landscaped and irrigated, while vegetation in the expansion area primarily consists of kiawe and koa haole. There are no wetlands located on either site.

As previously noted, fauna and avifauna found in the vicinity are typical of the Wailuku-Kahului urban area. The proposed project is not anticipated to have an adverse impact upon these components of the environment.

4. ***Archaeological Resources***

As previously noted, the existing Cameron Center site was

previously disturbed during the construction of the Center's present facilities. In addition, no archaeological features or artifacts were located during the recent archaeological inventory survey of the expansion site.

No further archaeological survey or testing is recommended prior to development of the property. Refer to Appendix A. In spite of the negative findings of both the surface and subsurface survey reported here, there is still potential for encountering archaeological materials, especially human burials, in any area of the Wailuku Sand Hills. This is evidenced by the multiple burial finds in the adjacent Maui Lani Development area. Because of this potential, onsite archaeological monitoring is recommended during initial grubbing and grading of the project area. This monitoring will be carried out according to the procedures of the State Historic Preservation Division (SHPD) which calls for preparation of a monitoring plan which will be reviewed and approved by the SHPD before the commencement of ground disturbing activities.

In a letter dated January 22, 1998, the SHPD indicated that the proposed project will have "no effect" on known historic sites. Refer to Appendix A-1. The SHPD also concurred with the survey's recommendations that archaeological monitoring be conducted for ground-altering construction activities.

It should be noted that an archaeological monitoring plan was submitted to the SHPD on January 21, 1998 and is currently being reviewed for approval.

Should any human remains or significant cultural materials be

found during construction of the project, the SHPD and the Maui/Lanai Island Burial Council will be appropriately and immediately notified and appropriate mitigation measures implemented to ensure compliance with Chapter 6E, HRS.

5. ***Air Quality and Noise***

Emissions from construction equipment and other vehicles involved in construction activities may temporarily affect the ambient air quality within the immediate vicinity. However, these effects can be minimized by properly maintaining construction equipment and vehicles.

In addition, dust generated during construction, especially from earth-moving operations such as excavating, trenching, and filling, may also result in a temporary decrease in ambient air quality. Mitigation measures include utilizing dust barriers, waterwagons, and/or sprinklers to control dust, and watering graded areas upon the completion of daily construction activities and/or weekends and holidays to the extend practicable.

On a long-term basis the proposed project is not anticipated to adversely impact air quality.

Ambient noise conditions may be temporarily affected by construction activities. Heavy construction machinery, such as backhoes, dump trucks, front-end loaders, paving equipments, and material-transport vehicles, are anticipated to be the dominant noise-generating sources during the construction period.

Proper equipment and vehicle maintenance are anticipated to

minimize noise levels. Equipment mufflers or other noise attenuating equipment may also be employed as required. All construction activities will be limited to daylight working hours. From a long-term perspective, the proposed project is not anticipated to generate adverse noise impacts.

6. ***Scenic and Open Space Resources***

As viewed from the subject property, Haleakala is visible to the east, and Iao Valley and the West Maui Mountains to the west.

The proposed improvements will integrate landscaping, low-rise structures and open space areas to provide facilities which satisfy spatial requirements and are compatible with the surrounding environment.

The subject property is not part of a scenic corridor and will not affect views from inland vantage points. Accordingly, the proposed project is not anticipated to have an adverse impact upon the visual character of the surrounding area.

In addition, the proposed project will not adversely affect the scenic and visual character of the area. The present Cameron Center facility is an existing use. The proposed child care center and MEO Family Center will be designed and landscaped to complement and enhance the visual character of the area and will not encroach into view corridors.

7. ***Use of Chemicals and Fertilizers***

Use of herbicides will generally be limited to the initial plant establishment period on the expansion site. Pesticides are

anticipated to be used only as a treatment and not as a preventive measure. As a treatment, application usage will be minimal. In addition, plant selection for the project will be based on hardiness, drought tolerance, pest resistance, as well as aesthetic concerns.

Nitrogen/Phosphorus/Potash mixed fertilizers are anticipated to be applied to lawn areas, groundcover, and flowering shrubs. With proper irrigation management practices, leaching and runoff of fertilizers should be negligible.

No adverse effects on surface, underground and marine resources are anticipated.

B. SOCIO-ECONOMIC ENVIRONMENT AND PUBLIC SERVICES

1. Population and the Local Economy

The proposed project is not anticipated to have an adverse impact upon the population.

On a short-term basis, the project will support construction and construction-related employment. Accordingly, the project will have a beneficial impact on the local economy during the period of construction.

2. Police, Fire, and Medical Services

Police, fire and medical services are not expected to be adversely impacted by the proposed project. The proposed project will not affect the service capabilities or extend the existing service area limits for emergency services.

3. Solid Waste

A solid waste management plan will be developed in coordination

with the Solid Waste Division of the County Department of Public Works and Waste Management (DPWWM) for the disposal of clearing and grubbing material during construction. Solid waste collection and disposal will be provided by a private refuse service.

C. INFRASTRUCTURE

1. Traffic

A Traffic Impact Analysis Report (TIAR) was prepared for the subject project. Refer to Appendix C. The intersections analyzed during the AM and PM peak hours of traffic included the following:

- Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue signalized intersection, and

- Mahalani Street and Cameron Center driveway.

a. Existing Conditions

Based upon visual observations of traffic operations and intersection analyses within the study area, traffic generally flows well through the area.

During the PM peak period of traffic, northbound traffic on Mahalani Street often queues back to a point just south of the MPD driveway. However, this back-up of traffic dissipates as the traffic signals at Kaahumanu Avenue service Mahalani Street.

At varying times of the day, the left-turn traffic demand from Kaahumanu Avenue to Mahalani Avenue was observed to be quite heavy, resulting in vehicles "overflowing" from the

left-turn storage lane into the through lane, causing congestion in the westbound lanes of Kaahumanu Avenue.

b. ***Planned Roadway Improvements***

Roadway improvements proposed in the vicinity of Cameron Center include the following:

- **Construction of Maui Lani Parkway and extension of Mahalani Street.** Construction of a four-lane, north-south divided collector roadway, Maui Lani Parkway is nearly completed. Maui Lani Parkway begins at Kaahumanu Avenue and terminates (with provisions to continue the parkway) at its intersection with Mahalani Street. This project also includes the installation of a traffic signal system at its intersection with Kaahumanu Avenue. When completed, the new intersection will permit all traffic movements into and out of Baldwin High School.

- **Widening of Mahalani Street.** The County of Maui is developing plans to widen Mahalani Street as a 60-foot right-of-way collector road from Kaahumanu Avenue to Waiale Drive. The first phase of the widening project, between the newly completed Maui Lani Parkway and Waiale Drive, is scheduled to be completed in early 1999. The second phase, between Kaahumanu Avenue and its connection to the Maui Lani Parkway, is scheduled to be completed by the end of 1999.

- **Traffic Signals Upgrade/Interconnect.** The State Department of Transportation (DOT) is currently preparing plans to modernize the existing traffic signal systems on Kaahumanu Avenue, and interconnect and coordinate the operations of the traffic signal system on Kaahumanu Avenue.

- **Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue Intersection.** The DOT will be improving this intersection to provide the following:

a. A double left-turn lane from Kaahumanu Avenue to Mahalani Street.

b. The widening of Mahalani Street to provide two (2) southbound lanes and three (3) northbound lanes to Kaahumanu Avenue.

c. A continuous auxiliary lane on eastbound Kaahumanu Avenue between Mahalani Street and Papa Avenue.

These intersection improvements are scheduled for completion before the end of 1998.

- ***Waiale Drive Improvements to Honoapiilani Highway at Kuikahi Drive and to Mill Street via Imi Kala Street.*** The County of Maui will be improving Waiale Drive to 60-foot collector road standards, providing connections to Honoapiilani Highway near Waikapu, and to Mill Street and Lower Main Street in Wailuku. Project completion has not been firmly established as of this writing.

c. *Analysis of Proposed Roadway Improvements*

The new roadways and roadway improvements to existing facilities will reduce the traffic demand on Kaahumanu Avenue between Wailuku and Kahului, and will improve traffic operations at the intersection of Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue, especially during the peak periods of commuter traffic.

The immediate impact of the Kaahumanu Avenue/Mahalani Street intersection improvement, and the widening of Mahalani Street from Kaahumanu Avenue to the new Maui Lani Parkway will be an increase in roadway capacity. Further, the completion of the Maui Lani Parkway and its connection to Mahalani Avenue south of Maui Memorial

Hospital will provide an alternative route to and from the existing facilities on Mahalani Street from vehicles coming from and to the Wailuku and West Maui areas. This will all have the effect of reducing the traffic demand at the Kaahumanu Avenue/Mahalani Street intersection.

Also contributing to the reduction in traffic demand on the Kanaloa Avenue approach to the Kaahumanu Avenue intersection is the completion of the Maui Lani Parkway/Kaahumanu Avenue signalized intersection at Baldwin High School. This intersection can now function as a full-service intersection, with no restrictions on turning movements. Therefore, motorists desiring to head east on Kaahumanu Avenue from Baldwin High School can now execute the left-turn movement onto Kaahumanu Avenue at the Baldwin High School driveway. Formerly, motorists had to drive through the War Memorial Center and enter Kanaloa Avenue and then turn left onto Kaahumanu Avenue.

Analyses of the Kaahumanu Avenue/Mahalani Street intersection and the driveway at Cameron Center without the proposed expansion projects show that they will operate at LOS D or better during the AM and PM peak hours of traffic even without any of the roadway improvements.

d. ***Trip Generation and Assignment***

Vehicular trips generated by the proposed MEO Family Center and child care center were calculated by applying trip generation rates contained in "Trip Generation, 5th Edition" Institute of Transportation Engineers (ITE) 1991.

Conceptually, the child care center is designed to provide 24-hour service to parents who work in the vicinity of the Cameron Center. Therefore, the total vehicular trips generated by this facility will not be new trips on the roadways, but will be part of a previously existing trip. Further, this service is for 40 children over a 24-hour period, albeit that the majority of the children will be accommodated during the normal 7:30 a.m. to 4:30 p.m. time period, still the vehicular trips will be tempered by the service area (Mahalani Street agencies), and, therefore, will most likely not impact traffic on Kaahumanu Avenue.

The traffic generated by the MEO Family Center will be mitigated by some of their clients being transported to the facility by the MEO shuttle vans, and not by private vehicles.

However, for the analysis of the roadway capacities, the trips generated per the ITE trip generation rates were assigned to the intersection and analyzed.

e. ***Level of Service Analysis***

Level of Service (LOS) is a qualitative measure used to describe the conditions of traffic flow, ranging from free-flow conditions at LOS A to congested conditions at LOS F.

With the project traffic added to the Base Year 2000 traffic volumes, the Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue intersection is estimated to operate at LOS D or better during both peak hours of traffic. The widening of Mahalani Street and the signal

upgrade/coordination of Kaahumanu Avenue would improve operations at this intersection.

The existing driveway is estimated to operate at LOS A during both the AM and PM hours of traffic. The left-turn out of Cameron Center, heading northbound on Mahalani Street, is estimated to operate at LOS B during the AM and PM peak hours of traffic. The widening of Mahalani Street to four (4) lanes would improve operations at the existing driveway.

f. ***Findings and Conclusions***

The findings set forth in the TIAR include the following:

- The proposed expansion of Cameron Center will not adversely impact traffic operations on the existing roadways in the vicinity of Cameron Center. The proposed roadway improvements will improve traffic operations on Mahalani Street on Kaahumanu Avenue by providing alternative routes to the motorists.

- Special events traffic, such as for the Hula Bowl, or for the annual County Fair will still cause congestion on Kaahumanu Avenue. However, these roadway improvements will also help to mitigate, but not eliminate, the special events traffic congestion.

- The improved Keopulani Park (Maui Central Park) is not anticipated to have any adverse impact on traffic.

Based upon the County of Maui's scheduled widening of Mahalani Street and the DOT's scheduled Kaahumanu Avenue improvements, the TIAR concludes that offsite roadway improvements are not recommended due to the expansion of the Cameron Center.

2. ***Water***

Preliminarily, the domestic water flow rates for the MEO Family Center and child care center are estimated to be 46 gallons per minute (gpm) and 24 gpm, respectively. Fireflow requirements for the Family Center and child care center are estimated at 2,500 gpm and 1,250 gpm, respectively. See Appendix D.

It should be noted that a privately owned and maintained irrigation well located on the Cameron Center site will be utilized to provide landscape irrigation for the proposed facilities. The average daily domestic water demand for the MEO Family Center and the child care center is anticipated to range from approximately 600 to 700 gallons per day (gpd) and 800 to 900 gpd, respectively.

Separate water lines will have to be extended approximately 400 feet into the project site from Mahalani Street for domestic and fire protection purposes. In keeping with the DWS policy, meters for these lines will be located on the west side of Mahalani Street. Fire hydrants will be installed onsite to provide the fire protection coverage required.

Storage, transmission and source development obligations will be fulfilled as part of and in conjunction with payment of the comprehensive meter fee.

The relocation of MEO's administrative operations from the old Kahului School site to the expansion site is a redistribution of existing water use to a different location and does not represent an altogether new demand on regional water resources. The proposed water system improvements will be constructed in

accordance with applicable regulatory design standards. The proposed project is not anticipated to have an adverse effect on water sources and storage facilities, as well as water transmission and distribution systems.

3. ***Wastewater***

Preliminarily, the estimated wastewater flows generated by the MEO Family Center and child care center are estimated to be 640 gpd and 810 gpd, respectively. Refer to Appendix D.

A new 8-inch gravity line will be installed to convey wastewater generated by the project to the existing 12-inch gravity line on Mahalani Street. Refer to Appendix B. This line will be installed along the northerly boundary of the Cameron Center.

Wastewater assessment fee for facility expansion of the Kahului Wastewater Treatment Facility will be paid prior to approval of the building permit as specified in Chapter 14.34 of the Maui County Code.

All wastewater system improvements will be constructed in accordance with applicable regulatory design standards. The proposed project is not anticipated to have an adverse impact upon the region's wastewater capacities and facilities.

4. ***Drainage and Erosion Control***

As previously noted, there are no drainage improvements which serve the expansion area. Peak post-development runoff for a one (1) hour 50 year recurrent interval storm from the expansion site only is projected to total 8.70 cfs. Refer to Appendix B.

The after development onsite and offsite surface runoff volume generated from the proposed development is expected to be approximately 61.0 cfs. Accordingly, there will be a net increase in onsite and offsite surface runoff volume of approximately 9.2 cfs compared to the pre-development runoff volume of about 51.8 cfs.

The onsite and offsite surface runoff generated by the proposed development will be intercepted by new grated inlet type catch basins and conveyed by means of a new underground drainage system, where it will be allowed to discharge into an existing 90-inch drainline located on the northerly boundary of the project site which is capable of accommodating the increase in surface runoff volume. This surface runoff volume will then be allowed to release into a retention basin in the proposed Keopulani Park (Maui Central Park) Project which has ample storage for the increase in surface runoff.

The proposed drainage system improvements will be constructed in accordance with applicable regulatory design standards. The proposed improvements are not anticipated to have an adverse effect on adjacent or downstream properties.

Grading activities for the proposed development will be less than the allowable fifteen (15) acres. Upon completion of grading, all exposed areas will be grassed as necessary. In addition, the following measures will be implemented to control erosion during construction:

1. Minimize the time of construction.
2. Retain existing ground cover until the latest possible date to

complete construction.

3. Begin construction of drainage improvements as early as possible.

4. Use temporary area sprinklers in non-active construction areas when ground cover is removed.

5. Station water truck on site during construction to provide for immediate sprinkling, as needed, in active construction zones (including weekends and holidays).

6. Use *temporary berms, filter berms, and cut-off ditches*, where needed, for erosion control.

7. Graded areas shall be thoroughly watered after construction activity has ceased for the day and on weekends and holidays.

8. All cut and fill slopes shall be sodded or planted immediately after grading work has been completed.

5. ***Electricity and Telephone Systems***

Electrical power and telephone system requirements will continue to be provided by Maui Electric Company, Ltd. and GTE Hawaiian Tel.

Electrical, telephone and CATV duct lines, pullboxes and manholes will be installed along the proposed access road to extend these facilities underground from their respective overhead distribution systems on Mahalani Street to the project site as required by the Maui County Code.

D. ***CUMULATIVE AND SECONDARY IMPACTS***

A cumulative impact is defined as an impact to the environment which results from the incremental impact of an action when added to other past, present, and reasonable foreseeable future actions regardless of

what agency or person undertakes such other actions. Actions, such as those that involve the construction of public facilities or infrastructure, may stimulate secondary impacts such as population growth and increased demands for public services and infrastructure.

On a long-term basis, the Cameron Center expansion improvements will have beneficial socio-economic fabric of the community by fulfilling the public's need for health and community services. In addition, the proposed expansion improvements would support additional employment opportunities, either directly or indirectly, and contribute to the local economy through its contribution of wages, salaries, and benefits.

It is noted that the proposed MEO Family Center represents a relocation of MEO's existing operation in Kahului to the Cameron Center site. In this regard, this action is not anticipated to place additional demands upon infrastructure and public service requirements.

Chapter IV

Relationship to Governmental Plans, Policies and Controls

IV. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES AND CONTROLS

A. STATE LAND USE DISTRICTS

Chapter 205, HRS, relating to the Land Use Commission, establishes the four major land use districts in which all lands in the State are placed. These districts are designated "Urban", "Rural", "Agricultural", and "Conservation". The subject property is within the "Urban" district. See Figure 8. The proposed action involves the expansion of the Cameron Center's site and facilities and is consistent with the provisions of the "Urban" district.

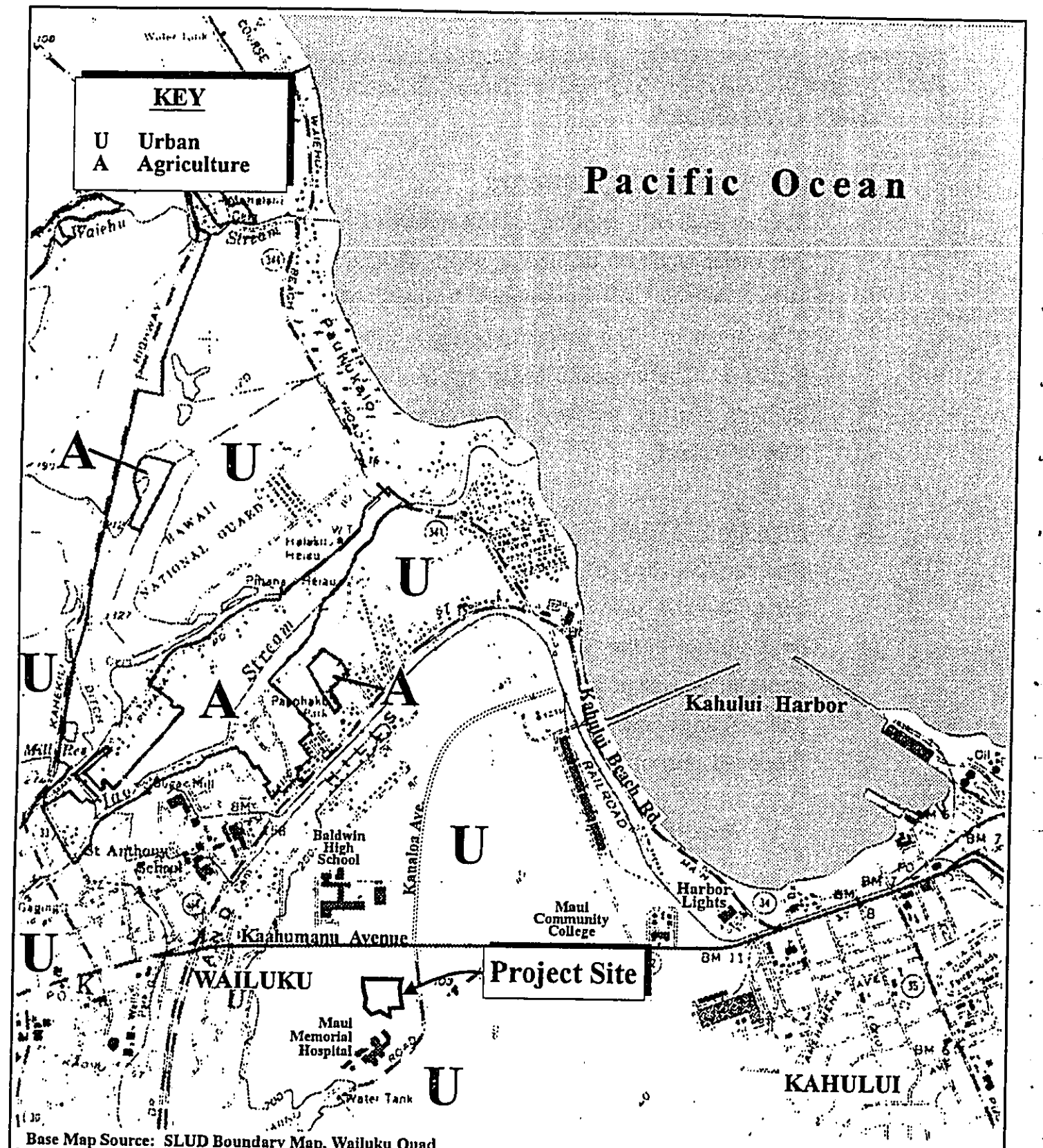
B. HAWAII STATE PLAN

Chapter 226, HRS, also known as the Hawaii State Plan, is a long-range comprehensive plan which serves as a guide for the future long-range development of the State by identifying goals, objectives, policies, and priorities, as well as implementation mechanisms. The goals, objectives, policies, and priority guidelines which contribute to the development of the proposed project include the following:

a. **Goal:** Physical, social, and economic well-being, for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring, and of participating in community life.

The proposed project also promotes the following State Plan objectives, policies, and priority guidelines:

Sec. 226-6	**Objectives and policies for the economy - in general.**
Policy (b)(12)	Provide equal employment opportunities for all segments of Hawaii's population through affirmative action and nondiscrimination measures.



Base Map Source: SLUD Boundary Map, Wailuku Quad

Figure 8

Cameron Center Expansion

State Land Use District Designations

MUNEKIYO, ARAKAWA & HIRAGA, INC.

1000 0 2000 4000 Feet

Prepared for: J. Walter Cameron Center

* * *

Sec. 226-17	**Objectives and policies for facility systems- transportation.**
Policy (b)(5)	Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs.
Policy (b)(6)	Encourage transportation systems that serve to accommodate present and *future development needs of* communities.

* * *

Sec. 226-20	**Objectives and policies for socio-cultural advancement - health.**
Objective (a)(1)	Fulfillment of basic individual health needs of the general public.
Policy (b)(1)	Provide adequate and accessible services and facilities for prevention and treatment of physical and mental health problems, including substance abuse.
Policy (b)(4)	Foster an awareness of the need for personal health maintenance and preventive health care through education and other measures.
Policy (b)(5)	Provide programs, services, and activities that ensure environmentally healthful and sanitary conditions.

* * *

Sec. 226-22	**Objective and policies for socio-cultural advancement - social services.**

Policy (b)(1)	Assist individuals, especially those in need of attaining a minimally adequate standard of living and those confronted by social and economic hardship conditions, through social services and activities within the State's fiscal capacities.
	* * *
Sec. 226-26	**Objectives and policies for socio-cultural advancement - public safety.**
Objective (a)(3)	Promotion of a sense of community responsibility for the welfare and safety of Hawaii's people.
	* * *
Sec. 226-104	**Population growth and land resources priority guidelines.**
Objective (a)(3)	Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State.

C. *MAUI COUNTY GENERAL PLAN*

The Maui County General Plan (1990 Update) sets forth broad objectives and policies to help guide the long-range development of the County. As stated in the Maui County Charter:

> "The purpose of the General Plan is to recognize and state the major problems and opportunities concerning the needs and the development of the County and the social, economic and environmental effects of such development and set forth the desired sequence, patterns and characteristics of future development."

The proposed action is in keeping with the following General Plan objectives and policies:

Objective:

* To use the land within the County for the social and economic betterment of all the County's residents.

* To improve the quality and availability of public facilities throughout Maui County.

* To meet the health needs of all residents and visitors.

* To focus on the quality of family life including the young, the elderly, and the handicapped as the basic building block of community well-being.

* To create a community in which the needs of all segments of the population will be recognized and met.

Policies:

* Coordinate the services of government (Federal, State and County) and private nonprofit agencies, in order to insure the quickest and most reliable access to needed services.

* Support an expanded role for community churches and volunteerism in family support and delivery of services.

* Provide a variety of services and programs that meet the special needs of recent immigrants and of the young, the elderly, and the handicapped.

D. *WAILUKU-KAHULUI COMMUNITY PLAN*

The subject parcel is located in the Wailuku-Kahului Community Plan region which is one of nine Community Plan regions established in the County of Maui. Planning for each region is guided by the respective Community Plans, which are designed to implement the Maui County General Plan. Each Community Plan contains recommendations and standards which guide the sequencing, patterns and characteristics of

future development in the region.

Land use guidelines are set forth by the Wailuku-Kahului Community Plan Land Use Map. See Figure 9. The subject property is designated "Public/Quasi-Public" by the Community Plan. The proposed master-planned improvements are consistent with the Wailuku-Kahului Community Plan. In addition, the following Community Plan recommendation addresses the subject request.

Land Use

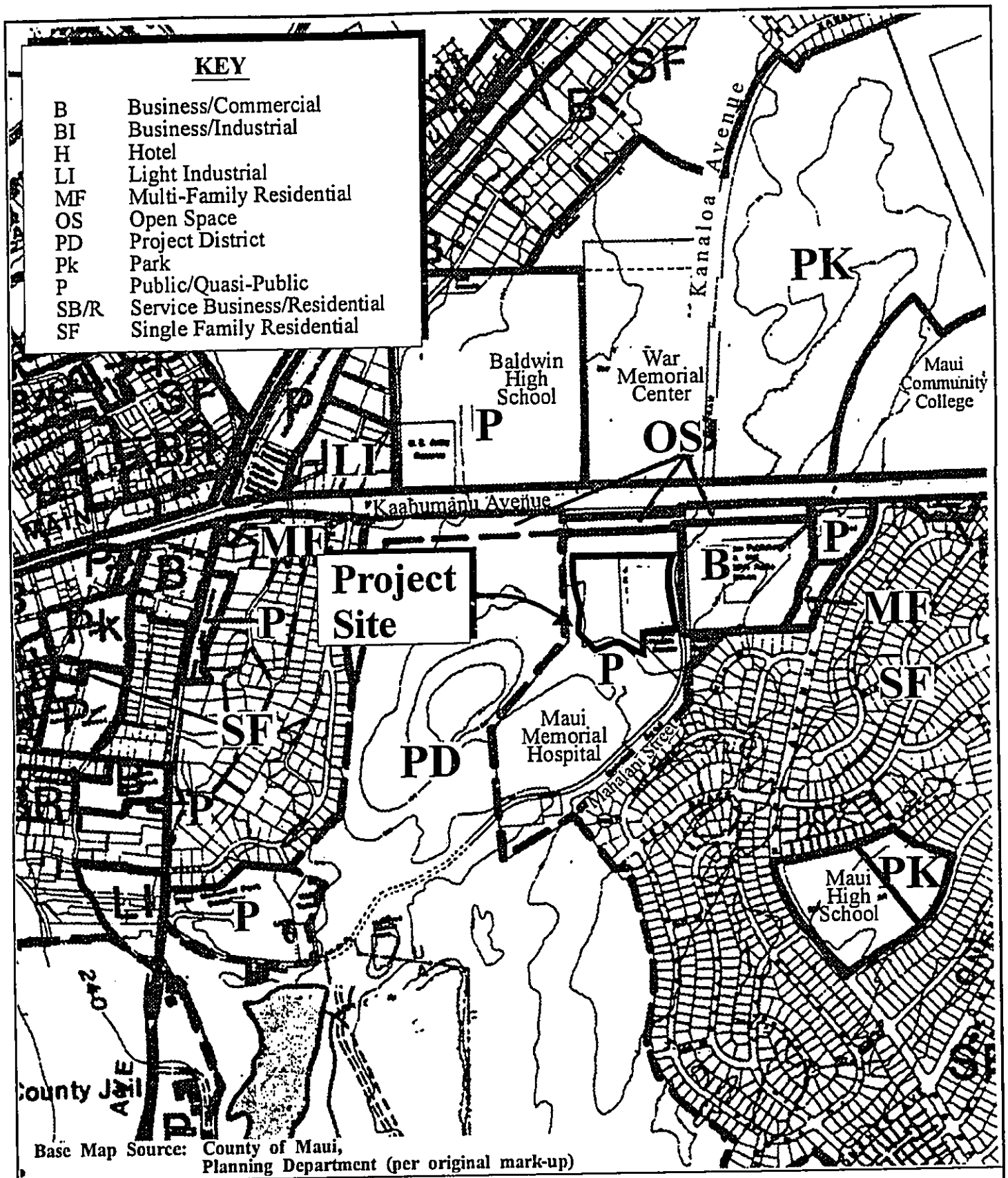
2. f. 12) Designate public/quasi-public areas to reflect existing facilities. This land use designation recognizes existing uses such as public facilities, schools, churches, cemeteries, and similar uses.

The County of Maui is currently in the process of comprehensively updating each Community Plan. The process involves review by appointed Citizen Advisory Committees for each region, the Department of Planning, the appropriate Planning Commission, and the Maui County Council.

Comprehensive review to the Hana, Kahoolawe, Paia-Haiku, Makawao-Pukalani-Kula, and West Maui Community Plans have been completed. The Maui County Council is currently reviewing of the Kihei-Makena Community Plan. Pending review at the County Council are the Wailuku-Kahului, Lanai and Molokai Community Plans.

E. COUNTY ZONING

The existing County zoning for the subject property is R-3, Residential. The proposed child care center and MEO Family Center are new



Base Map Source: County of Maui, Planning Department (per original mark-up)

Figure 9

Cameron Center Expansion

Wailuku-Kahului Community Plan Designation

MUNEKIYO, ARAKAWA & HIRAGA, INC.

0 500 1000 2000 Feet

Prepared for: J. Walter Cameron Center

improvements and are presently permitted as special uses under R-3, Residential zoning (day and child care facilities). However, since Public/Quasi-Public zoning includes day and child care facilities, as well as offices for nonprofit organizations as principal permitted uses, a Change in Zoning from R-3, Residential to Public/Quasi-Public is being requested for the subject parcels.

F. COUNTY SPECIAL USE PERMIT

The proposed MEO Family Center will require a County SUP in order to establish its use in the R-3, Residential zoning district. The proposed MEO Family Center will be located within an area of existing Public/Quasi-Public uses, such as the Wailuku Health Center, Maui Memorial Hospital, Maui Police Department, DLNR Annex, and Kaiser Medical Clinic. Accordingly, the proposed Family Center will be established as a use consistent and compatible with existing surrounding land uses.

G. OTHER REGULATORY REQUIREMENTS

The proposed project will also comply with applicable regulatory requirements for site work and construction, including but not limited to obtaining the necessary grubbing, grading, building, plumbing, and electrical permits.

It should also be noted that the subject property is located beyond the limits of the County's Special Management Area (SMA). Accordingly, the provisions governing actions within the SMA are not triggered by the development of the proposed master-planned improvements.

Chapter V

Summary of Adverse Environmental Effects Which Cannot be Avoided

V. SUMMARY OF ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The proposed project will result in some construction-related impacts as described in Chapter III, Potential Impacts and Mitigation Measures.

Potential effects include noise-generated impacts occurring from site preparation and construction activities. In addition, there may be temporary air quality impacts associated with dust generated from construction activities, and exhaust emissions discharged by construction equipment.

The proposed project is not anticipated to create any long-term, adverse environmental impacts.

Chapter VI

Alternatives to the Proposed Action

VI. ALTERNATIVES TO THE PROPOSED ACTION

A. NO ACTION ALTERNATIVE

The "no action" alternative provides for the continuation of the Cameron Center's operations on its existing site and does not consider the development of the proposed child care center and the MEO Family Center on the adjacent expansion site, nor does it address the need for the relocation of MEO's operations.

The availability of appropriate sites for accommodating the expansion of the Center and its master-planned improvements is best accomplished through the development of the adjacent expansion site. The expansion of the Cameron Center site, including the development of the proposed child care center and MEO Family Center, is vital toward meeting the immediate and long-term needs of both the community, as well as that of the Center and MEO.

In this regard, the proposed action will enable the Cameron Center and MEO to provide health and community services at a conveniently located, centralized site which will continue to meet existing public service demands, as well as provide for future community needs.

In light of the need for the services provided by the Cameron Center and MEO, as well as the suitability of the site and the benefits which accrue to the regional and island-wide communities, the "no action" alternative does not represent an appropriate option.

B. DEFERRED ACTION ALTERNATIVE

A "deferred action" alternative will have similar consequences as the "no action" alternative in that the factors regarding the suitability of the site, as well as the ability to address both the short- and long-term health and

community service needs of the community would still need to be considered. In addition, by deferring the development of the proposed MEO Family Center, MEO operations would be impacted since an interim facility at a less desirable site would need to be leased and/or constructed.

The "deferred action" alternative could also result in potentially higher development costs due to increases in labor and material cost.

Chapter VII

Irreversible and Irretrievable Commitments of Resources

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The proposed master-planned improvements would involve the commitment of fuel, labor, funding, and material resources. The development of the proposed project would also involve the commitment of land for improvements which would preclude other land use options for the expansion site. The commitment of land for the proposed master-planned improvements is consistent with the existing and Community Plan land uses surrounding the subject property.

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

Chapter VIII

Findings and Conclusions

VIII. FINDINGS AND CONCLUSIONS

The proposed action involves the expansion of the Cameron Center's site to include a proposed new child care center and the MEO Family Center. Since County lands will be utilized for the project, an Environmental Assessment has been prepared pursuant to Chapter 343, Hawaii Revised Statutes, and Chapter 200 of Title 11, Administrative Rules of the State Department of Health.

Every phase of the proposed action, expected consequences, both primary and secondary, and the cumulative as well as the short-term and long-term effects of the action have been evaluated in accordance with the Significance Criteria of Section 11-200-12 of the Administrative Rules. Based on the analysis, the proposed project will not result in any significant impacts. Discussion of project conformance to the criteria is noted as follows:

1. *No Irrevocable Commitment to Loss or Destruction of any Natural or Cultural Resource Would Occur as a Result of the Proposed Project*

Flora affected by the project are exotic varieties of trees and grasses. No wetlands exist within the project site. Fauna and avifauna are typical of a developed area. There are no known, rare, endangered or threatened species of flora, fauna, or avifauna within the project site.

The existing Cameron Center site has been previously disturbed and, as such, there are no surface archaeological features or artifacts within the site. Archaeological monitoring will be conducted during site work involving the expansion site improvements. Should any human remains or significant archaeological features or artifacts be found during construction of the project, the SHPD and the Maui/Lanai Island Burial Council will be appropriately and immediately notified and appropriate mitigation measures implemented.

2. ***The Proposed Action Would Not Curtail the Range of Beneficial Uses of the Environment***

The expansion site and proposed improvements are components of the Cameron Center's master-plan for the site and are not anticipated to have an adverse effect on the beneficial uses of the environment.

3. ***The Proposed Action Does Not Conflict With the State's Long-term Environmental Policies or Goals or Guidelines as Expressed in Chapter 344, Hawaii Revised Statutes***

The State Environmental Policy and Guidelines are set forth in Chapter 344, Hawaii Revised Statutes. The proposed action is in consonance with the following policies and guidelines:

Environmental Policy:

(1) Conserve the natural resources, so that land, water, mineral, visual air, and other natural resources are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State's unique natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the people of Hawaii.

Guidelines:

* * *

(2) Land, water, mineral, visual, air, and other natural resources.

* * *

(F) Maintain an integrated system of state land use planning which coordinates the State and County general plans.

(G) Promote the optimal use of solid wastes through programs of waste prevention, energy resource recovery, and recycling so that all our wastes become utilized.

(3) Flora and fauna.

* * *

(B) Foster the planting of native as well as other trees, shrubs, and flowering plants compatible to the enhancement of our environment.

(5) Economic development.

(A) Encourage industries in Hawaii which would be in harmony with our environment;.

* * *

(7) Energy.

(A) Encourage the efficient use of energy resources.

* * *

(10) Citizen participation.

* * *

(B) Provide for expanding citizen participation in the decision making process so it continually embraces more citizens and more issues.

4. ***The Economic or Social Welfare of the Community or State Would Not Be Substantially Affected***

The project would have a direct beneficial effect on the local economy during construction. In the long term, the proposed project will support the local economy through the contribution of salaries, wages, and benefits, as well as through the purchases of goods and services from local merchants and service providers.

5. ***The Proposed Action Does Not Affect Public Health***

The proposed action involves the development of facilities which are designed to advance the general public health and welfare. For example, the proposed child care center is intended to provide a safe, sanitary and supportive environment for infants and toddlers.

6. ***No Substantial Secondary Impacts, Such as Population Changes or Effects on Public Facilities, are Anticipated***

No significant population changes are anticipated as a result of the proposed project.

From a land use standpoint, the proposed project is an enhancement of an existing use. It is anticipated to be compatible with surrounding Public/Quasi-Public land uses in the vicinity such as MPD headquarters, the Wailuku Health Center, DLNR Annex, Maui Memorial Hospital, and the Kaiser Medical Clinic.

The proposed improvements will hookup to the existing County water and wastewater systems. No adverse impacts to water and wastewater capacities and facilities are anticipated. Onsite and offsite surface runoff are expected to be accommodated by the existing and proposed drainage system improvements. The project is not expected to significantly impact public services such as police, fire, and medical services. Impacts upon educational, recreational, and solid waste collection and disposal facilities and resources are considered minimal.

7. ***No Substantial Degradation of Environmental Quality is Anticipated***

No substantial degradation of environmental quality resulting from the proposed project is anticipated.

8. ***The Proposed Action Does Not Involve a Commitment to Larger Actions Nor Would Cumulative Impacts Result in Considerable Environment***

The proposed actions address anticipated social and community service needs over the short term (through the year 2000). No additional improvements are envisioned during this planning horizon. Over the long-

term, the need for additional improvements and facilities will be considered as community demand warrants. In the context of the scale and use intensity of the existing Cameron Center and the proposed MEO Family Center and child care center, any future additions to the Cameron Center are not anticipated to result in considerable adverse effects to the environment.

9. ***No Rare, Threatened or Endangered Species or Their Habitats Would Be Adversely Affected By The Proposed Project***

There are no rare, threatened or endangered species of flora, fauna or avifauna or their habitats on the subject property.

10. ***Air Quality, Water Quality or Ambient Noise Levels Would Not Be Detrimentally Affected By The Proposed Project***

Construction activities will result in short-term air quality and noise impacts. Dust control measures, such as regular watering and sprinkling, will be implemented as warranted, to minimize wind-blown emissions. Noise impacts will occur primarily from construction equipment. It is anticipated that construction will be limited to daylight hours.

Water quality is not expected to be affected.

In the long term, air and water quality, as well as ambient noise levels, are not anticipated to be adversely affected.

11. ***The Proposed Project Would Not Affect Environmentally Sensitive Areas, Such as Flood Plains, Tsunami Zones, Erosion-prone Areas, Geologically Hazardous Lands, Estuaries, Fresh Waters or Coastal Waters***

The proposed project is located in an area of minimal flooding and is not in a tsunami zone. Soils of the project site are not erosion-prone. There

are no geologically hazardous lands, estuaries, perennial or intermittent streams, or fresh waters within or adjacent to the project site. The coastal waters of Kahului Harbor are located across from Kahului Beach Road and would not be affected by the proposed action.

12. ***The Proposed Project Will Not Substantially Affect Scenic Vistas and Viewplanes Identified in County or State Plans or Studies***

The proposed project will not affect coastal scenic and open space resources and will not affect scenic corridors.

13. ***The Proposed Project Will Not Require Substantial Energy Consumption***

The proposed project will involve the short-term commitment of fuel for equipment, vehicles, and machinery during construction activities. However, this use is not anticipated to result in a substantial consumption of energy resources. In the long term, the project will create an additional demand for electricity. However, this demand is not deemed substantive or excessive within the context of the region's overall energy consumption especially when considering that the relocation of MEO's administrative operations from the old Kahului School site to the Cameron Center expansion area is a redistribution of existing energy use to a different location.

Based on the foregoing findings, it is concluded that the proposed action will not result in any significant environmental impacts.

Chapter IX

Agencies Consulted During the Preparation of the Draft Environmental Assessment; Letters Received and Responses to Substantive Comments

IX. AGENCIES CONSULTED DURING THE PREPARATION OF THE DRAFT ENVIRONMENTAL ASSESSMENT; LETTERS RECEIVED AND RESPONSES TO SUBSTANTIVE COMMENTS

The following agencies were consulted during the preparation of the Draft Environmental Assessment. Agency comments and responses to substantive comments are also included in this section.

1. Linda Hihara-Endo
Department of the Army
U.S. Army Engineer District, Hnl.
Attn: Operations Division
Bldg. T-1, Room 105
Fort Shafter, HI 96858-5440

2. Neal S. Fujiwara,
District Conservationist
Natural Resources Conservation Service
210 Imi Kala Street, Suite 209
Wailuku, HI 96793

3. Brooks Harper, Field Supervisor
Ecological Services
U. S. Fish and Wildlife Service
P.O. Box 50167
Honolulu, HI 96850

4. Bruce Anderson, Deputy Director
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

5. Herbert Matsubayashi, Chief Sanitarian
Department of Health
State of Hawaii
54 High Street
Wailuku, HI 96793

6. Michael Wilson, Director
State of Hawaii
Department of Land and Natural Resources
P. O. Box 621
Honolulu, HI 96809

7. Don Hibbard, Administrator
State of Hawaii
Department of Land and Natural Resources
State Historic Preservation Division
33 South King Street, 6th Floor
Honolulu, HI 96813

8. Robert Siarot, Maui District Engineer
State of Hawaii
Department of Transportation
Highways Division
650 Palapala Drive
Kahului, HI 96732

9. Martha Ross, Deputy Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, HI 96813

10. Stephanie Avelro, Director
County of Maui
Department of Housing and Human Concerns
200 S. High Street
Wailuku, HI 96793

11. David W. Blane, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, HI 96793

12. Howard Tagomori, Chief
County of Maui
Police Department
55 Mahalani Street
Wailuku, HI 96793

13. Charles Jencks, Director
County of Maui
Department of Public Works
and Waste Management
200 South High Street
Wailuku, HI 96793

14. David Craddick, Director
County of Maui
Department of Water Supply
200 South High Street
Wailuku, HI 96793

15. Ron Davis, Chief
Department of Fire Control
County of Maui
200 Dairy Road
Kahului, HI 96732

EARLY CONSULTATION COMMENT LETTERS

NOV 15 1997

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

REPLY TO ATTENTION OF

November 3,1997

Operations Branch

Mr.Glenn Tadaki
Planner
Munekiyo and Arakawa, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Tadaki:

This is in reply to your request dated October 20, 1997, for comments on the Environmental Assessment Notice for master planned expansion of the J. Walter Cameron Center, located at Wailuku (TMKs 3-8-46: 15 & 27), Maui Island. Based on the information provided, I have determined that the proposed activities does not involve any specific activities or structures involving work in waters of the United States. Therefore a Department of the Army (DA) permit is not required. In the future, if the applicant proposes activities in or near jurisdictional waters, consultation should take place with our Operations Branch, Regulatory Section at 438-9258 to determine if a DA permit may be required.

Please refer to File Number 980000016 in future correspondence regarding this project.

Sincerely,

Linda M. Hihara-Endo, Ph.D, P.E.
Acting Chief, Operations Branch

USDA

OCT 24 199

United States
Department of
Agriculture

Natural
Resources
Conservation
Service

210 Imi Kala St.
Suite 209
Wailuku, HI
96793-2100

Our People...Our Islands...In Harmony

October 23, 1997

Mr. Glenn Tadaki, Planner
Munekiyo & Arakawa, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Tadaki,

Subject: J. Walter Cameron Center Expansion
TMK: 3-8-46: 15, 27

My only concern within the area is the drainage. If I remember correctly, the drainageway meanders its way throughout the area. I do not know if Maui Lani construction have altered any of the drainage pattern or is using the drainage path through the subject parcels.

Call me at 244-3729 if you have any questions relating to my comments.

Sincerely,

Neal S. Fujiwara
District Conservationist

The Natural Resources Conservation Service works hand-in-hand with

OCT 27 1997

United States Department of the Interior

FISH AND WILDLIFE SERVICE

PACIFIC ISLANDS ECOREGION
300 ALA MOANA BOULEVARD, ROOM 3108
BOX 50088
HONOLULU, HAWAII 96850
PHONE: (808) 541-3441 FAX: (808) 541-3470

In Reply Refer To: JMB

OCT 24 '97

Glenn Tadaki, Planner
Munekiyo & Arakawa, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Re: Notice of Intent to Prepare an Environmental Assessment for the J. Walter Cameron Expansion, TMK 3-8-46:15 and 3-8-46:27

Dear Mr. Tadaki:

The U.S. Fish and Wildlife Service (Service) has received your October 20, 1997 letter requesting comments on a proposal for the expansion of the J. Walter Cameron Center in Wailuku, Maui. The Service offers the following comments for your consideration.

The project site is in a primarily urban area in the city of Wailuku. To the best of our knowledge no Federal trust resources, such as migratory birds, endangered or threatened species, or wetlands, will be affected by construction on the site. The Service, therefore, has no comment on the proposed project and does not require further notification or consultation on the project.

We appreciate your concern for environmental values, and we look forward to reviewing other projects you may undertake. If you have any questions, please contact Fish and Wildlife Biologist Jeff Burgett at (808) 541-3441.

Sincerely,

Brooks Harper
Field Supervisor
Ecological Services

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

DEC 4 1997

LAWRENCE MIKE
DIRECTOR OF HEALTH

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

November 28, 1997

97-256/epo

Mr. Glenn Tadaki, Planner
Munekiyo & Arakawa, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Tadaki:

Subject: PRE-ENVIRONMENTAL ASSESSMENT (PEA)
Project: J. Walter Cameron Center Expansion
Location: Wailuku, Maui, Hawaii
TMK: (2) 3-8-46: 15, 27

Thank you for allowing us to review and comment on the subject project. We would like to see the following issues addressed in the draft environmental assessment:

1) Wastewater disposal.

2) Noise impacts (during construction and after).

3) Erosion control measures during construction.

Sincerely,

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

RECD DEC - 1 1997

8245

BENJAMIN J CAYETANO
GOVERNOR

LAWRENCE MIKE
DIRECTOR OF HEALTH

LAWRENCE KART, M.D., M.P.H.
DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793

Glenn Tadaki, Planner
Munekiyo & Arakawa, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 98793

Dear Mr. Tadaki:

Subject: J. Walter Cameron Center Expansion
TMK: (2) 3-8-46: 15 & 27

Thank you for the opportunity to comment on the proposed master-planned improvements to the J. Walter Cameron Center, Wailuku, Hawaii. We have the following comments to offer:

1. The property may be harboring rodents which will be dispersed to the surrounding areas when the site is cleared. The applicant is required by Chapter 11-26, Hawaii Administrative Rule to determine whether rodents exists on the property and if they do; to eradicate these rodents prior to clearing the site.

2. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules, Title 11, Chapter 46, "Community Noise Control". A noise permit may be required and should be obtained prior to the commencement of work.

Should you have any questions, please call me at 984-8230.

Sincerely,

HERBERT S. MATSUBAYASHI
District Environmental Health Program Chief

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

November 2, 1997

LD-NAV
Ref.: CAMERON.RCM

Honorable David W. Blane
Planning Director
County of Maui
Planning Department
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Blane:

SUBJECT: Review : Project Summary
Applicant : J. Walter Cameron Center
Location : Wailuku, Island of Maui, Hawaii
TMK : 2nd/ 3-8-46: 15

Thank you for the opportunity to review and comment on the subject Project Summary.

Our Land Division's Engineering Branch has commented that the proposed project site, according to FEMA Community Panel Map No. 150003 0190 B, is lactated in Zone C (no shading). This is an area of minimal flooding.

The Department of Land and Natural Resources has no other comments to offer on the subject matter at this time.

Should you have any questions, please feel free to contact Nick Vaccaro of the Land Division's Support Services Branch at 1-808-587-0438.

Very truly yours,

DEAN Y. UCHIDA
Administrator

c: Maui Land Board Member
At Large Land Board Member
Maui District Land Office

8377

'97 NOV 24 P3:38

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

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

November 12, 1997

RECD DEC - 1 1997

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

LD-NAV
Ref.:2-CAMERON.RCH

Honorable David W. Blane
Planning Director
County of Maui
Planning Department
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Blane:

SUBJECT: Review : Project Summary
Applicant : J. Walter Cameron Center
Location : Wailuku, Island of Maui, Hawaii
TMK : 2nd/ 3-8-46: 15

This is a follow-up to our letter dated November 2, 1997, regarding the subject matter.

Attached herewith is a copy of our Commission on Water Resource Management's comments related to water resources for the proposed project.

The Department of Land and Natural Resources has no other comments to offer on the subject matter at this time.

Should you have any questions, please feel free to contact Nick Vaccaro of the Land Division's Support Services Branch at 1-808-587-0438.

Very truly yours,

DEAN Y. UCHIDA
Administrator

c: Maui Land Board Member
At Large Land Board Member
Maui District Land Office

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P. O. BOX 621
HONOLULU, HAWAII 96809

'97 NOV 5 A8:57

MICHAEL D. WILSON
Chairperson

ROBERT G. GIRAU
DAVID A. ROBINS
LAWRENCE H. MIKE
RICHARD H. COX
HERBERT M. RICHARD

RAE M. LOUI, P.E.
DEPUTY

November 4, 1997

TO: Mr. Dean Uchida, Administrator
Land Division

FROM: Rae M. Loui, Deputy Director
Commission on Water Resource Management (CWRM)

SUBJECT: Walter Cameron Center Expansion

FILE NO.: CAMERON.COM

Thank you for the opportunity to review the subject document. Our comments related to water resources are noted below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas which are important for the maintenance of streams and the replenishment of aquifers.

[X] We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.

[ ] We are concerned about the potential for ground or surface water degradation/contamination and recommend that approval of this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

[ ] A Well Construction Permit and a Pump Installation Permit from the CWRM would be required before ground water is developed as a source of supply for the project.

[ ] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the CWRM would be required prior to use of this source.

[ ] Groundwater withdrawals from this project may affect streamflows. This may require an instream flow standard amendment.

[ ] We recommend that no development take place affecting highly erodible slopes which drain into streams within or adjacent to the project.

[ ] If the proposed project diverts additional water from streams or if new or modified stream diversions are planned, the project may need to obtain a stream diversion works permit and petition to amend the interim instream flow standard for the affected stream(s).

[X] Based on the information provided, it does not appear that a Stream Channel Alteration Permit pursuant to Section 13-169-5 HAR will be required before the project can be implemented.

[ ] An amendment to the instream flow standard from the CWRM would be required before any streamwater is diverted.

[ ] Any new development that is permitted along a stream that is not yet channelized should be based on the express condition that no streams will be channelized to prevent flooding of the development. Development in the open floodplain should not be allowed; other economic uses of the floodplain should be encouraged.

[X] OTHER: The water supply source for this project is already overpumping the sustainable yield of the aquifer, and the Commission may have to designate the aquifer as a water management area. If the aquifer is designated, all groundwater withdrawals to the purveyor would be subject to water use permits. The service area would be subject to a declaration of a water shortage or a water emergency. If withdrawals are constrained, uses may be subject to allocation to users by the purveyor.

If there are any questions, please contact Charley Ice at 587-0251.

GILBERT J. CAIETANO
Governor

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
MAUI DISTRICT
650 PALAPALA DRIVE
KAHULUI, HAWAII 96732

KAZU HAYASHIDA
Director

DEPUTY DIRECTORS
JERRY M. MATSUDA
CLIFFORD CONNOTO

IN REPLY REFER TO

Hwy-M 2.267-97
I.D. No. ME-97-58

MEMORANDUM

October 28, 1997

TO: *Glenn Tadaki*
Munekiyo & Arakawa, Inc.

FROM: *Ferdinand Cajigal*
State Highways

SUBJECT: *J. Walter Cameron Center, Tmk no. 3-8-46:15, 27*
I.D. No. ME-97-58

Our comments will be provided to you when the EA is submitted for review.

Thank you for the opportunity to comment on the project.

/fmc

OCT 28 97

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPIOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813-5249
PHONE (808) 594-1888
FAX (808) 594-1865

October 24, 1997

Glenn Tadaki, Planner
Munekiyo & Arakawa, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Subject: Preparation of Draft Environmental Assessments for the proposed J. Walter Cameron Center expansion.
TMK: 3-8-46:15 and 3-6-46:27

Dear Mr. Tadaki:

Thank you very much for your letter informing us of the upcoming Draft Environmental Assessment (DEA) for the above-referenced project.

J. Walter Cameron Center is proposing a master-planned expansion of their existing site and facilities to include a child care center and the Maui Economic Opportunity, Inc. Family Center.

At this time OHA has no objections to the proposed project. However, OHA intends to thoroughly review both DEA's when they become available for public review.

OHA's main areas of concern for developments triggering an Environmental Assessment include, but are not limited to, potential adverse impacts to cultural and archaeological resources, ecosystems and associated wildlife habitats, air and water quality, and public health and safety.

Please contact Colin Kippen, Land and Natural Resources Division Officer, or Richard Stook, EIS Planner at 594-1888, should you have any questions regarding this matter.

Sincerely yours,

Randall Ogata
Administrator

Colin Kippen, Division Officer,
Land and Natural Resources

RS:rs
cc: Trustee Frenchy DeSoto, Board Chair
Trustee Hannah Springer, Land and Sovereignty Chair
Trustee Haunani Apoliona, Board Vice-Chair
Trustee Colette Machado
Trustee Abraham Aiona
Trustee Rowena Akana
Trustee Clayton Hee
Trustee Moses Keale
Thelma Shimaoka, CAC, Maui

DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

LINDA CROCKETT LING
Mayor
STEPHANIE AVEN
Director
MARK PIERCE
Deputy Director

200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • PHONE (808) 243-7805 • FAX (808) 243-7829

November 5, 1997

Mr. Glenn Tadaki
Planner
Munekiyo and Arakawa, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Tadaki:

I am pleased to have received your letter dated October 20, 1997, where you described the proposed plans to expand the J. Walter Cameron Center (TMK:3-8-46:15 and 3-8-46:27).

I was especially delighted to learn that included in the expansion is a child care center and the Maui Economic Opportunity, Inc. (MEO) Family Center.

Least year through the County's Subcommittee on Child Care, a number of parents of young children cake to testify on the need for more affordable, accessible, quality child care in Maui County. In fact, Dr. Tauji of the Cameron Center's Board of Directors spoke of the Center's long range plans for a child care center. This drew much interest.

At the same time last year, information was being collected by the Maui County Early Childhood Team to identify the type of child care that is needed. Over and over drop off care, respite care and child care serving families with non-traditional work hours were brought up. Those surveys along with information from focus groups and interviews, with early childhood providers, parents and businesses, helped to shape the newly unveiled Maui County Good Beginnings Plan. This plan contains hundreds of strategies that will serve children from birth to age five and their families. The plan has recently been adopted by the Maui County Council.

Because of the child care concerns raised by Maui's families with young children, the County of Maui, Department of Housing and Human Concerns is very interested in supporting J. Cameron Center's proposed child care center and MEO Family Center.

Letter to Glenn Tadaki
November 5, 1997
Page 2

I highly recommend getting the Maui County Early Childhood Resource Coordinator, Terry Lock, involved in your proposed project. She can be reached at 871-0775.

Sincerely,

STEPHANIE AVEIRO
Director of Housing & Human Concerns

SA:md

cc: Terry Lock

LINDA CROCKETT LINGLE
Mayor

COUNTY OF MAUI
DEPARTMENT OF PLANNING
250 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793

DAVID W. BLANE
Director

LISA M. MUYEN
Deputy Director

NOV 03 1997

October 28, 1997

Mr. Glenn Tadaki
Munekiyo & Arakawa, Inc.
305 High Street, Suite 104
Wailuku, Hawai`i 96793

Dear Mr. Tadaki:

RE: J. Walter Cameron Center Expansion, TMK: 3-8-046: 015 and 027, Kahului, Island of Maui, Hawaii

The Maui Planning Department (Department) has reviewed your request for early consultation on the above-referenced matter and has the following comments:

1. The subject properties are located within the Wailuku-Kahului Community Plan District and are identified as Public/Quasi-Public Use on the land use map. Along with the land use map, the Environmental Assessment should address the community plan goals, objectives, and policies. In addition, it should address other planning documents, such as, the Hawai`i State Plan.

2. The subject properties are designated R-3 Residential District on Land Zoning Map Nos. 3 and 4. The proposed expansion must meet the zoning provisions of Chapter 19.08, Residential District, of the Maui County Code.

   Further, pursuant to the project summary, the Department notes that the proposed expansion is for a child care center and the Maui Economic Opportunity, Inc. (MEO) Family Center. Without specific information on the proposed uses and operations, the Department is unable to determine whether other permits may be required. For example, the child care center will be subject to Ordinance No. 2585 which was enacted on August 18, 1997 relating to child care services. In addition, the existing J. Walter Cameron Center is an "eleemosynary organization" which is not identified as a permitted or special use in the residential district. In order to expand the existing use, a Conditional Permit may be required.

The Department has researched its files and was unable to locate information relative to the establishment of the J. Walter Cameron Center in the R-3 Residential District. Your Environmental Assessment should make an effort to include information on how the use was established in the residential zoning district. You are advised to make inquiries to the Department of Public Works and Waste Management, Land Use and Codes Administration, for any information it may have relative to the issuance of the building permits for this project.

3. The J. Walter Cameron Center is located off Mahalani Street and is situated in an area where several medical and Public/Quasi-Public Uses are congregated. Traffic impacts from the proposed expansion should be addressed in the context of proposed improvements to Mahalani Road and other roadways in the area, as well as, cumulative impacts associated with the existing uses and future developments in the area, such as, Keopuolani Park and the stadium expansion under construction.

4. In addition to traffic-related impacts, the Environmental Assessment should also address other infrastructural impacts, economic impacts, social impacts, historic and cultural impacts, etc., that may result from the expansion.

Thank you for the opportunity to comment on the proposed project. If additional information or clarification is required, please contact Ms. Colleen Suyama, Staff Planner, of this office at 243-7735.

Very truly yours,

Lisa M. Nuyen

for DAVID W. BLANE
Director of Planning

DWB:CMS:osy
c: Lisa M. Nuyen, Deputy Director of Planning
Clayton Yoshida, AICP, Planning Program Administrator
Aaron Shinmoto, Planning Program Administrator
Colleen Suyama, Staff Planner
Project File
General File
(S:\Colleen\cameron)

LINDA CROCKETT LINGLE
Mayor

CHARLES JENCKS
Director

DAVID GOODE
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

EASSIE HILLER, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

Solid Waste Division

November 14, 1997

MEMO TO: DAVID W. BLANE, DIRECTOR OF PLANNING

F R O M: CHARLES JENCKS, DIRECTOR OF PUBLIC WORKS AND WASTE MANAGEMENT

SUBJECT: EARLY CONSULTATION
J. WALTER CAMERON CENTER EXPANSION
TMK (2) 3-8-046:015 & 027

We reviewed the subject application and have the following comments.

1. A road widening lot shall be provided for the adjoining half of Mahalani Street to provide for future 70-foot wide right-of-way and improved to County standards to include, but not be limited to, pavement widening, construction of drainage systems, curb, gutter and sidewalk, construction of a separate left-turn lane, if warranted, and relocation of utilities underground. Said lot shall be dedicated to the County upon completion of the improvements.

2. All structures, such as walls, trees, etc., shall be removed or relocated from the road widening strip. The rear boundaries of the road widening strip shall be clearly marked to determine if said structures have been properly removed and relocated.

3. A 30-foot radius shall be provided at the intersection of the proposed Cameron Center driveway and the adjoining Mahalani Street.

4. A final detailed drainage and erosion control plan including, but not limited to, hydrologic and hydraulic calculations, scheme for controlling erosion and disposal of runoff water, and an analysis of the soil loss

using the HESL erosion formula shall be submitted to our department of Public Works. The plan shall provide verification that the grading and runoff water generated by the project will not have an adverse effect on the adjacent and downstream properties.

5. A site plan and a "sight distance" report to determine required sight distance and available sight distance at existing and proposed street intersections shall be provided for our review and approval.

6. The developer should be informed that the Wastewater Reclamation Division cannot insure that wastewater system capacity will be available for the project.

7. Wastewater contribution calculations are required before a building permit is issued.

8. The developer shall pay assessment fees for treatment plant expansion costs in accordance with the ordinance setting forth such fees.

If you have any questions, please call David Goode at 243-7845.

DG:co/mt
S:\LUCA\CZM\CAMERON.

LINDA CROCKETT LINGLE
Mayor

CHARLES JENCKS
Director

DAVID C. GOODE
Deputy Director

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

EASSIE MILLER, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

Solid Waste Division

97 DEC -8 P12:40

DEPT OF PLANN...
...RECEIVED

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

December 5, 1997

MEMO TO: DAVID BLANE, DIRECTOR OF PLANNING

FROM: CHARLES JENCKS, DIRECTOR OF PUBLIC WORKS AND WASTE MANAGEMENT

SUBJECT: EARLY CONSULTATION
J. WALTER CAMERON CENTER EXPANSION
TMK: (2) 3-8-046:015 & 027

We wish to revise our comment to our memo dated November 14, 1997 for the subject application.

In light of our plans to widen Mahalani Street using existing County property on the makai side of Mahalani fronting the Cameron Center, no right-of-way is needed from the Cameron Center property.

Additionally, as both the Cameron Center and MEO receive substantial County funding and that road improvements have been deferred in the past, we will not be requiring road fronting improvements.

Therefore, comments 1, 2, and 3 of our November 14, 1997 letter are being rescinded.

Should you have any questions, please feel free to call David Goode at 243-7845.

DG:mt

DEC

BOARD OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 243-7816 • Fax (808) 243-7833

December 5, 1997

Glenn Tadaki, Planner
Munekiyo and Arakawa, Inc.
305 South High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Re: TMK: 3-8-46:15, 27
Project Name: J. Walter Cameron Center Expansion

Dear Mr. Tadaki,

Thank you for the opportunity to provide comments in preparation of the environmental assessment (EA). With respect to water supply issues in preparation of an EA, we ask that the applicant focus on water planning, water source and system, water conservation, and water quality. The applicant should address these specific issues in as much detail as possible:

Water Planning

We ask that attention be given to designing the project to be appropriate to the location with respect to water usage. It is highly recommended that water conservation practices be incorporated into project design and as much of the water demand as possible be delivered from non-potable sources (reclaimed or brackish). The EA should include the sources and expected potable and non-potable water usage. Present usage for the Cameron Center has averaged about 3,000 gallons per day over the last 12 billing periods (24 months).

Water Source and System

The applicants should understand the potential water supply limitations of the project area. This project is served by the Central Maui System. The major source of water for this system is the Iao Aquifer. Rolling annual average groundwater withdrawals from the Iao Aquifer as of November 1, 1997 were 19.11 MGD. The regulatory sustainable yield of this aquifer is 20 MGD. On August 13, 1997, the State Commission on Water Resource Management (CWRM) elected not to designate Iao Aquifer as a State Groundwater Management Area. However, if rolling annual average withdrawals exceed 20 mgd, CWRM will designate Iao Aquifer. The Department is implementing a plan to mitigate withdrawals. No moratorium is currently in effect. Nevertheless, the applicants should be made aware that the timing of this project may be affected with possible delays until new sources can be brought on line. No guarantee of water is granted or implied as a result of these comments or the approval of the requested permits. Water availability will be reviewed at the time of application for meter or meter reservation.

We have included a portion of our water system map pertaining to the project area. Domestic, fire, and irrigation calculations will be reviewed in detail during the development process. Actual fire demand

for structures is determined by fire flow calculations performed by a certified engineer. BWS-approved fire flow calculation methods are contained in "Fire Flow" - Hawaii Insurance Bureau, 1991; and "Guide for Determination of Required Fire Flow" - Insurance Service Office, 1974. If a private fire protection system will be used, the applicants are encouraged to contact our engineering division early in the design process.

Water Conservation

Where appropriate, the applicants should consider these measures:

Eliminate Single-Pass Cooling: Single-pass, water-cooled systems should be eliminated per Maui County Code Subsection 14.21.20. These units pass water once-through for cooling, and then dispose of the water into the drain. Although prohibited by code, single-pass water cooling is still manufactured into some models of air conditioners, freezers, and commercial refrigerators.

Utilize Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20.675 requires the use of low flow water fixtures and devices in faucets, showerheads, urinals, water closets and hose bibs. Water conserving washing machines, ice-makers and other units are also.

Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Refer to the attached handout, "The Costly Drip". The applicant should establish a regular maintenance program.

Use Climate-adapted Plants: The project site is located in "Maui County Planting Plan" - Plant Zones 3 and 5. Please refer to the "Maui County Planting Plan", and to the attached documents, "XERISCAPE: Water Conservation Through Creative Landscaping" and "Some of Maui's Native and Polynesian Plants." We encourage the applicants to review the attached documents, refer to the Planting Plan, and consider using climate-adapted and salt-tolerant native plants. Native plants adapted to the area, conserve water and further protect the watershed from degradation due to invasive alien species.

Prevent Over-Watering By Automated Systems: Provide rain-sensors on all automated irrigation controllers. Check and reset controllers at least once a month to reflect the monthly changes in evapotranspiration rates at the site. As an alternative, provide the more automated, soil-moisture sensors on controllers.

Water Quality

The Board of Water Supply strives to protect the integrity of both surface water and groundwater resources by encouraging applicants to adopt best management practices (BMPs) relevant to potentially polluting project activities. There are many BMP references available. We list a few of them here. Additional information can be obtained from the State Department of Health Environmental Planning Office (EPO) at (808) 586-4337:

"Water Quality Best Management Practices Manual For Commercial and Industrial Business", Prepared for the City of Seattle by Resource Planning Associates, June 30, 1989.
"The Megamanual - Nonpoint Source Management Manual - A Guidance Document for Municipal Officials." Massachusetts Department of Environmental Protection.
"Guidance Specifying Management Measures For Sources of Nonpoint Pollution In Coastal Waters." United States Environmental Protection Agency, Office of Water.

If you have any other questions or need additional information, please don't hesitate to call our Water Resources and Planning Division at (808) 243-7199.

Sincerely,

for David Craddick
Director

wef

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attachments:
"The Costly Drip"
"Some of Maui's Native and Polynesian Plants"
"Hawaiian Alien Plant Studies - Pest Plants of Native Hawaiian Ecosystems"
Ordinance 2108 - An ordinance amending Chapter 16.20 of the Maui County Code, pertaining to the plumbing code"
"XERISCAPE - Water Conservation through Creative Landscaping"
"A Checklist for Water Conservation Ideas for Cooling"
"A Checklist for Water Conservation Ideas for Schools and Public Buildings"
References for Further Reading from "The Megamanual - Nonpoint Source Management Manual." Commonwealth of Massachusetts
Selected BMPs from "Guidance Specifying Management Measures For Sources of Nonpoint Pollution In Coastal Waters." U.S. EPA.

LINDA CROCKETT LINGLE
MAYOR

RONALD P. DAVIS
CHIEF

HENRY A. LINDO, Sr.
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE CONTROL

200 DAIRY ROAD
KAHULUI, MAUI, HAWAII 96732
(808) 243-7561

November 5, 1997

Glenn Tadaki, Planner
Munekiyo & Arakawa, Inc.
305 High Street, Suite 104
Wailuku, Hi 96793

Dear Mr. Tadaki:

Subject: J. Walter Cameron Center Expansion
TMK:3-8-46: 15 and 3-8-46: 27

Thank you for the opportunity to comment on the above mentioned project.

Please be aware that upon submittal of plans for Building Permits the project will be required to be in compliance with the Fire Code.

Sincerely,

Ben H. Bland III
Lieutenant, FPB

EARLY CONSULTATION RESPONSE LETTERS

November 12, 1997

Neal Fujiwara
District Conservationist
Natural Resources Conservation Service
210 Imi Kala Street
Wailuku, Hawaii 96793

SUBJECT: Cameron Center Expansion
TMK 3-8-46: 15 and 27

Dear Mr. Fujiwara:

Thank you for your letter of October 23, 1997 concerning the proposed project. In response to your comments, we would like to note that the Draft Environmental Assessment (EA) will include a Preliminary Engineering Report and will examine pre- and post-development drainage conditions, as well as drainage system improvements.

Thank you again for providing us with your comments. A copy of the Draft EA will be provided to you.

Very truly yours,

Glenn Tadaki, Planner

GT:tav
cc: Audrey Rocha-Reed, J. Walter Cameron Center
Don Medeiros, Maui Economic Opportunity, Inc.
Richard Miyabara, GYA Architects
Warren Unemori, Warren S. Unemori Engineering, Inc.

Planning · Environmental Studies · Project Management
305 High Street, Suite 104 · Wailuku, Hawaii 96793 · Phone: (808) 244-2015 · Fax: (808) 244-8729

December 8, 1997

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

Subject: Cameron Center Expansion
TMK 3-8-46: 15 and 27

Dear Mr. Anderson:

Thank you for your November 28, 1997 letter concerning the proposed project. The Draft Environmental Assessment (EA) will address issues pertaining to wastewater disposal, pre- and post construction noise impacts, and erosion control measures during construction.

Thank you for providing us with your comments. A copy of the Draft EA will be provided to you.

Very truly yours,

Glenn Tadaki, Planner

GT:tav
cc: Audrey Rocha-Reed, J. Walter Cameron Center
Don Medeiros, Maui Economic Opportunity, Inc.
Richard Miyabara, GYA Architects, Inc.
Warren Unemori, Warren S. Unemori Engineering, Inc.

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December 4, 1997

Herbert S. Matsubayashi
Environmental Program Chief
Maui District Health Office
Department of Health
54 High Street
Wailuku, Hawaii 96793

SUABJECT: Cameron Center Expansion
TMK 3-8-46: 15 and 27

Dear Mr. Matsubayashi:

Thank you for your letter concerning the proposed project. The proposed project will conform with applicable Department of Health (DOH) regulations regarding rodent control and community noise control.

Thank you for providing us with your comments. A copy of the Draft Environmental Assessment will be provided to you.

Very truly yours,

Glenn Tadaki, Planner

GT:tav
cc: Audrey Rocha-Reed, J. Walter Cameron Center
Don Medeiros, Maui Economic Opportunity, Inc.
Richard Miyabara, GYA Architects, Inc.
Warren Unemori, Warren S. Unemori Engineering, Inc.

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December 4, 1997

Dean Y. Uchida, Administrator
Land Division
Department of Land and
Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

SUBJECT: Cameron Center Expansion
TMK 3-8-46: 15 and 27

Dear Mr. Uchida:

Thank you for your letter of November 12, 1997 transmitting the comments of the Commission on Water Resources Management regarding the proposed project. Please be advised that we will work with the County Department of Water Supply to ensure that issues relating to water source and development are addressed.

Thank you for providing us with your comments. A copy of the Draft Environmental Assessment will be provided to you.

Very truly yours,

Glenn Tadaki, Planner

GT:tav
cc: Audrey Rocha-Reed, J. Walter Cameron Center
Don Medeiros, Maui Economic Opportunity, Inc.
Richard Miyabara, GYA Architects, Inc.
Warren Unemori, Warren S. Unemori Engineering, Inc.

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305 High Street, Suite 104 · Wailuku, Hawaii 96793 · Phone: (808) 244-2015 · Fax: (808) 244-8729

November 24, 1997

Stephanie Aveiro, Director
Department of Housing and Human Concerns
County of Maui
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: Cameron Center Expansion
TMK 3-8-46: 15 and 27

Dear Ms. Aveiro:

Thank you for your letter of November 5, 1997 concerning the proposed project. You will be pleased to know that Maui County Early Childhood Resource Coordinator Terry Lock has been contacted to discuss the project's child care facilities.

Thank you for your support of the project and for providing us with your comments. A copy of the Draft Environmental Assessment will be provided to you.

Very truly yours,

Glenn Tadaki, Planner

GT:tav
cc: Audrey Rocha-Reed, J. Walter Cameron Center
Don Medeiros, Maui Economic Opportunity, Inc.
Richard Miyabara, GYA Architects

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305 High Street, Suite 104 · Wailuku, Hawaii 96793 · Phone: (808) 244-2015 · Fax: (808) 244-8729

November 12, 1997

David W. Blane, Director
Planning Department
County of Maui
Attention: Colleen Suyama
250 South High Street
Wailuku, Hawaii 96793

SUBJECT: Cameron Center Expansion
TMK 3-8-46: 15 and 27

Dear Mr. Blane:

Thank you for your letter of October 28, 1997 concerning the proposed project. In response to your comments, we would like to note the following.

1. The Draft Environmental Assessment (EA) will examine the objectives and policies of planning documents such as the Hawaii State Plan, Maui County General Plan, and the Wailuku-Kahului Community Plan.

2. The Draft EA will examine the proposed project's relationship to applicable regulatory development criteria. We will coordinate with the Land Use and Codes Administration (LUCA) to ascertain the availability of information regarding the development of the Cameron Center in the residential zoning district.

3. The Draft EA will include a Traffic Impact Analysis Report (TIAR) and will examine existing and post-development traffic, as well as development projects in the area such as the current expansion of the War Memorial Stadium and the construction of Keopuolani Park (aka, Maui Central Park), as well as future improvements to Mahalani Street and roadways in the vicinity.

4. Potential adverse impacts relating to other infrastructure components, as well as the physical and socio-economic environment, including historic and cultural impacts, will be addressed in the Draft EA.

Planning · Environmental Studies · Project Management
305 High Street, Suite 104 · Wailuku, Hawaii 96793 · Phone: (808) 244-2015 · Fax: (808) 244-8729

Thank you again for providing us with your comments. A copy of the Draft EA will be provided to you.

Very truly yours,

Glenn Tadaki, Planner

GT:tav
cc: Audrey Rocha-Reed, J. Walter Cameron Center
Don Medeiros, Maui Economic Opportunity, Inc.
Richard Miyabara, GYA Architects
Warren Unemori, Warren S. Unemori Engineering, Inc.
Ted Kawahigashi, Austin, Tsutsumi & Associates, Inc.

December 10, 1997

Charles Jencks, Director
Department of Public Works
and Waste Management
County of Maui
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: Cameron Center Expansion
TMK: 3-8-46: 15 and 27

Dear Mr. Jencks:

Thank you for your letters of November 14, 1997 and December 5, 1997 concerning the proposed project. In response to your revised comments we would like to note the following:

1. The proposed drainage system improvements will be designed in accordance with applicable regulatory design criteria to ensure that the grading and runoff generated by the project will not adversely affect adjacent and downstream properties. A detailed drainage and erosion control plan will be provided to the Department of Public Works and Waste Management (DPWWM) for review and approval in connection with the submittal of construction plans for the project.

2. A site plan and site distance analysis will be provided to the DPWWM for review and approval in connection with the filing of construction plans for the project's building permit applications.

3. The applicant is aware that the DPWWM cannot ensure that wastewater system capacity will be available for the project.

4. Wastewater flow estimates based on the project's conceptual design plans will be included in the Draft Environmental Assessment (EA) for the project.

5. The applicant will comply with the provisions of Chapter 14.34 of the Maui County Code pertaining to wastewater treatment plant expansion fees.

Planning - Environmental Studies - Project Management
305 High Street, Suite 104 - Wailuku, Hawaii 96793 - Phone: (808) 244-2015 - Fax: (808) 244-8729

A copy of the Draft EA will be provided to your agency. Thank you again for commenting on the proposed project.

Very truly yours,

Glenn Tadaki, Planner

GT:tav
cc: Audrey Rocha-Reed, J. Walter Cameron Center
Don Medeiros, Maui Economic Opportunity, Inc.
Richard Miyabara, GYA Architects, Inc.
Warren Unemori, Warren S. Unemori Engineering, Inc.
Ted Kawahigashi, Austin, Tsutsumi & Associates, Inc.

December 10, 1997

David Craddick, Director
Department of Water Supply
County of Maui
200 South High Street
Wailuku, Hawaii 96793

Subject: Cameron Center Expansion
TMK 3-8-46: 15 and 27

Dear Mr. Craddick:

Thank you for your letter of December 5, 1997 regarding the proposed project. The Draft Environmental Assessment will include a Preliminary Engineering Report, as well as information regarding water supply and use.

Thank you for providing us with your comments. A copy of the Draft Environmental Assessment will be provided to you.

Very truly yours,

Glenn Tadaki, Planner

GT:tav
cc: Audrey Rocha-Reed, J. Walter Cameron Center
Don Medeiros, Maui Economic Opportunity, Inc.
Richard Miyabara, GYA Architects, Inc.
Warren Unemori, Warren S. Unemori Engineering, Inc.

Planning • Environmental Studies • Project Management
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November 24, 1997

Lieutenant Ben H. Bland III
Fire Prevention Bureau
Department of Fire Control
County of Maui
200 Dairy Road
Kahului, Hawaii 96732

SUBJECT: Cameron Center Expansion
TMK 3-8-46: 15 and 27

Dear Lieutenant Bland:

Thank you for your letter of November 5, 1997 concerning the proposed project. In response to your comments, we would like to note that the plans submitted for the project's building permits will be designed in accordance with the applicable provisions of the Uniform Fire Code.

Thank you for providing us with your comments. A copy of the Draft Environmental Assessment will be provided to you.

Very truly yours,

Glenn Tadaki, Planner

GT:tav
cc: Audrey Rocha-Reed, J. Walter Cameron Center
Don Medeiros, Maui Economic Opportunity, Inc.
Richard Miyabara, GYA Architects

Planning · Environmental Studies · Project Management
305 High Street, Suite 104 · Wailuku, Hawaii 96793 · Phone: (808) 244-2015 · Fax: (808) 244-8729

Chapter X

Letters Received During the Draft Environmental Assessment Public Comment Period and Responses to Substantive Comments

X. LETTERS RECEIVED DURING THE DRAFT ENVIRONMENTAL ASSESSMENT PUBLIC COMMENT PERIOD AND RESPONSES TO SUBSTANTIVE COMMENTS

LETTERS RECEIVED DURING THE DRAFT ENVIRONMENTAL ASSESSMENT PUBLIC COMMENT PERIOD* AND RESPONSES TO SUBSTANTIVE COMMENTS		
Federal Agencies	**Date of Letter**	**Date of Response**
Natural Resources Conservation Service - Maui	2/4/98	NRR
U.S. Fish and Wildlife Service	NCR	NRR
U.S. Army Corps of Engineers	2/4/98	NRR
State Agencies	**Date of Letter**	**Date of Response**
Department of Health - Honolulu	NCR	NRR
Department of Health - Maui	1/13/98	NRR
Department of Transportation	NCR	NRR
Department of Land and Natural Resources - Honolulu	1/5/98	NRR
Department of Land and Natural Resources - Maui	1/5/98	NRR
State Historic Preservation Division	1/12/98	1/30/98
State Land Use Commission	1/2/98	NRR
Office of Environmental Quality Control	2/6/98	2/13/98
Office of Planning	1/9/98	NRR
Office of Hawaiian Affairs	2/5/98	2/24/98
Department of Human Services - Maui	1/12/98	NRR
Civil Defense	NCR	NRR

LETTERS RECEIVED DURING THE DRAFT ENVIRONMENTAL ASSESSMENT PUBLIC COMMENT PERIOD AND RESPONSES TO SUBSTANTIVE COMMENTS*		
County Agencies	***Date of Letter***	***Date of Response***
Department of Public Works and Waste Management	1/22/98	2/6/98
Department of Water Supply	2/18/98	2/24/98
Department of Parks and Recreation	1/6/98	NRR
Department of Fire Control	1/26/98	NRR
Department of Police	1/23/98	NRR
Department of Housing and Human Concerns	1/7/98	NRR
Department of Planning	NCR	NRR
Others	***Date of Letter***	***Date of Response***
Maui Electric Company, Ltd.	1/12/98	NRR

NCR - No Comments Received
NRR - No Response Required
* The Notice of Availability of the Draft EA appeared in the January 8, 1998 edition of the Environmental Notice. In connection with the processing of the applications for the County Special Use Permit and Change in Zoning for the proposed project, copies of the Draft EA were distributed to the above-referenced agencies for review and comment as well as the Kahului and Wailuku Public Libraries for purposes of public review. The 30-day comment period on the Draft EA expired on February 9, 1998.

Pursuant to the requirements of the environmental review process, comments received from the above-referenced agencies and utilities as well as responses to substantive comments, are included in this section.

DRAFT ENVIRONMENTAL ASSESSMENT COMMENT LETTERS

United States
Department of
Agriculture

Natural
Resources
Conservation
Service

210 Imi Kala St.
Suite 209
Wailuku, HI
96793-2100

USDA

Our People...Our Islands...In Harmony

'98 FEB -6 P12:41

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

February 4, 1998

Mr. David Blane, Planning Director
County of Maui
Planning Department
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Blane,

Subject: Cameron Center Expansion; TMK: 3-8-46: 15, 27
I.D. CIZ 970004, CUP 970015, EA 970009

I have no comment on the subject application.

Thank you for the opportunity to comment.

Sincerely,

Neal S. Fujiwara
District Conservationist

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

REPLY TO ATTENTION OF

Planning and Operations Division

February 4, 1998

'98 FEB -5 P12:24

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

Mr. Don Schneider, Staff Planner
County of Maui
Planning Department
250 South High Street
Wailuku, Maui, Hawaii 96793

Dear Mr. Schneider:

Thank you for the opportunity to review and comment on the Environmental Assessment for the Cameron Center Extension, Wailuku, Maui (Tax Map Key 3-8-46: 15 and 27). We do not have any additional comments to offer beyond those provided in our previous letter dated November 3, 1997.

Sincerely,

for Paul Mizue, P.E.
Acting Chief, Planning
and Operations Division

BENJAMIN J. CAYETANO
GOVERNOR

LAWRENCE MIKE
DEPUTY DIRECTOR

LAWRENCE HART M.D. M.P.H.
DEPUTY DIRECTOR FOR HEALTH

JAN 2 0 1998

'98 JAN 15 P12:37

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793

January 13, 1998

Mr. David W. Blane
Director
Planning Department
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Blane:

Subject: Cameron Center Expansion
TMK: (2) 3-8-046:15 and 27
CIZ970004, CUP970015, EA970009

Thank you for the opportunity to comment on the application. Comments from this office were transmitted to our Honolulu Office. A coordinated response is forthcoming.

Should you have any questions, please call me at 984-8230.

Sincerely,

HERBERT S. MATSUBAYASHI
District Environmental Health Program Chief

JAN 2 0 1

'98 JAN -8 P3:06

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

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

January 5, 1998

LD-NAV
Ref.:2-CAMERON.RCH

Honorable David W. Blane
Planning Director
County of Maui
Planning Department
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Blane:

SUBJECT: Review : Project Summary - Update
Applicant : J. Walter Cameron Center
Location : Wailuku, Island of Maui, Hawaii
TMK : 2nd/ 3-8-46: 15

This is a follow-up to our letter to you dated November 2, 1997 (copy attached), regarding the subject matter.

Attached herewith is a recently received copy of our Historic Preservation's comments concerning possible presence of more deeply buried human remains beneath the surface of the project site.

The Department of Land and Natural Resources has no other comments to offer on the subject matter at this time.

Should you have any questions, please feel free to contact Nick Vaccaro of the Land Division's Support Services Branch at 1-808-587-0438.

Very truly yours,

DEAN Y. UCHIDA
Administrator

c: Maui Land Board Member
At Large Land Board Member
Maui District Land Office

8643

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

November 2, 1997

LD-NAV
Ref.: CAMERON.RCH

Honorable David W. Blane
Planning Director
County of Maui
Planning Department
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Blane:

SUBJECT: Review : Project Summary
Applicant : J. Walter Cameron Center
Location : Wailuku, Island of Maui, Hawaii
TMK : 2nd/ 3-8-46: 15

Thank you for the opportunity to review and comment on the subject Project Summary.

Our Land Division's Engineering Branch has commented that the proposed project site, according to FEMA Community Panel Map No. 150003 0190 B, is lactated in Zone C (no shading). This is an area of minimal flooding.

The Department of Land and Natural Resources has no other comments to offer on the subject matter at this time.

Should you have any questions, please feel free to contact Nick Vaccaro of the Land Division's Support Services Branch at 1-808-587-0438.

Very truly yours,

DEAN Y. UCHIDA
Administrator

c: Maui Land Board Member
At Large Land Board Member
Maui District Land Office

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

'98 JAN -6 P12:24

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF LAND MANAGEMENT
54 SOUTH HIGH STREET, ROOM 101
WAILUKU, HAWAII 96793-2198

January 5, 1997

Mr. David W. Blane, Director
Planning Department
County of Maui
250 South High Street
Wailuku, Maui, Hawaii 96793

Attn.: Mr. Don Schneider, Staff Planner

Dear Mr. Blane:

Subject: J. Walter Cameron Center Request for a Change in Zoning and Conditional Use Permit for the Proposed Cameron Center Expansion, Tax Map Key: 3-8-046: 15 and 27, Portion Wailuku, Maui (CTZ 970004, CUP 970015 & EA 970009).

The Maui District Land Office has reviewed the subject request by the J. Walter Cameron Center for Change in Zoning and Conditional Use Permit approvals involving the proposed Cameron Center Expansion on lands identified by Tax Map Key: 3-8-046: 15 and 27, situate in a Portion of Wailuku, Maui, and has no comments and/or objections to said request.

Thank you for the opportunity to review and comment on the subject request. Should you have any questions regarding the above subject matter, please contact the Maui District Land Office at the address described on the letter head or by telephone at 984-8100.

Very truly yours,

PHILIP OHTA
Maui District Land Agent

cc: Mr. D. Y. Uchida
Mr. W. Kennison

JAN 20

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

'98 JAN 16 A11:52
DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

JAN 20 1998

MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

GILBERT COLOMA-AGARAN

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND DIVISION
STATE PARKS
WATER AND LAND DEVELOPMENT

LOG NO: 20822
DOC NO: 9801BD07

January 12, 1998

Mr. David Blane, Director
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Blane:

SUBJECT: Chapter 6E-42 Historic Preservation Review of a Special Use Permit and Change in Zoning for the J. Walter Cameron Center Expansion
Wailuku Ahupua'a, Wailuku District, Island of Maui TMK 3-8-46:27

This letter is a Historic Preservation review of a Special Use Permit and Change in Zoning application for the proposed J. Walter Cameron Center Expansion project in Wailuku Ahupua'a. Our review is based on reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field check was conducted of the subject property.

Our office reviewed an archaeological inventory survey of this property in November, 1997 (SHPD DOC NO 9711BD56). No historic sites were encountered during the inventory survey and subsurface testing of the property, although the general area of the Pu'uone sand dunes is known to contain isolated and clustered human burials. Since the area has undergone considerable modification through previous grading and the planting of a tree nursery, it is unlikely that any significant historic sites remain undisturbed today. We therefore found the proposed project to have "no effect" on known historic sites (SHPD DOC NO 9712BD11).

As a contingency in case some deeply buried burials are found during construction, we recommend that archaeological monitoring be conducted of all ground-altering construction and landscaping activities associated with the proposed Cameron Center facilities. Furthermore, we request that these monitoring recommendations including the requirement that a monitoring scope of work be approved by our Division prior to construction be added to the State Historic Preservation Requirements listed on Sheet 1 of the final plat and construction plans submitted to any contractors.

The monitoring scope of work needs to include a procedure for handling any burials that might be found, to be consistent with Chapter 6E, Hawaii Revised Statutes. The procedures must include initial identification and evaluation of ethnicity, the process for a treatment decision (with consultation with the Maui Island Burial Council), how archaeological documentation of the burial context will occur, and actual treatment of the remains should disinterment/reinterment be needed. The scope must include the production of an acceptable monitoring report, which would be finished after ground-altering disturbances are concluded.

If you have any questions please contact Boyd Dixon at 243-5169

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

BD:jen

cc Ralph Nagamine, Maui County Department of Public Works (fax 243-7972)

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
PO Box 2359
Honolulu, HI 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

'98 JAN -5 P1:02
DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

JAN 20

ESTHER

January 2, 1998

Mr. David W. Blane
Director of Planning
Planning Department
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Blane:

Subject: Applications for County Special Use Permit (CUP970015), Change in Zoning (CI2970004) and Draft Environmental Assessment (EA970009)
Cameron Center Expansion

We have reviewed the subject applications and draft environmental assessment as transmitted by your memorandum dated January 5, 1998, and confirm that the subject property, identified as TMKs: 3-8-46: 15, and 3-6-46: 27, and as shown on Exhibit No. 4, is within the State Land Use Urban District.

We have no further comments to offer at this time.

Thank you for the opportunity to provide comments on the subject applications and draft environmental assessment.

If you have any questions in regards to this matter, please feel free to contact me or Leo Asuncion of my staff at 587-3822.

Sincerely,

for ESTHER UEDA
Executive Officer

EU:th

BENJAMIN J. CAYETANO
[redacted]

HARLAN N. HAMMOTO
CHAIRPERSON
BARBARA ROBERTS
VICE CHAIRPERSON

STATE OF HAWAII
ENVIRONMENTAL COUNCIL
[redacted]

February 6, 1998

Ms. Stephanie Aveiro, Director
Department of Housing and Human Concerns
County of Maui
200 South High Street
Wailuku, Hawaii 96793

Dear Ms. Aveiro:

Subject: Draft Environmental Assessment for the Cameron Center Expansion, Maui

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

1. Please describe whether any public or private views will be blocked by the proposed two-story building.

2. Please describe whether noise from the childcare center operations will impact any nearby noise sensitive receptors such as residential homes, schools, elderly care facilities or hospitals.

3. The Sand Hills residential area is located to the west of the project area. Please consult with the residential community, especially the nearest neighbors, regarding this project.

4. 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.

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

Sincerely,

Gary Gill
Director

c: J. Walter Cameron Center
Munekiyo & Arakawa, Inc.

JAN 20 1998 BENJAMIN J

S

BRADLEY J
DEPUT
IN
DIRECTOR OFFICE

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

OFFICE OF PLANNING
235 South Beretania Street, 6th Flr., Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Tel.: (808)
Fax: (808)

'98 JAN 13 P1:11

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

Ref. No. P-7146

January 9, 1998

Mr. David W. Blane
Planning Director
Planning Department
County of Maui
250 S. High Street
Wailuku, Hawaii 96793

Attn: Don Schneider, Staff Planner

Dear Mr. Blane:

Subject: Change in Zoning, Special Use Permit and Environmental Assessment for Cameron Center Expansion, Wailuku, Maui

We do not have any comment to offer on the proposal relative to our plans and programs.

Thank you for the opportunity to comment on this project. If there are any questions, please contact Howard Fujimoto of our Coastal Zone Management Program at 587-2898.

Sincerely,

Rick Egged
Director
Office of Planning

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPIOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

February 5, 1998

Stephanie Aviero
Department of Housing and Human Concerns
200 South High Street
Wailuku, Maui 96793

DOC NO. 115-121

Subject: Draft Environmental Assessment, Cameron Center Expansion, Island of Maui

Dear Ms. Aviero:

Thank you very much for the opportunity to review the above-referenced Draft Environmental Assessment (DEA). The Department of Housing and Human Concerns intends to implement the proposed master-planned improvements to an area approximately 3.7 acres, and will include a 19,000 square ft. family center, and a 6,000 square ft. child care center.

The Office of Hawaiian Affairs (OHA) is concerned about potential archaeological/ cultural resources existing on the project site. The project area is located in the Wailuku Sand Hills which greatly increases the likelihood of human burials being encountered.

OHA agrees with the preparers of the DEA that an archaeological monitoring plan be developed and on-site archaeological monitoring be conducted during grubbing and grading activities. Both the Monitoring Plan and the Final Environmental Assessment should include specific language stating the State Historic Preservation Division *and* the Maui Island Burial Council be immediately consulted in the event human remains are inadvertently unearthed. Additionally, OHA requests that a copy of the draft Archaeological Monitoring Plan be forwarded to our office for review and comment.

If you have any questions or comments regarding this matter please contact Colin Kippen, Land and Natural Resources Division Officer, or Richard Stook, EIS Planner at 594-1755.

Sincerely yours,

Randall Ogata
Administrator

for Colin Kippen, Officer
Land and Natural Resources

cc: Audrey Rocha-Reed, J. W. Cameron Center
Gary Gill, OEQC
CAC, Maui Island

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES

SUSAN S. CHANDLER, M.S.W.
DIRECTOR

KATHLEEN S. STANLEY
DEPUTY DIRECTOR

Benefit, Employment & support Services Division
270 Waiehu Beach Road, Suite 107
Wailuku, Hawaii 96793
January 12, 1998

JAN 20

'98 JAN 14 P12:15

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

Mr. David W. Blane
Planning Director
County of Maui, Department of Planning
250 S. High Street
Wailuku, Hawaii 96793

RE: Cameron Center Expansion
I.D.: CIZ970004, CUP970015, EA970009
TMK 3-8-046:15 and 27

Dear Mr. Blane:

We have reviewed the proposed Cameron Center Expansion to include a MEO Family Center and Child Care Center to it's existing facilities and have no comment at this time. Should the project be approved, we would like to review more carefully the proposed child care center and program as this is our mandate.

Thank you for the opportunity to comment, please feel free to call us at 243-5866 if you need more information.

Sincerely,

Elwyn Mukogawa
Maui First-To-Work & Child Care Connection

AN EQUAL OPPORTUNITY AGENCY

411

LINDA CROCKETT LINGLE
Mayor
CHARLES JENCKS
Director
DAVID C. GOODE
Deputy Director

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration
EASSIE MILLER, P.E.
Wastewater Reclamation Division
LLOYD P.C.W. LEE, P.E.
Engineering Division
BRIAN HASHIRO, P.E.
Highways Division
Solid Waste Division

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

98 JAN 26 A10:45

DEPT OF PLANNING
CITY & COUNTY OF MAUI
RECEIVED

January 22, 1997

MEMO TO: DAVID W. BLANE, DIRECTOR OF PLANNING

FROM: CHARLES JENCKS, DIRECTOR OF PUBLIC WORKS AND WASTE MANAGEMENT

SUBJECT: COUNTY SPECIAL USE PERMIT AND CHANGE IN ZONING
CAMERON CENTER EXPANSION
TMK (2) 3-8-046:015 AND 027
CIZ 97/004, CUP 97/015, EA 97/009

We reviewed the subject application and have the following comments.

1. Coordinate all driveway, drainage, and roadway improvements with the Engineering Division's Mahalani Street Widening Project.

2. Off-street parking, loading spaces, and landscaping shall be provided per Maui County Code Chapter 19.36.

3. A final detailed drainage and erosion control plan including, but not limited to, hydrologic and hydraulic calculations, scheme for controlling erosion and disposal of runoff water, and an analysis of the soil loss using the HESL erosion formula shall be submitted to our department of Public Works. The plan shall provide verification that the grading and runoff water generated by the project will not have an adverse effect on the adjacent and downstream properties.

4. A site plan and a "sight distance" report to determine required sight distance and available sight distance at existing and proposed street intersections shall be provided for our review and approval.

5. The developer should be informed that the Wastewater Reclamation Division cannot insure that wastewater system capacity will be available for the project.

6. Wastewater contribution calculations are required before a building permit is issued.

7. The developer shall pay assessment fees for treatment plant expansion costs in accordance with the ordinance setting forth such fees.

If you have any questions, please call David Goode at 243-7845.

DG:co/mt
xc: Engineering Division
Solid Waste Division
Wastewater Reclamation Division
S:\LUCA\CZM\CAMERON.

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 243-7816 • Fax (808) 243-7833

February 18, 1998

Mr. David Blane, Director
County of Maui
Planning Department
250 South High Street
Wailuku, Maui, Hawaii 96793

Re: I.D.: CIZ970004, CUP970015, EA970009
TMK: 3-8-046:15 and 27
Project Name: Cameron Center Expansion

Dear Mr. Blane,

Thank you for the opportunity to review this application. The Department of Water Supply has the following comments.

Consumption

The applicants state that anticipated water consumption for the 19,000 sf. MEO Family Center would be 600-700 gpd. However, using State standards of 140 gpd/1,000 sf. for commercial uses, the MEO Family Center would use approximately 2,660 gpd. Domestic, fire, and irrigation calculations will be reviewed in detail during the development process.

Source and System

This project is served by the Central Maui System. The major source of water for this system is the Iao Aquifer. Rolling annual average groundwater withdrawals from the Iao Aquifer as of February 1, 1998 were 19.24 MGD. The regulatory sustainable yield of this aquifer is 20 MGD. On August 13, 1997, the State Commission on Water Resource Management (CWRM) elected not to designate Iao Aquifer as a State Groundwater Management Area. However, if rolling annual average withdrawals exceed 20 mgd, CWRM will designate Iao Aquifer. The Department is implementing a plan to mitigate withdrawals. No moratorium is currently in effect. Nevertheless, the applicants should be made aware that the timing of this project may be affected with possible delays until new sources can be brought on line. No guarantee of water is granted or implied as a result of these comments or the approval of the requested permits. Water availability will be reviewed at the time of application for meter or meter reservation.

A private fire protection system will be used for the project. Actual fire demand for structures is determined by fire flow calculations performed by a certified engineer. We have attached BWS-approved fire flow calculation methods for the applicant's use ("Fire Flow" - Hawaii Insurance Bureau, 1991; and "Guide for Determination of Required Fire Flow" - Insurance Service Office, 1974). To avoid possible project delays, the applicants are encouraged to contact our engineering division at 243-7835 as soon as possible.

Water Quality

In order to protect groundwater and surface water resources, DWS recommends that the applicant utilize Best Management Practices (BMPs) designed to minimize infiltration and runoff from all construction operations. We have attached sample BMPs for principle operations and a list of references. Additional information is available from the State Department of Health.

Conservation

The applicants will use an existing on-site well for landscape irrigation. This may substantially reduce the need for potable water. To further conserve water resources, the applicant should refer to the attached documents and consider these measures, where appropriate:

Eliminate Single-Pass Cooling: Single-pass, water-cooled systems should be eliminated per Maui County Code Subsection 14.21.20. These units pass water once-through for cooling, and then dispose of the water into the drain. Although prohibited by code, single-pass water cooling is still manufactured into some models of air conditioners, freezers, and commercial refrigerators.

Use Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20A.680 requires the use of low flow water fixtures: faucets, showerheads, urinals, water closets and hose bibs. Water conserving washing machines, ice-makers and other units are also available.

Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Refer to the attached handout, "The Costly Drip". The applicant should establish a regular maintenance program.

Use Climate-adapted Plants: The project site is located in "Maui County Planting Plan" - Plant Zones 3 and 5. Please refer to the "Maui County Planting Plan", and to the attached documents. We encourage the applicants to consider using climate-adapted and salt-tolerant native plants. Native plants adapted to the area, conserve water and further protect the watershed from degradation due to invasive alien species.

Prevent Over-Watering By Automated Systems: Provide rain-sensors on all automated irrigation controllers. Check and reset controllers at least once a month to reflect the monthly changes in evapotranspiration rates at the site. As an alternative, provide the more automated, soil-moisture sensors on controllers.

If you need more information, please contact our Water Resources and Planning Division anytime at (808) 243-7199.

Sincerely,

David Craddick
Director

wef

cc: Munikiyo and Arakawa, Inc., with attachments

C:\MYDOCU~1\WILL\PLANNING\RESPON~1\CAMCENTL.WPD

attachments:
"The Costly Drip"
"Some of Maui's Native and Polynesian Plants"
"Hawaiian Alien Plant Studies - Pest Plants of Native Hawaiian Ecosystems"
Ordinance 2108 - An ordinance amending Chapter 16.20 of the Maui County Code, pertaining to the plumbing code"
"XERISCAPE - Water Conservation through Creative Landscaping"
"A Checklist for Water Conservation Ideas for Cooling"
"A Checklist for Water Conservation Ideas for Commercial Buildings"
"A Checklist for Water Conservation Ideas for Schools and Public Buildings"
References for Further Reading from "The Megamanual - Nonpoint Source Management Manual." Commonwealth of Massachusetts
Selected BMPs from "Guidance Specifying Management Measures For Sources of Nonpoint Pollution In Coastal Waters." U.S. EPA.
"Fire Flow" - Hawaii Insurance Bureau, 1991
"Guide for Determination of Required Fire Flow" - Insurance Service Office, 1974

DEPARTMENT OF
PARKS AND RECREATION
COUNTY OF MAUI

1580-C KAAHUMANU AVENUE WAILUKU, HAWAII 96793

JAN 2 0 1997

HENRY
ALLEN SHI
Deputy D

'98 JAN -8 P3:07 (808) 24
FAX (808) 24

DEPT OF PLANNIN
COUNTY OF MAUI
RECEIVED

January 6, 1997

Mr. David Blane
Director of Planning
250 South High Street
Wailuku, HI 96793

Dear Mr. Blane:

SUBJECT: CAMERON CENTER EXPANSION

We have reviewed the Applications for County Special Use Permit and Change in Zoning for the above-referenced project and have no objections to the proposed actions.

Thank you for the opportunity to review and comment on this matter. Please feel free to contact Mr. Patrick Matsui, Chief of Parks Planning and Development, at extension 7387 should you have any other questions.

Sincerely,

HENRY OLIVA
Director

c: Patrick T. Matsui, Chief of Planning and Development

LINDA CROCKETT LINGLE
MAYOR

RONALD P. DAVIS
CHIEF

HENRY A. LINDO, SR.
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE CONTROL

200 DAIRY ROAD
KAHULUI, MAUI, HAWAII 96732
(808) 243-7561

'98 JAN 29 A10:12
DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

January 26, 1998

Don Schneider, Staff Planner
Department of Planning
250 S. High Street
Wailuku, HI 96793

RE: Cameron Center Expansion

Dear Mr. Schneider

The Department of Fire Control has no objection to the Cameron Center expansion project provided it meets the requirements of the Uniform Fire Code in effect at the time of construction.

Thank you for the opportunity to comment.

Sincerely

Leonard F. Niemczyk, Captain
Fire Prevention Bureau
Department of Fire Control

LINDA LINGLE
MAYOR

OUR REFERENCE

YOUR REFERENCE

POLICE DEPARTMENT
COUNTY OF MAUI

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
FAX (808) 244-6411

'98 JAN 26 A10:22
DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

January 23, 1998

HOWARD H. TAGOMORI
CHIEF OF POLICE

THOMAS PHILLIP
DEPUTY CHIEF OF POLICE

MEMORANDUM

TO : DIRECTOR, PLANNING DEPARTMENT

FROM : HOWARD H. TAGOMORI, CHIEF OF POLICE

SUBJECT : I.D. No.: CIZ970004, CUP970015, EA970009
TMK: 3-8-046:15 AND 27
Project Name: CAMERON CENTER EXPANSION
Applicant: J. WALTER CAMERON CENTER

✓ No recommendation or special condition is necessary or desired.

— Refer to attachment(s).

Assistant Chief Richie Nakashima
for: HOWARD H. TAGOMORI
Chief of Police

DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

JAN 20 1998

LINDA CROCKETT LINGLE
Mayor
STEPHANIE AVEIRO
Director
MARK PERCELL
Deputy Director

200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • PHONE (808) 243-7805 • FAX (808) 243-7909

January 7, 1998

98 JAN -8 PM 2:22

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

TO: Mr. David Blane
Director of Planning

FROM: Ms. Stephanie Aveiro
Director of Housing and Human Concerns

SUBJECT: Cameron Center Expansion
Application For County Special Use Permit and
Change In Zoning
I.D. Nos. CIZ970004, CUP970015, EA970009
TMK: 3-8-046:15 and 27

We have reviewed the J. Walter Cameron Center's Application For County Special Use Permit and Change In Zoning for the subject project and wish to inform you that we fully support the approval of the application.

Please call Wayde Oshiro of our Housing Division at extension 7351 if you have any questions.

WTO:wo

xc: Housing Administrator

Maui Electric Company, Ltd. • 210 West Kamehameha Avenue • PO Box 398 • Kahului, Maui, HI 96733-6898 • (808) 8

98 JAN 16 AM 8:55

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

January 12, 1998

Mr. David Blane
Planning Director
County of Maui
Maui Planning Department
250 So. High Street
Wailuku, HI 96793

Dear Mr. Blane:

Subject: Cameron Center Expansion
(TMK: 3-8-046: 15 and 27, Wailuku, Maui)
CIZ 970004, CUP970015, EA970009

Thank you for allowing us to comment on the subject project.

In reviewing the information transmitted and our records, Maui Electric Company (MECO) at this time has no objections to the proposed project.

MECO encourages that the project's consultant meet with us as soon as practical so that we may plan for the project's electrical requirements.

If you have any questions or concerns, please call Fred Oshiro at 872-3202.

Sincerely,

Edward Reinhardt
Manager, Engineering

ER/fo:lh

DRAFT ENVIRONMENTAL ASSESSMENT RESPONSE LETTERS

January 30, 1998

Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and
Natural Resources
33 South King Street, 6th Floor
Honolulu, Hawaii 96813

SUBJECT: J. Walter Cameron Center Expansion
TMK: 3-8-46: 15 and 3-8-46: 27
CIZ 97/004, CUP 97/015, EA 97/009

Dear Mr. Hibbard:

Thank you for your letter of January 12, 1998 concerning the proposed project. On behalf of the applicant, J. Walter Cameron Center, we would like to note that an archaeological monitoring plan, which incorporates the monitoring recommendations set forth in your letter, was recently submitted to the State Historic Preservation Division for review and approval.

Again, thank you for providing us with your comments. Please do not hesitate to call me should you have any questions.

Very truly yours,

Gladaki

Glenn Tadaki, Planner

GT:tav
cc: Audrey Rocha-Reed, J. Walter Cameron Center
Stephanie Aveiro, Department of Housing and Human Concerns
Don Medeiros, Maui Economic Opportunity, Inc.
Richard Miyabara, GYA Architects, Inc.
Don Scheider, Planning Department

February 13, 1998

Gary Gill, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

SUBJECT: Cameron Center Expansion - Draft Environmental Assessment
TMK: 3-8-46: 15 and 27

Dear Mr. Gill:

Thank you for your letter of February 6, 1998 concerning the proposed project. On behalf of the applicant, the J. Walter Cameron Center, we would like to note the following.

1. The design and location of the proposed MEO Family Center is not expected to interfere with public or private views from adjoining properties.

2. The proposed child care center is not located within the immediate vicinity of any noise sensitive receptors and is not anticipated to adversely affect ambient noise conditions.

3. In connection with the project's applications for a County Special Use Permit and Change in Zoning, residents within the vicinity of the project have been notified. Opportunities for public participation are available through public hearings which will be held in connection with the processing of these applications.

4. The discussion and findings relative to significance criteria relating to scenic vistas, view planes, and energy consumption will be included in the Final Environmental Assessment.

Thank you again for commenting on the proposed project.

Very truly yours,

Glenn Tadaki, Planner

cc: Audrey Rocha-Reed, J. Walter Cameron Center
Stephanie Aveiro, Department of Housing and Human Concerns
Don Medeiros, Maui Economic Opportunity, Inc.
Richard Miyabara, GYA Architects, Inc.
Don Schneider, Planning Department

February 24, 1998

Randall Ogata, Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

SUBJECT: Cameron Center Expansion - Draft Environmental Assessment
TMK: 3-8-46: 15 and 27

Dear Mr. Ogata:

Thank you for your letter of February 5, 1998 concerning the proposed project. On behalf of the applicant, the J. Walter Cameron Center, we would like to note that an archaeological monitoring plan was recently submitted to the State Historic Preservation Division (SHPD) for review and approval. In addition, the Final Environmental Assessment will specifically note that the SHPD and the Maui Island Burial Council will be immediately consulted in the event human remains are inadvertently uncovered.

Pursuant to your request, a copy of the monitoring plan has been provided for your review. Thank you again for commenting on the proposed project.

Very truly yours,

Glenn Tadaki, Planner

GT:tav
Enclosure
cc: Audrey Rocha-Reed, J. Walter Cameron Center
Stephanie Aveiro, Department of Housing and Human Concerns
Don Medeiros, Maui Economic Opportunity, Inc.
Richard Miyabara, GYA Architects, Inc.
Hal Hammatt, Cultural Surveys Hawaii
Don Schneider, Planning Department

Planning • Environmental Studies • Project Management
305 High Street, Suite 104 • Wailuku, Hawaii 96793 • Phone: (808) 244-2015 • Fax: (808) 244-5775

February 6, 1998

Charles Jencks, Director
Department of Public Works
and Waste Management
County of Maui
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: Cameron Center Expansion
TMK: 3-8-48: 15 and 27
CIZ 97/004, CUP 97/015, EA 97/009

Dear Mr. Jencks:

Thank you for your letter of January 22, 1998 concerning the proposed project. In response to your comments we would like to note the following:

1. All driveway, drainage, and roadway improvements relating to the project will be coordinated with the Engineering Division's Mahalani Street Widening Project.

2. Off-street parking, loading spaces, and landscaping for the project will comply with the applicable provisions of Chapter 19.36 of the Maui County Code.

3. A final detailed drainage and erosion control plan will be submitted to the Department of Public Works and Waste Management (DPWWM) in connection with the review and approval of the construction plans for the project.

4. A site plan and site distance report will be provided to the DPWWM for review and approval in connection with the processing of the project's construction plans.

5. The applicant is aware that the DPWWM cannot ensure that wastewater system capacity will be available for the project.

6. Wastewater contribution calculations will be provided in connection with the review and approval of building permit applications for the project.

7. The applicant will comply with the provisions of Chapter 14.34 of the Maui County Code pertaining to wastewater treatment plant expansion fees.

Planning • Environmental Studies • Project Management
305 High Street, Suite 104 • Wailuku, Hawaii 96793 • Phone: (808) 244-2015 • Fax: (808) 244-8729

Again, thank you for providing us with your comments. Please do not hesitate to call me should you have any questions.

Very truly yours,

Glenn Tadaki, Planner

GT:tav
cc: Audrey Rocha-Reed, J. Walter Cameron Center
Stephanie Aveiro, Department of Housing and Human Concerns
Don Medeiros, Maui Economic Opportunity
Richard Miyabara, GYA Architects, Inc.
Warren Unemori, Warren S. Unemori Engineering, Inc.
Don Schneider, Planning Department

February 24, 1998

David Craddick, Director
Department of Water Supply
County of Maui
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: Cameron Center Expansion - Draft Environmental Assessment
TMK: 3-8-46: 15 and 27
CIZ 97/004, CUP 97/015, EA 97/009

Dear Mr. Craddick:

Thank you for your letter of February 18, 1998 concerning the proposed project. On behalf of the applicant, the J. Walter Cameron Center, we would like to note the following.

Consumption

Detailed domestic, fireflow, and irrigation calculations will be submitted in connection with the review and approval of the project's construction plans. It should also be noted that the relocation of Maui Economic Opportunity's (MEO) administrative operations from its present location at the old Kahului School site to the expansion site is a redistribution of existing water use to a different location and does not represent an altogether new demand on existing water resources.

Source and System

The applicant acknowledges that water availability will be reviewed at the time of application for water meter or meter reservation. Please note that while a private, onsite well will be utilized for landscape irrigation, a private fire protection system is not proposed for the project. Separate waterlines connecting to the County water system will be extended onto the expansion site for domestic and fireflow protection purposes.

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Water Quality

To minimize the effects of construction runoff and infiltration, appropriate drainage and erosion control measures and Best Management Practices (BMPs) will be utilized during the construction of the project.

Conservation

Appropriate water conservation measures will be implemented in connection with the development of the proposed project.

Thank you again for commenting on the proposed project.

Very truly yours,

Glenn Tadaki, Planner

GT:tav
cc: Audrey Rocha-Reed, J. Walter Cameron Center
Stephanie Aveiro, Department of Housing and Human Concerns
Don Medeiros, Maui Economic Opportunity, Inc.
Richard Miyabara, GYA Architects, Inc.
Don Schneider, Planning Department

Chapter XI

List of Permits and Approvals

XI. LIST OF PERMITS AND APPROVALS

The following County permits and approvals will be required prior to the implementation of the project.

County of Maui

1. County Special Use Permit
2. Change in Zoning
3. Construction Permits (e.g., grubbing, grading, building, electrical, plumbing)

References

References

Community Resources, Inc. Maui County Community Plan Update Program Socio-Economic Forecast Report, January 1994.

County of Maui, The General Plan of the County of Maui, September 1990 Update.

County of Maui, Wailuku-Kahului Community Plan, December 1987.

County of Maui, Office of Economic Development, Maui County Data Book, December 1994.

Department of Business, Economic Development and Tourism, The State of Hawaii Data Book 1992.

Munekiyo & Arakawa, Inc., Application for Special Management Area Permit - Maui Central Park, August 1996.

Munekiyo & Arakawa, Inc., Final Environmental Assessment - Waiale Road Affordable Rental Project, September 1995.

Munekiyo & Arakawa, Inc., Final Environmental Assessment - War Memorial Stadium Renovations, Wailuku, Hawaii, August 1997.

Ronald M. Fukumoto Engineering, Inc., Kahului Drainage Master Plan, May 1992.

Telephone conversation with Dave Taylor, Wastewater Reclamation Division, November 1997.

University of Hawaii, Land Study Bureau, Detailed Land Classification Island of Maui, May 1967.

University of Hawaii, Department of Geography, Atlas of Hawaii, Second Edition, 1983.

U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii, August 1972.

Appendices

Appendix A

Archaeological Inventory Survey

ARCHAEOLOGICAL INVENTORY SURVEY OF A 3.670-ACRE PARCEL IN WAILUKU *AHUPUA'A*, ISLAND OF MAUI (TMK: 3-8-46:27)

by

Hallett H. Hammatt, Ph.D.
and
Rodney Chiogioji, B.A.

Prepared for

J. WALTER CAMERON CENTER

Cultural Surveys Hawaii
Revised February 1998

ARCHAEOLOGICAL INVENTORY SURVEY OF A 3.670-ACRE PARCEL IN WAILUKU *AHUPUA'A*, ISLAND OF MAUI (TMK: 3-8-46:27)

by

Hallett H. Hammatt, Ph.D.
and
Rodney Chiogioji, B.A.

Prepared for

J. WALTER CAMERON CENTER

Cultural Surveys Hawaii
Revised February 1998

ABSTRACT

At the request of the J. Walter Cameron Center, Cultural Surveys Hawaii completed an archaeological inventory survey with subsurface testing of a 3.679-acre parcel adjacent to the Cameron Center in Wailuku, Maui (TMK 3-8-46:27). The parcel is proposed for future expansion of the center.

No surface archaeological sites or features were encountered within the project area, portions of which were previously grubbed and graded. No archaeological materials were encountered in either of two hand-excavated trenches. In addition, careful examination of cut banks and disturbed areas revealed no signs of subsurface archaeological materials.

No further archaeological survey or testing is recommended prior to development of the property. However, because of the potential for encountering archaeological materials, especially human burials, in any areas of the Wailuku Sand Hills, on-site archaeological monitoring is recommended during initial grubbing and grading of the project area. This monitoring should be carried out according to the procedures of the State Historic Preservation Division (SHPD) which calls for preparation of a monitoring plan to be reviewed and approved by the SHPD before commencement of ground disturbing activities.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF FIGURES (continued)

I. INTRODUCTION

A. Project Description

At the request of the J. Walter Cameron Center, Inc., Cultural Surveys Hawaii has conducted an inventory survey of a 3.679-acre parcel (TMK 3-8-46:27) in the *ahupua'a* of Wailuku, island of Maui (Figures 1 & 2). The parcel is owned by the County of Maui. It is bounded by the existing J. Walter Cameron Center on the east side, a parking lot of the Maui Memorial Hospital on the south side, and a nursery facility on the west side. To the north lies the parking lot of the Maui County Police Station.

The parcel is proposed for expansion of the J. Walter Cameron Center.

B. Scope of Work

The scope of the work for the inventory survey is as follows:

1. A complete ground survey of the entire project area for the purpose of site inventory. All sites would be located, described, and mapped with evaluation of function, interrelationships, and significance. Documentation will include photographs and scale drawings of selected sites and complexes. All sites will be assigned State site numbers.

2. Limited subsurface testing to determine location, boundaries, depth and quantity of cultural materials within archaeological sites and to obtain datable samples for chronological information if none is available for sites in the immediate area from previous studies.

3. Research on historic and archaeological background, including search of historic maps, written records, Land Commission Awards, and Native Testimony. This research will focus on the specific area with general background on the *ahupua'a* and district and will emphasize settlement patterns.

4. Preparation of a survey report which will include the following:

   a. A topographic map of the survey area showing all archaeological sites and site areas.

   b. Description of all archaeological sites with selected photographs, scale drawings, and discussions of function.

   c. Historical and archaeological background sections summarizing prehistoric and historic land use as they relate to the archaeological features.

   d. A summary of site categories, their significance in an archaeological and historic context.

   e. Recommendations based on all information generated which will specify steps to mitigate impact of development on archaeological resources - such as data recovery (excavation) and preservation of specific areas. These recommendations will be developed in consultation with the landowner and the State and County agencies.

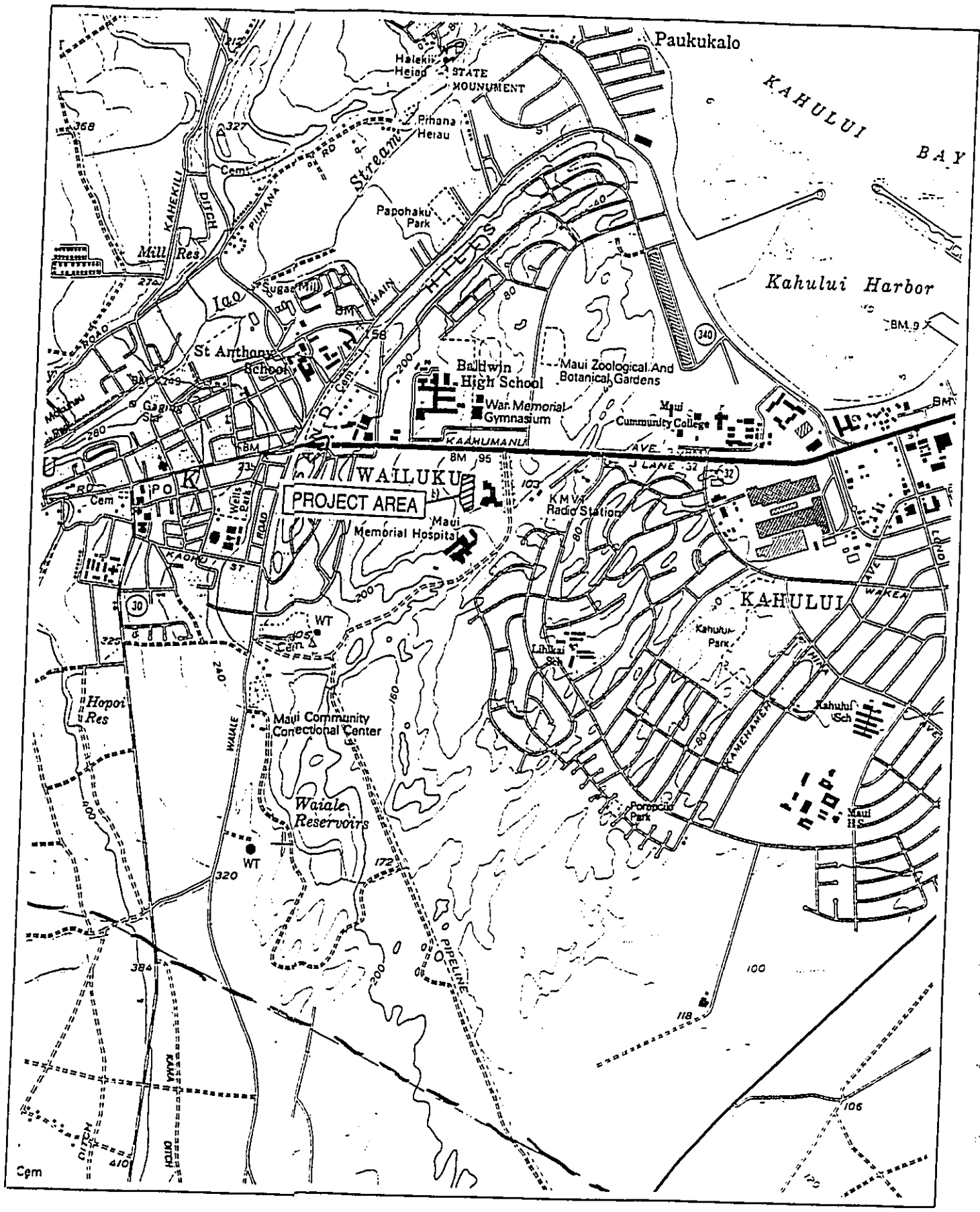


Figure 1 Portion of USGS 7.5 Minute Series Topographical Map, Wailuku Quadrangle, showing project area (hatched)

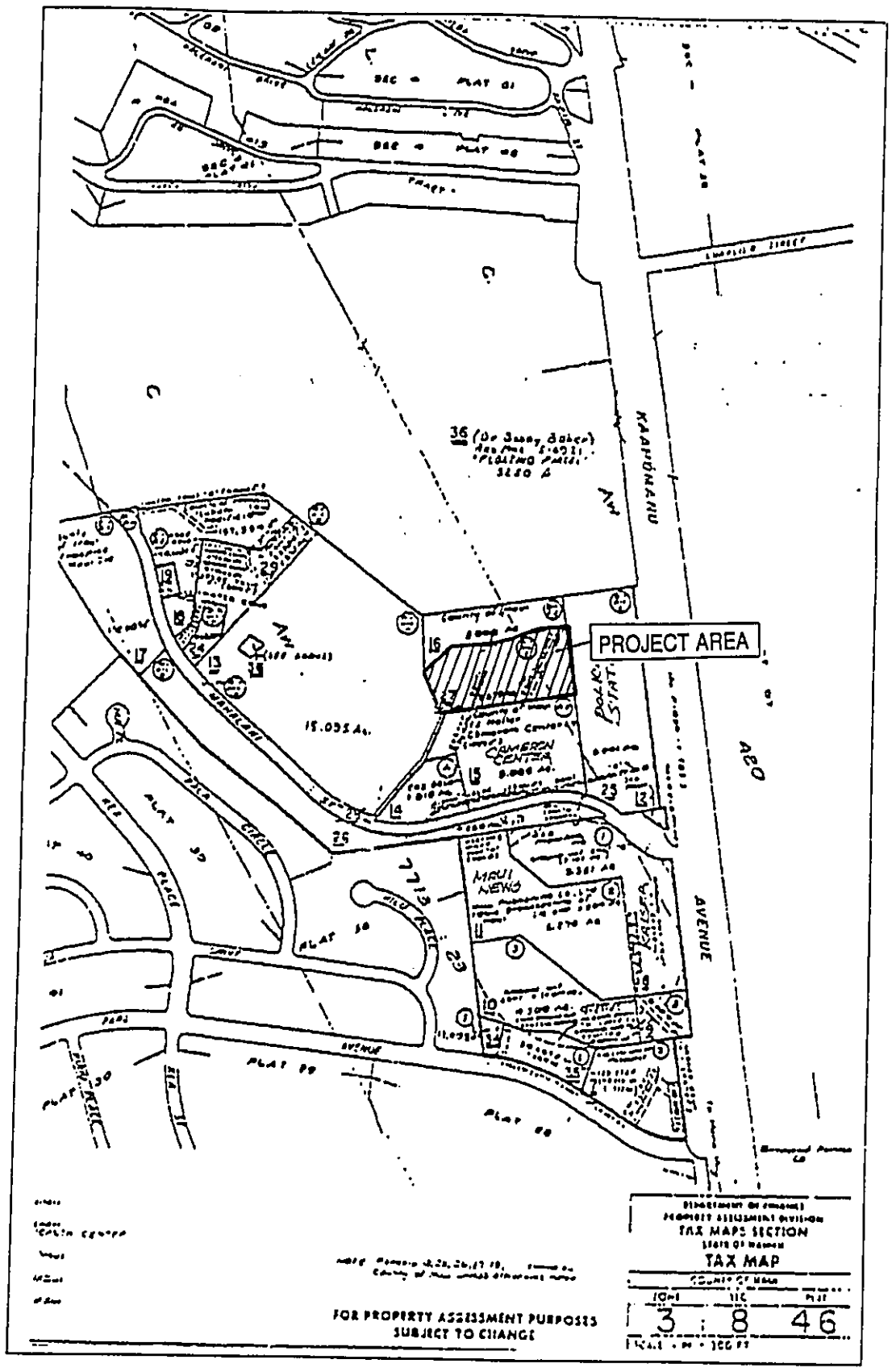


Figure 2 Tax map showing study area (hatched)

This scope also includes full coordination with the State Historic Preservation Division, and Maui County relating to archaeological matters. This coordination takes place after consent of the owner or representatives.

C. Work Accomplished

Inventory survey and subsurface testing of the parcel were conducted on October 9, 1997 by Hallett H. Hammatt and Ian Masterson.

Background research included: a review of previous archaeological studies on file at the State Historic Preservation Division of the Department of Land and Natural Resources; review of documents at the Maui Historical Society, Hamilton Library of the University of Hawai'i, the Hawai'i State Archives, the Mission Houses Museum Library, the Hawai'i Public Library, and the Archives of the Bishop Museum; study of historic photographs at the Hawai'i State Archives and the Archives of the Bishop Museum; and study of historic maps at the Survey Office of the Department of Land and Natural Resources.

II. NATURAL SETTING

The project area is located in the *'ili* of Owa, Wailuku *ahupua'a*, in the Wailuku District. Rainfall in the project area is around 20 inches a year and most of it falls in the winter months (Armstrong 1973:56). Temperatures range from 60° to 80° (*Ibid*:58).

The dune area in which the project area lies is classified as part of the extensive Pu'uone Sand Dune Formation. Upper layers are grayish brown, calcareous sand, underlain by grayish-brown cemented sand. "Lithified calcareous sand dunes rest on the alluvial fans near the shore between Kahului and Waihe'e and extend inland almost across the western edge of the isthmus... [The sand] dunes were formed by wind blowing sand inland from wide beaches exposed during a stand of the sea lower than the present sea level -- probably the minus-40-foot stand. Less consolidated to totally unconsolidated dunes are of later date, and are still forming" (Macdonald and Abbott 1974:326).

The soils in the project area are classified as in the Pu'uone Series which "consists of somewhat excessively drained soils on low uplands on the island of Maui. These soils developed in material derived from coral and seashells. They are moderately sloping to moderately steep" (Foote *et al.* 1972:117). Pu'uone sand, 7 to 30% slopes (PZUE), is on sandhills near the ocean. There are also small areas of Iao and Jaucas soils, and other small areas where the cemented layer is less than 20 inches below the surface (*Ibid.*:117).

III. WAILUKU *AHUPUA'A* : HISTORICAL DOCUMENTATION

A. Pre-Contact to 1800

"From Waihe'e to Wailuku Valley, in ancient times was the largest continuous area of wet-taro cultivation in the islands" (Handy and Handy 1972:496). The high degree of cultivation within Wailuku *ahupua'a* and its near neighbors gives evidence that a substantial population would have been established there during the pre-contact period. According to Cordy, the settlement of Wailuku represented one of two (or perhaps three) population concentrations on Maui:

> The Kaupo, Kipahulu, Hana, Koolau, and Hamakua districts of northeast Maui form a wet, fertile contiguous area that would have been a dominant population center early in Maui's settlement. On West Maui, the large valleys of Waihee and Wailuku would have been another fertile focus, and to the southwest, the permanent streams of Lahaina and Olowalu would have been conceivably another early population area. (Cordy 1981:198-199)

While Hawaiian traditions do not relate the size of the Wailuku population or its disposition within the *ahupua'a*, they do associate Wailuku *ahupua'a* and the district of Wailuku - *i.e.* West Maui - with notable *ali'i*, suggesting that Wailuku was a center of political power and increasing population. King David Kalākaua, in his collection of Hawaiian oral traditions *The Legends and Myths of Hawaii*, recounts a "remarkable event [that] had occurred at Wailuku" during the late 14th or 15th century when Wakalana, the principal chief of West Maui, was in residence there: the "appearance in the [Hawaiian] group of a vessel bearing people of a strange race, described by tradition as 'white, with bright, shining eyes'"; Kalākaua records:

> It was a Japanese vessel that had been dismantled by a typhoon, driven toward the North American coast until it encountered the northwest trade-winds, and then helplessly blown southward to the coast of Maui...It was hazardous to approach the wreck too nearly, but Wakalana succeeded in rescuing from the waves and returning to Wailuku with five persons, but not before he saw the last fragment of the wreck disappear in the abyss of raging waters. (Kalākaua 1990:182-183)

The Wailuku district and East Maui comprised the two rival societies on Maui. It was only in the mid-16th century, during the reign of the Wailuku chief Piilani, that the "Hana chiefs finally acknowledged the West Maui king's rule" (Cordy 1981:210). By the second half of the 18th century, Maui *ali'i* - including the ruling chief Kahekili - are reported to have been residing at Wailuku, with the chiefs of Wailuku enjoying the surf of Kehu and Ka'akau (Kamakau 1992:83). It was in the sand hills of Wailuku that Kahekili and his forces from O'ahu and Maui would do battle with the armies of Kalani'opu'u, chief of Hawai'i, that had invaded Maui. According to Westervelt, the battle took place about 1776 and

> ...received the name in Hawaiian history - "The furious destruction at Kakanilua" - Kakanilua was the name of the sand hills below Wai-luku...
>
> ...the Maui army had the advantage of a well chosen position. The Hawaiians had to fight up hill or else drift down to the sand hills. In either case advance was difficult...There was a full day of savage fighting, marked by inhuman acts of awful brutality. The native account of the battle says: "It was not a war characterized by deeds of princely courtesy." Many noted names of valiant

> chiefs were never again mentioned in Hawaiian story. The story and the life ended together in this Wailuku battle. (Westervelt 1977:139-140)

The battle resulted in a temporary truce and Kalani'opu'u returned to Hawai'i.

A few years later, Kahekili was again at Wailuku when Capt. James Cook and his ships *Resolution* and *Discovery* encountered Maui. Cook first sighted the island on November 26, 1778; his ship *Resolution* positioned three miles off Kahului, he recorded in his logbook:

> In the country was an elevated saddle hill, whose summit appeared above the clouds. From this hill, the land fell in a gentle slope, and terminated in a steep rocky coast, against which the sea broke in a dreadful surf. Finding that we could not weather the island, I bore up, and ranged along the coast to the Westward. It was not long before we saw people on several parts of the shore, and some houses and plantations. The country seemed to be both well wooded and watered; and running streams were seen falling into the sea in various places. (in Speakman 1978:23)

Cook records that the Hawaiians who came out in canoes to trade for supplies appeared "to be of the same nation with the inhabitants of the islands more to leeward [*i.e.* O'ahu and Kauai] which we had already visited [ten months earlier in January 1778]; and...they knew of our having been there" (*Ibid.*:23-24). More ominously, Cook reported "these people had got amongst them the venereal distemper [which his crew had brought to Kauai]; and, as yet, I knew of no other way of its reaching them, but by an intercourse with their neighbours since our leaving them" (*Ibid.*:24).

In 1790 the last great conflict on Maui - the battle of Kepaniwai - was fought in 'Iao Valley when Kamehameha's victory over Kahekili consolidated his conqueror's control of Maui. With the peace engendered during Kamehameha's reign, no further accounts of events and life at Wailuku are recorded in the remainder of the 18th century.

B. 1800 to 1850

The initial documentation of life in Wailuku during the first half of the 19th century was recorded by the Protestant missionaries who established their station at Wailuku in 1832. The missionary census of 1831-1832 recorded a total population of 2,256 in Wailuku *ahupua'a*, comprising 918 adult males, 860 adult females, and 478 children (Schmitt 1973:18). By the time of the 1840 census, the Wailuku population had dropped to 1,364, representing a diminution of 892 in just four years (*Ibid.*:38).

An account by one of the missionaries in Wailuku, Rev. Richard Armstrong, gives a vivid picture of a tsunami at Kahului where the "entire village of 26 native grass houses" was carried away; in his journal entry of Nov. 8, 1837, Armstrong records:

> A strange phenomenon appeared last evening in our neighborhood. About seven o'clock in the evening, the waves of the ocean just opposite our station, at a small harbor [*i.e.* Kahului, gradually receded from the shore to a distance of some 15 or 20 rods leaving multitudes of fishes upon the ground, so that the children observing it ran and picked up some of them; leaving a small schooner also, which was at anchor in the harbor, without sufficient water to float her completely, and the wave slowly formed itself as it were into an embankment, or as the natives said, a "steep precipice." Then, as if having collected strength

> enough for the onset, the wave rushed back upon the beach, overflowed the banks, and carried away the entire village of 26 native grass houses with all their effects and inhabitants, some 40 or 50 rods inland, throwing most of the wrecks of houses, broken canoes, fowls, beasts, men, women, and children into a small lake of perhaps three miles circumference, which lay immediately inland from the village.
>
> The rush of the wave was so sudden and unexpected, that the inhabitants of the village, unlike Lot in Sodom, had no warning whatever, except a few who seeing the sea receding from the shore suspected a corresponding reflux, and fled inland in season. But it is not easy for water to baffle a Hawaiian, this being the element with which he is most familiar. Some swam single handed with the waves. Others took their children in their arms. Others the sick on their backs and bore them up until the waters ceased from the earth. One man took his old mother on his back and swam with her until he reached the dry land, but, laying her down on the ground, he found she was dead. Another poor old woman, having no one to assist her, and it being dark got into the small lake and was drowned. These are all the lives that were lost. (in *Maui News* Nov. 10, 1937)

Armstrong also recorded that the "overflow was confined to less than two miles of coast" and noted a report that "a similar overflow occurred shortly after the death of Kamehameha I, but no houses were destroyed or lives lost."

Three years later, Armstrong reported on the first effort to grow sugar at Wailuku; in a letter dated July 7, 1840 Armstrong wrote:

> By request of the King I have taken some part in inducing the people about me to plant sugar cane. A fine crop of 60 or 70 acres is now on the ground ripe, and a noble water mill set up by a Chinaman is about going into operation to grind it. I keep one plow a-going constantly with a view to the support of the schools. We shall get in 10 acres of cane the present season. (in *Maui News* March 22, 1941)

One of the schools to be supported was likely the girls' school which had opened at Wailuku in 1836 (Kamakau 1992:405).

At the mid-19th century *Mahele*, the *ahupua'a* of Wailuku was declared Crown Land. Subsequent *kuleana* awards to individuals were made of parcels within the *ahupua'a*. A map of 1882 shows that the Land Commission Awards (LCAs) were focused in the western portion of the *ahupua'a* outside the present study area (Figure 3). The disposition of these awards may reflect a continuation into the post-contact era of the traditional Hawaiian settlement of Wailuku. The present study area itself comprised a portion of LCA 420, awarded to Kuihelani, which constituted the majority of the *'ili* of Owa and spanned the area from Wailuku Stream to Kahului Bay. Records for the award "described a stone house and walls at the western end of the L.C.A. near Wailuku" (Kennedy *et al.*1993:14).

C. 1850s to 1900

The second half of the 19th century is marked by commercial development within Wailuku. The Wailuku Sugar Company was organized in 1862 by James Robinson & Company, Thomas Cumming, J. Fuller and C. Brewer and Company.

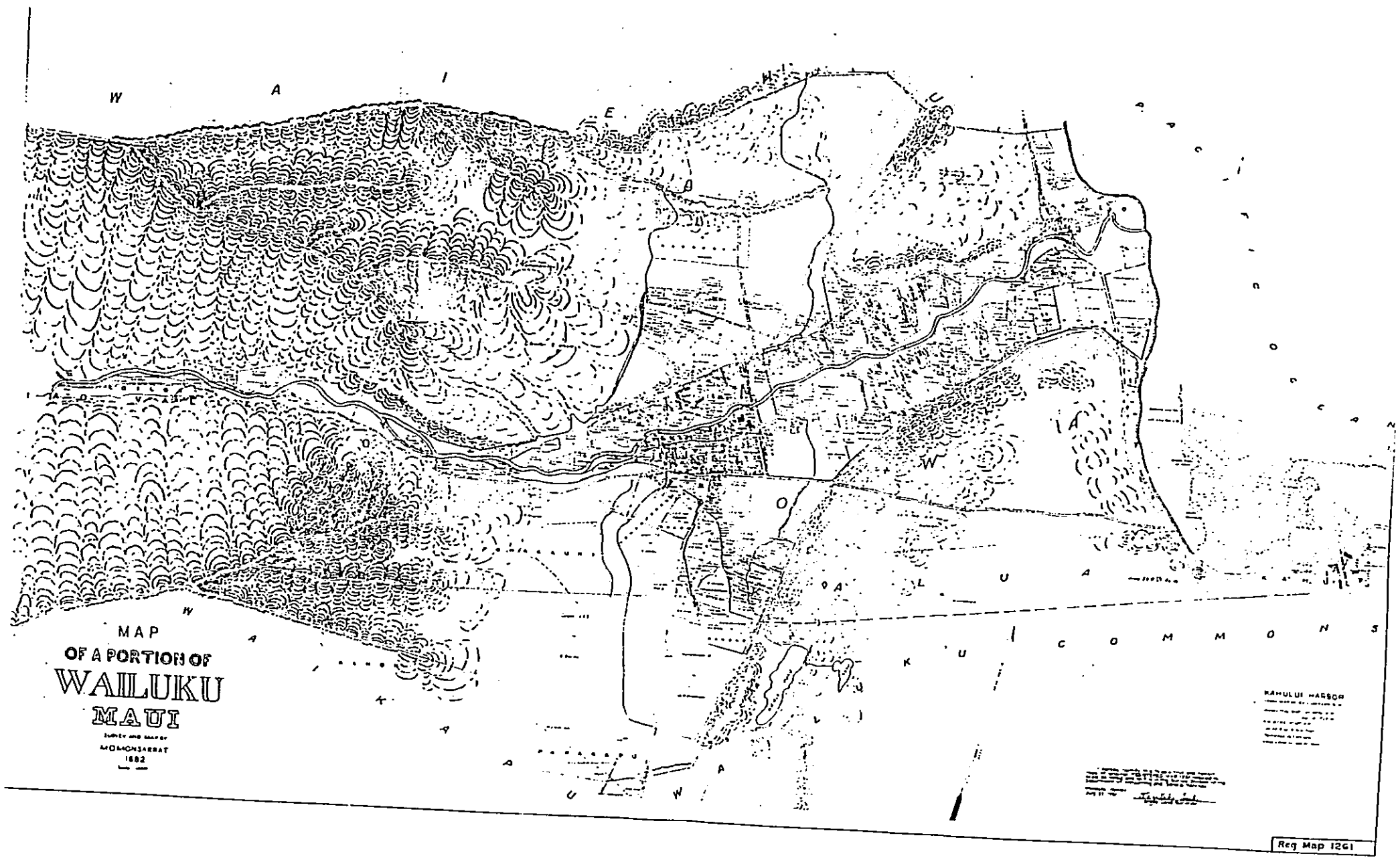


Figure 3 1882 map by M.D. Monsarrat showing Land Commission Awards in Wailuku

At Kahului, the first western-style structure in Kahului was a warehouse built in 1863; also recorded is a store built near the warehouse in 1873. Also during this period, "Kepoikai, the father of Senator A.N. Kepoikai of Wailuku, owned and conducted the fishing right at Kahului, his residence being further up the beach toward Wailuku" (in *Maui News* March 3, 1900). But the major enterprise focused at Kahului was the Kahului Railroad Company, incorporated on July 1, 1881, and founded by Thomas Hobron, William Bailey, and William Smith. By 1886, with a terminal established at Kahului, the railroad comprised a line from Kahului to lower Paia and from Kahului to the town of Wailuku. (A portion of this railway line ran through the *makai* side of the present study area; see Figure 9 map). In 1886 the railroad company was sold to Wilder Steamship Company which subsequently applied for and received, in 1889, authorization from the Hawaiian government to engage in maritime shipping operations. Ten years later, in 1899, the railroad company was once again sold, this time to the Hawaiian Commercial & Sugar Company, headed by Henry P. Baldwin.

Government censuses document the growth of the population of Wailuku during the decades of the later 19th century: in 1853 the total population was recorded as 4,463, in 1872 it had dropped to 3,002, in 1878 it had risen to 4,186, in 1890 it was 6,708, and by 1900 the population was 7,953 (Schmitt 1977:12-13). The censuses reflect the influx of immigrant workers to the burgeoning sugar plantations of Maui. An early photograph, *ca.* early 1880s, taken from the Wailuku sand hills, shows sugar cane fields encompassing all sides of the town of Wailuku; in the foreground are St. Anthony's Church and the alignment of the present Lower Main Street (Figure 4).

By 1900, Wailuku had a system drawing water from Iao Valley to a reservoir in town, a newspaper, three hotels, and a power plant was planned for Kahului to supply electricity to Wailuku. But 1900 was also the year in which the bubonic plague broke out in Kahului, the first death recorded as caused by the plague occurring on Saturday, February 4th. An article in the *Maui News* of Feb. 17, 1900 announced:

> The plague has reached Maui. Six deaths have occurred and the whole of Chinatown [in Kahului] is a heap of ashes. The people of Maui are aroused to action and feel confident of being able to control and stamp out the pest in a short time...
>
> ...Sheriff Baldwin at once established a strict quarantine at Kahului which is still maintained. The Maui Board of Health met at once and selected a site for a pest house and one for a detention camp, the latter being established at the race track of the Maui Racing Association...
>
> ...by noon on Monday [Feb. 13] the detention camp was ready for its occupants. Over 200 Chinese, Japs and natives were fumigated and dressed in new suits, and at two o'clock the procession quickly moved out to their new quarters.
>
> Scarcely had they reached their destination before everything was prepared for the destruction of their old quarters. At three o'clock a cloud of dust and broken timbers leaped into the air, accompanied by the savage roar of dynamite; then another and another, being the exterior houses of the doomed district. Soon dense volumes of smoke, through which pierced yellow shafts of flame, told that the work of destruction was begun. In two hours the whole block from the Kahului saloon to the Custom House was a heap of glowing ashes. The breeze was from the sea and no trouble was experienced in holding the fire within the prescribed district.

Figure 4 View of Wailuku from Wailuku sand dune showing sugar cane fields and St. Anthony's Church, pre-1883 (Bishop Museum Archives)

Kahului town was entirely cordoned off with corrugated iron fences and, before the year was out, the plague had been eradicated.

D. 1900s to Present

The growth of Wailuku, which was named the county seat in 1903, continued during the first decades of the 20th century. Two photographs, *ca.* early 1900s, taken from the Wailuku sand hills show the town expanding into former cane fields (Figures 5 & 6). By the late 1920s, as indicated on a 1927 fire insurance map, development of Wailuku has stretched to the west side of the Wailuku sand hills (*i.e.* along the west side of the present Lower Main Street alignment); the fire insurance maps record no structures east of the sand hills in the present study area (Figure 7).

In 1936 construction of the present Ka'ahumanu Avenue linking Wailuku and Kahului was completed; cost of the project was $178,000. Completion of the roadway initiated the development along its route during subsequent decades, including - in the near vicinity of the present project area - the Maui Memorial Hospital and the Maui County Police Station. Within the project area itself, portions have been utilized as a tree nursery.

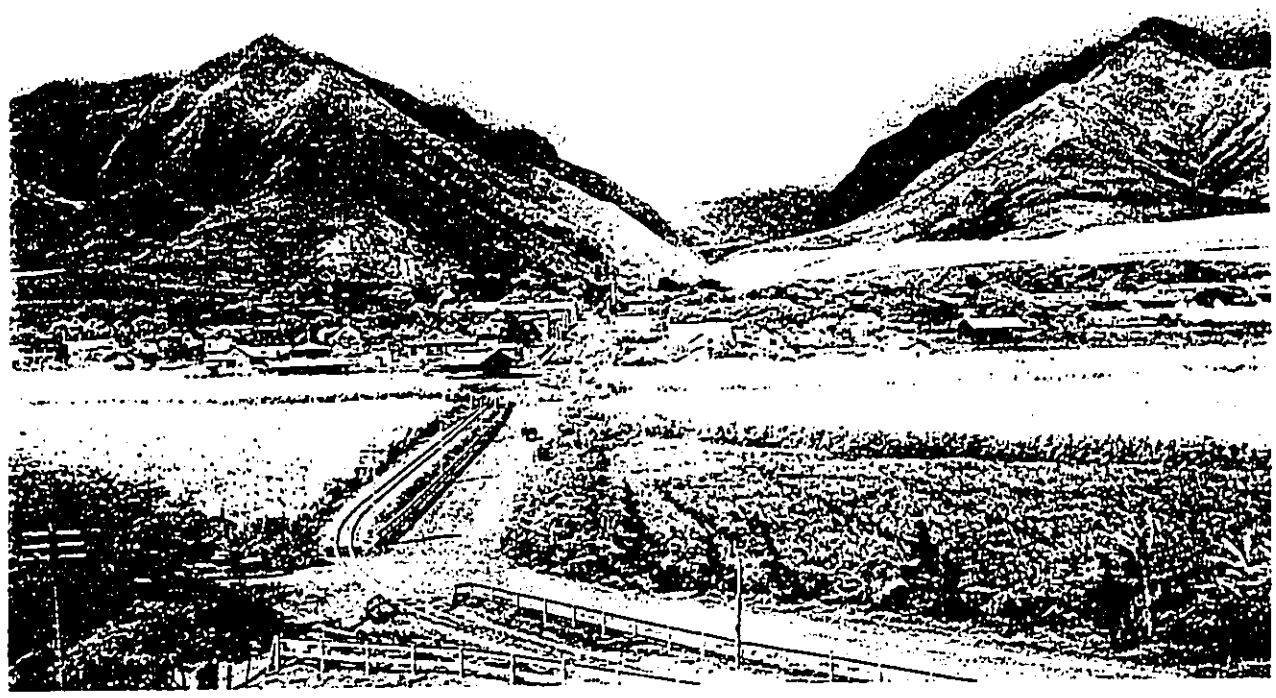


Figure 5 View toward 'Iao Valley from Wailuku sand hills showing Wailuku Town, *ca.* early 1900s (Bishop Museum Archives)

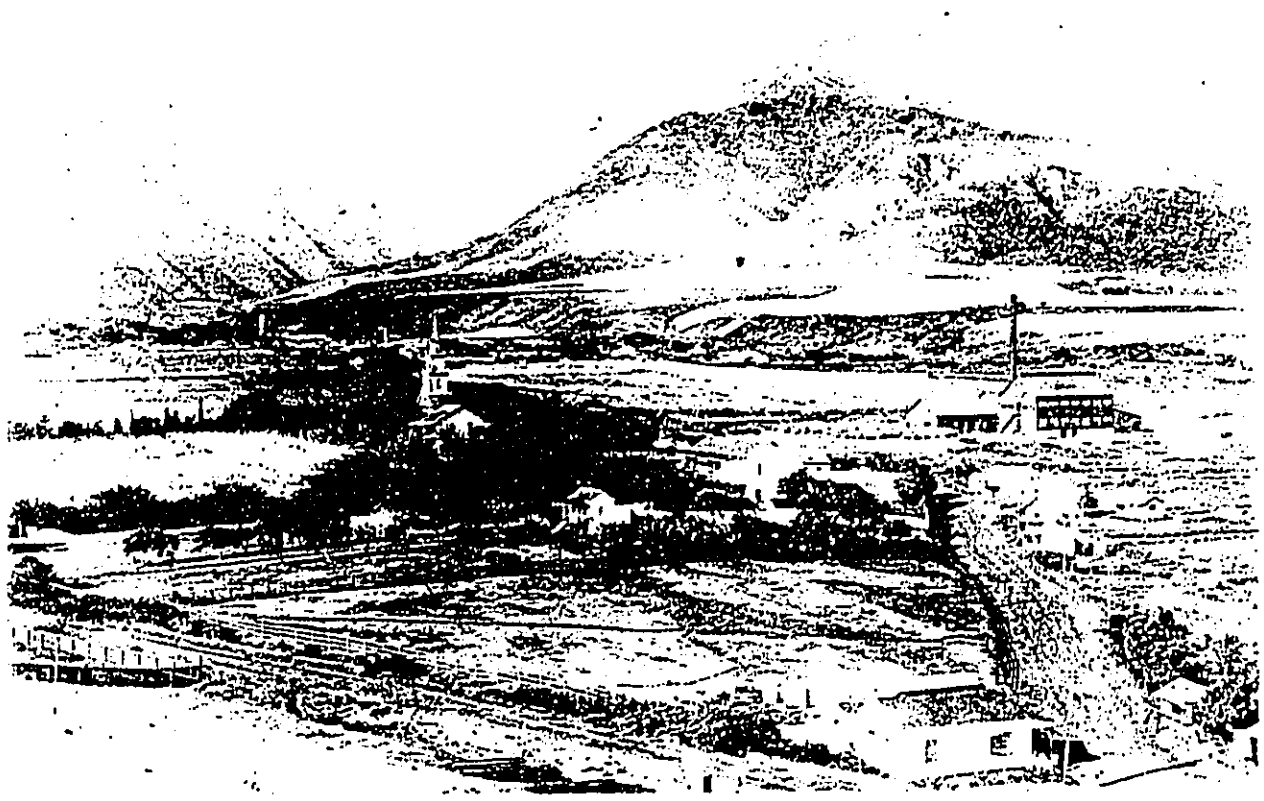


Figure 6 View toward 'Iao Valley from Wailuku sand hills showing Wailuku Town, *ca.* early 1900s (Bishop Museum Archives)

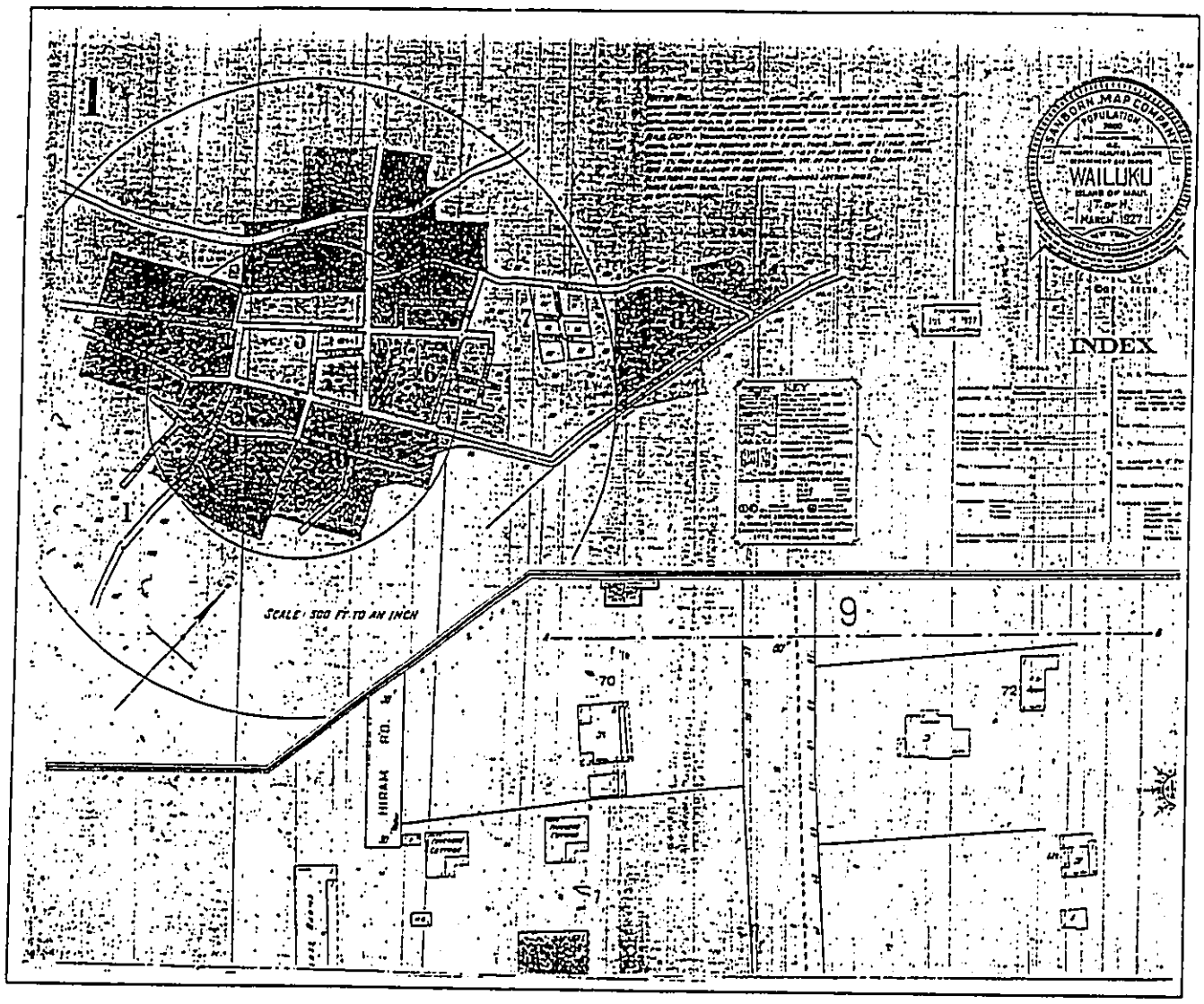


Figure 7 1927 Sanborn Fire Insurance Map of Wailuku

IV. PREVIOUS ARCHAEOLOGICAL RESEARCH

Results of previous archaeological research within the portion of the *ahupua'a* of Wailuku which includes the Wailuku Sand Hills area (in which the present project area is located) are presented below.

Burgett, Berdena and Robert Spear
1995 *Archaeological Inventory Survey of a Lower Main Street Property, Wailuku Ahupua'a, Wailuku District, Island of Maui, Hawai'i (TMK:3-8-37:48).* Scientific Consultant Services, Inc.: Kaneohe.

Results: Survey of 1.3 acres on Lower Main Street on the northwest side of the Wailuku Sand Hills. Two sites were identified. Features included burials, a cultural layer remnant and firepits.

Burgett, Berdena and Robert Spear
1996 *Archaeological Inventory Survey of the Oceanhouse, Inc. Property, TMK: 3-4-39:77, Land of Wailuku, Wailuku District, Island of Maui.* Scientific Consultant Services, Inc.: Honolulu.

Results: Survey of a parcel on the east side of Lower Main Street on the northwest side of the Wailuku Sand Hills. One site (50-50-04-4004) - a cultural layer remnant - was identified.

Donham, Theresa K.
1992 *Human Skeletal Remains Discovered At The Maui Homeless Shelter Construction Site (50-50-04-2916), Wailuku, Maui (TMK 3-8-46:21)*, State Historic Preservation Division - Maui.

Results: Human remains were exposed during construction at a parcel on South Waiale Road near the west central edge of the Wailuku Sand Dune. Examination of the site - 50-50-04-2916 - revealed that two individuals were represented. Excavation and screening exposed no subsurface burial pit features or portable remains.

Donham, Theresa K.
1994 *Recovery of Burials Inadvertently Disturbed During Construction Home Maid Bakery Expansion Project, Wailuku, Island of Maui, SIHP Site 50-50-04-3556 (TMK: 3-8-37: 49)*, Maui Island Archaeologist, DLNR-Historic Preservation Division, Wailuku, HI.

Results: Human remains were exposed during construction at a parcel on Lower Main Street. Subsequent examination indicated a minimum of four individuals present at burial site 50-50-04-3556. Associated artifacts recovered included a shell ring, beads, and shell ornaments.

Dunn, Amy and Robert Spear
1995 *Archaeological Monitoring Report, Waiale Road, Land of Wailuku, Wailuku District, Island of Maui (TMK 3-4-02:36; 3-4-03:19; 3-4-10:2).* Scientific Consultant Services, Inc.: Honolulu.

Results: Monitoring of trench excavations for sewer pipeline project along the

east side of Waiale Road Survey of a parcel on the west side of the Wailuku Sand Hills. Three sites were identified, including two burial sites (50-50-04-4005 and 50-50-04-4068) and an isolated hearth (50-50-04-4067).

Fredericksen, Demaris L. and Erik M. Fredericksen
1997 *Archaeological Inventory Survey of the Mahalani Street Extension Project, TMK 3-8-46:por.1,2,3,4,17,18,30; and 3-8-07:por.121, Wailuku Ahupua'a, Wailuku District, Maui Island.* Xamanek Researches, Pukalani, HI.

Results: Survey and subsurface testing of a 990m. long corridor extending from Waiale Drive to Maui Memorial Hospital. No features were identified in the eight backhoe test trenches excavated.

Fredericksen, Erik M., Demaris L. Fredericksen and Walter Fredericksen
1994 *An Archaeological Inventory Survey, Maui Memorial Park, Wailuku Ahupua'a, Wailuku District, Maui Island, (TMK: 3-8-46:30).* Xamanek Researches: Pukalani, HI.

Results: Survey of parcel at Maui Memorial Park on Waiale Road. Much of parcel had been previously bulldozed. No significant cultural materials were encountered during backhoe testing.

Fredericksen, Erik M., Demaris L. Fredericksen and Walter Fredericksen
1995 *Report on Subsurface Inventory Survey at Lower Main and Mill Street, Wailuku Ahupua'a, Wailuku District, Island of Maui, (TMK:3-4-39:por. 81,82,83),* Xamanek Researches, Pukalani, HI.

Results: Survey of a portion of three parcels on east side of Lower Main Street on the northwest side of the Wailuku Sand Hills. Subsurface testing revealed a cultural layer - site 50-50-04-4127 - which included an unfinished bone fishhook and marine midden remains.

Fredericksen, Walter M. and Demaris L. Fredericksen
1992A *An Archaeological Inventory Survey for the Parking Lot Expansion and Retention Basin on Maui Community College Campus (TMK 3-8-07:40 & 43) Ahupua'a of Wailuku, District of Wailuku, Island of Maui* Xamanek Researches, Pukalani, Hawaii

Results: Survey of an approximately 5.0 acre lot within the Maui Community College Campus - Approximately 700 feet north of Ka'ahumanu Avenue. Entire parcel disturbed by previous landfill and construction projects, including WW II military activities. No sites were found.

Fredericksen, Walter M. and Demaris L. Fredericksen
1992B *An Inventory Survey of a Parcel of Land (TMK 3-8-07:123), Located in the Ahupua'a of Wailuku, District of Wailuku, Island of Maui*, Xamanek Researches, Pukalani, Hawaii

Results: Survey of an approximately 2 acre lot across from the junction of Waiehu Beach Road and Kahului Beach Road. Three archaeological sites were encountered: the historic Kahului Railroad berm (Site 3112) and two sites (3119 and 3120), both of which contain prehistoric cultural layers including

midden, basalt flakes, and artifacts. The prehistoric component of Site 3119 was dated to AD 233-410 - an intriguingly old date for a Hawaiian archaeological site. A single human bone was encountered in Site 3120 but no other human remains were uncovered during the survey testing. Later work at the prehistoric component within the project area included data recovery. Preliminary results of this extensive data recovery were reported by the Fredericksens at the 9th Annual Conference of the Society of Hawaiian Archaeology in April 1996.

Fredericksen, Walter M. and Demaris L. Fredericksen
1994 *An Inventory Survey of a 10-Acre Parcel of Land, Maui Central Park Parkway, Wailuku Ahupua'a, Wailuku District, Maui Island (TMK: 3-8-07: 125)*, Xamanek Researches, Pukalani, Hawaii

Results: 1994 survey and subsurface testing by backhoe of a 10 acre parcel. No sites were found and no cultural material or features were present.

Fredericksen, Walter M. and Demaris L. Fredericksen
1995 *Archaeological Inventory Survey and Subsurface Testing at the Site of Keiki Zoo Maui (TMK: 3-8-07: por.1) Wailuku Ahupua'a, Wailuku District, Maui Island*, Xamanek Researches, Pukalani, Hawaii

Results: 1995 survey and subsurface testing by backhoe of a 4 acre parcel within Maui Central Park. One artifact, a basalt abrader, was found on the surface. No cultural materials or features were encountered during subsurface testing.

Heidel, Melody J., Leilani Pyle and Hallett H. Hammatt
1997 *Archaeological Inventory Survey of the 110-Acre Maui Central Park, Wailuku, Maui (TMK: 3-8-07:1 and 3-7-01:2)*. Cultural Surveys Hawaii: Kailua.

Results: Survey and subsurface testing with Maui Central Park within Wailuku Sand Hills. Two previously-identified historic sites - the Kahului Railroad berm (50-50-04-3112) and a World War II military installation (50-50-04-4232) - were noted in the project area. An area in the central eastern portion of the project area previously-identified as containing scattered human remains (50-50-04-3112) was noted. Findings of the surface survey and subsurface testing were otherwise negative.

Kennedy, Joseph
1990 *Archaeological Subsurface Testing Results at the Site of the Proposed Maui Arts and Cultural Center, TMK 3-8-07:por.1, Located at Kahului, Maui.* Archaeological Consultants of Hawaii, Inc.: Haleiwa, Hawaii.

Results: 1988 Reconnaissance and 1990 subsurface testing of a parcel bordering the north side of Ka'ahumanu Avenue. No sites were found.

Kennedy, Joseph, Peter Brennan, and David Soldo
1992 *Inventory Survey with Subsurface Testing Report for a Property Located at TMK 3-8-07:97(por.) in the Ahupua'a of Wailuku, District of Wailuku, on the Island of Maui.* Archaeological Consultants of Hawaii, Inc.: Haleiwa, Hawaii

Results: Survey and testing of 2.41 acre parcel adjacent to Kahului community park on Wailuku Sand Hills. No significant structures or deposits were encountered during surface survey or subsurface testing.

Kennedy, Joseph and Peter P. Brennan and Sandra Ireland
1993 *Archaeological Inventory Survey with Subsurface Testing Report for a Property Located at Portions of TMK 3-8-07:1,40,125,117 and 3-7-01:2 Wailuku Ahupua'a, Wailuku District, Island of Maui* Archaeological Consultants of Hawaii, Inc, Haleiwa, Hawaii

Results: Survey of a road corridor running through Maui Community College campus from Kahului Beach Road to Ka'ahumanu Avenue and Kanaloa Avenue. The area was previously disturbed and no sites were found.

Neller, Earl
1984 *Recovery of Endangered Human Bones from the Wailuku Sand Hills, Maui. TMK: 3-8-07: 2)*, State Historic Preservation Office, Honolulu, Hawaii

Results: The origin of human remains inadvertently transferred from the Wailuku sandhills to Lahaina was located a relatively short distance to the south of the current study area in a portion of the same dune formation. No other sites were observed. However, additional bones found at the burial site indicate the probable presence of other burials in the area.

Pantaleo, Jeffrey and Aki Sinoto
1996 *Archaeological Subsurface Sampling of the Proposed Maui Lani Development Phases 1 and 1A, Wailuku Ahupua'a, Wailuku District, Maui Island (TMK 3-8-07:2,110).* Aki Sinoto Consulting: Honolulu.

Results: Six previously unrecorded human burials were identified within portions of the Maui Lani Development Area in the Wailuku Sand Hills. Four of the burials were located in the vicinity of the previously-recorded burial site 50-50-04-2797. No predictable pattern of burial placement within the Sand Hills was discernible.

Rotunno, Lisa J. and Paul L. Cleghorn
1990 *Archaeological Reconnaissance Survey Of TMK 3-8-07: 2 & 110, Wailuku, Maui*. Bishop Museum: Honolulu, HI.

Results: 1990 reconnaissance survey of approximately 1,000 acres later identified as the Maui Lani Development Area in the Wailuku Sand Hills. Two possible sites - a rock wall and a rock mound - were noted in the project area.

Rotunno-Hazuka, Lisa, Lonnie Somer, Stephan D. Clark, and Boyd Dixon
1995 *Archaeological Testing of Four Sites on the Maui Lani Property in Wailuku Ahupua'a, Wailuku District, Island of Maui, Hawaii.* Anthropology Department, Bishop Museum: Honolulu HI.

Results: 1990 test excavations at four sites in the Maui Lani Development Area. Three of the sites - two parallel alignments, two adjacent rock mounds, and a single rock mound - were considered to have no archaeological significance. Test excavations at the fourth site - 50-50-04-2797 - encountered

scattered human skeletal remains representing a minimum of three individuals.

Spear, Robert L.
1995 *Report on Monitoring of Curbing, Burial Crypt and Sidewalk Excavations at Site 50-50-04-4066, Wailuku, Maui, TMK: 3-8-37:48*, Scientific Consultant Services, Inc.: Honolulu.

Results: Human burials and habitation features identified on Lower Main Street.

In summary, previous archaeological research within or on the perimeter of the Wailuku Sand Hills indicates the presence of subsurface cultural deposits and human skeletal burials dating to the historic and prehistoric eras. Especially relevant to the present study area is the research conducted within the Maui Lani Development Area located immediately west and south. Between 1990 and present, human skeletal remains have been recorded within a multiple burial site - 50-50-04-2797 - and at two other locations within the development area.

V. SETTLEMENT PATTERN

Given the importance of Wailuku *ahupua'a* as a concentration of habitation and in later times as a chiefly settlement there has been surprisingly little systematic archaeological research. Part of this is due to the early urbanization of crucial parts of the *ahupua'a*, for example the shoreline, and the fringes of 'Iao Valley. This development, including Kahului Harbor and various residential and commercial areas, has surely altered much of the landscape and probably eradicated many archaeological remains. It is assumed that the earliest settlement within the *ahupua'a* would have been at the shoreline. The earliest dates uncovered in the Wailuku region come from inventory-level test excavations at the Nisei Veterans Memorial Center completed by Fredericksen and Fredericksen in 1992. The prehistoric component of Site 3119 (Historic Refuse Deposit and underlying prehistoric cultural deposit) was dated to AD 233-410 - an intriguingly old date for a Hawaiian archaeological site. The nearest dated cultural material to the deposits uncovered by the Fredericksens (Fredericksen and Fredericksen 1992B) comes from test excavations along the shoreline at the east side of Kahului Airport. Here in 1991 cultural material in sand deposits were dated to around 600-800 A.D. These two areas containing the cultural deposits may be the only remnant of the pioneering phase of Polynesian settlement identified within the *ahupua'a* to date (Toenjes *et al.* 1991).

A recent work of Theresa Donham, entitled "Site Patterns in the Lower 'Iao Valley, Wailuku" (Donham 1996) notes the crucial importance of the 'Iao Stream in the formation of settlement in the *ahupua'a*. Additionally, there are sheltered bays and two known fishponds (Mau'oni and Kanaha). Based on the heavy concentration of known archaeological sites within the narrow corridor of lower Main Street (14 sites in a 400 ft. wide and 1.8 mile long corridor) it is assumed that permanent settlement was heavily concentrated along the base of the dunes on either side of 'Iao Valley. On the dunes of the northwest side of the valley lie two major *heiau*, Haleki'i and Pi'ihana. *Heiau* are also reported for the toe of the dune on the southeast side of the valley (*Op.cit.* p.2). Agricultural activity and scattered settlement clearly covered much of the flood plain of 'Iao Valley as indicated by the dense concentration of Land Commission Awards (LCAs), mostly on the flats of the southeast side of the stream. The LCA testimonies show extensive wetland irrigation (*lo'i*), with scattered house sites. Burials associated with this dense settlement are interspersed with the habitation sites along the toe of the dune on either side of the stream, mainly concentrated in the lower valley. Dates for the habitation of these sites range from AD 1200 onwards with an indication that the lower part of the valley was inhabited earlier, with later habitation more inland (15th Century) (*Op.cit.* p.3). The Wailuku Dune on the southeast side of 'Iao Valley crests at 330 ft. above sea level, proceeding away from the valley itself. The dunes form a northeast to southwest line extending all the way to Waikapu. In the dunes themselves, including the present study area, habitation would be expectedals appear to be a general pattern throughout the dune environment of Wailuku and in other dunes in adjoining *ahupua'a*.

VI. INVENTORY SURVEY

A. Project Area Description and Survey Methods

Inventory survey and subsurface testing of the parcel were conducted on October 9, 1997 by Hallett H. Hammatt and Ian Masterson (Figure 8). The parcel was accessed from the J. Walter Cameron Center on the east side. The boundaries of the parcel were easily discernible, delineated by the edges of developed areas on all four sides. Findings were documented by field notes and photographs.

The project area is a portion of the Wailuku Sand Hills and sandy deposits are clearly shown both on the surface and in various cut banks throughout the property. The terrain is roughly bowl-shaped with the lowest-lying area in the center of the parcel. This low-lying area supports a grass vegetation with an overstory of *koa haole* and *kiawe* (Figure 9). In the higher portions of the project area are mature *kiawe* trees with a short grass understory (Figure 10).

Previous grubbing and grading are apparent on most of the perimeter of the property, particularly in the northern one-third which is a developed tree nursery containing plumeria and coconut trees (Figure 11). Bulldozing is also apparent on the west side where there is a steep graded bank and an existing road and sewerline easement (Figure 12).

Disturbance is also apparent on the south side where there is grading within the property adjacent to the Maui Memorial Hospital parking lot. This is also the location of an existing sewerline easement (Figure 13). A stone and mortar drain exits the hospital parking lot and enters the project area at the southeast corner. Water from the parking lot flows along the drain into the low-lying central portion of the project area. This drainage way traverses south to north through the project area; storm water exits to the north into the County Police Station parcel (Figure 14).

The survey and testing were completed in one day with a crew of two archaeologists. A topographic map (scale 1 in = 40 ft.) showing the project area and boundaries was supplied by the client. Two areas designated for possible future grading were indicated on the map (see Figure 17 below). In this way, the survey and testing could be concentrated in areas expected to receive the most impact from grubbing and grading. The surface survey was accomplished by three north/south pedestrian sweeps through the long axis of the property. The first sweep was at the western end; the second through the center; and the third through the eastern end.

Testing was accomplished by hand digging in one of the areas designated by the project planner for grading during development of the property. In all, two trenches were excavated. Both were 1 meter by 50 centimeters in dimension down to 60 cm. and then were reduced to 50 $cm.^2$ to the base of excavation. The trench locations were chosen in relatively undisturbed areas at the southern end of the parcel. Although an 1/8-inch screen on hand, no screening of sediments was accomplished since no cultural material was encountered in either test excavation. Stratigraphy was recorded in one profile of each test trench with standard recording of color, texture, etc.

B. Surface Survey Results

No archaeological sites or features were encountered during the surface survey. Extensive previous disturbance to the project area was documented. No isolated artifacts or midden materials were encountered in either disturbed or undisturbed areas.

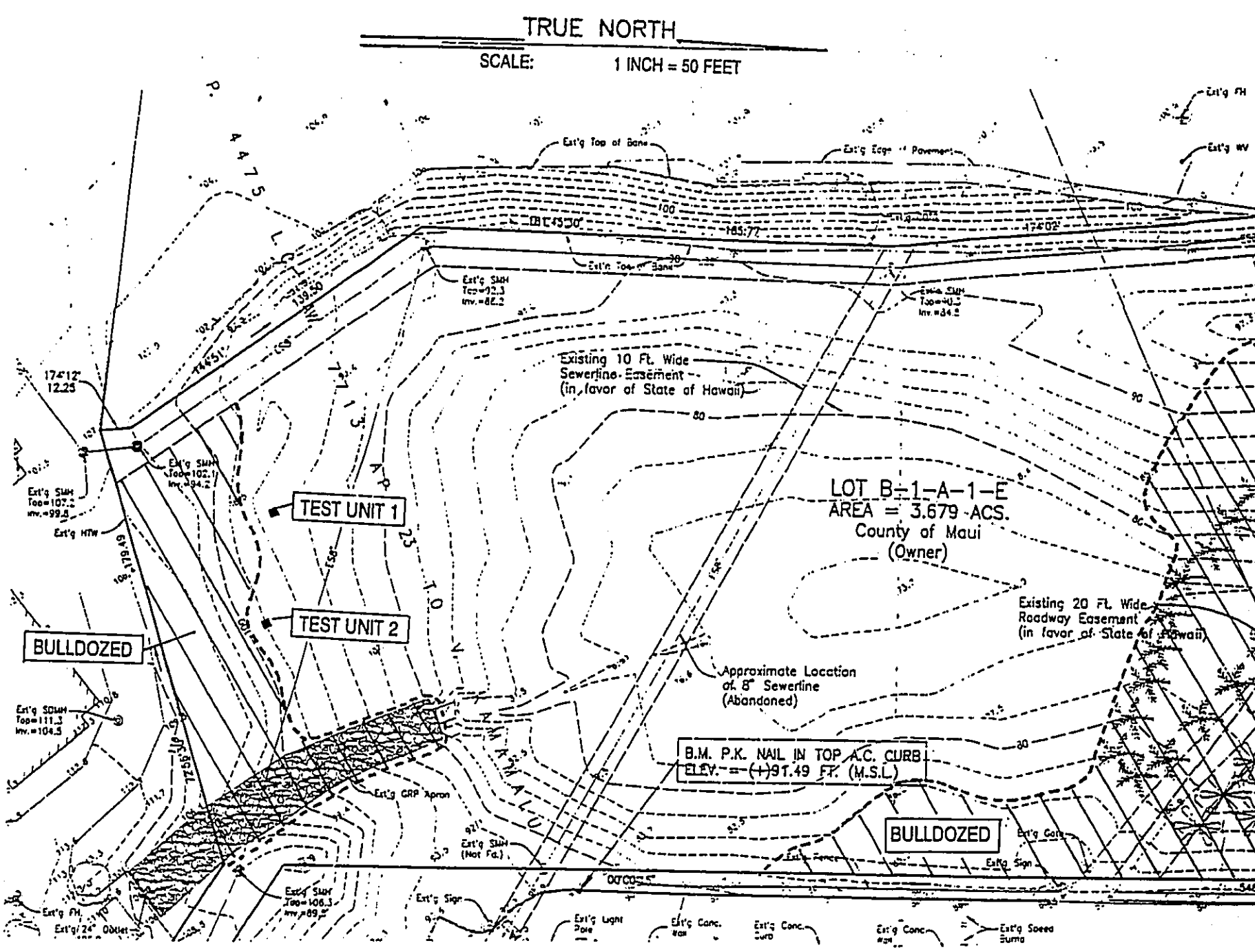
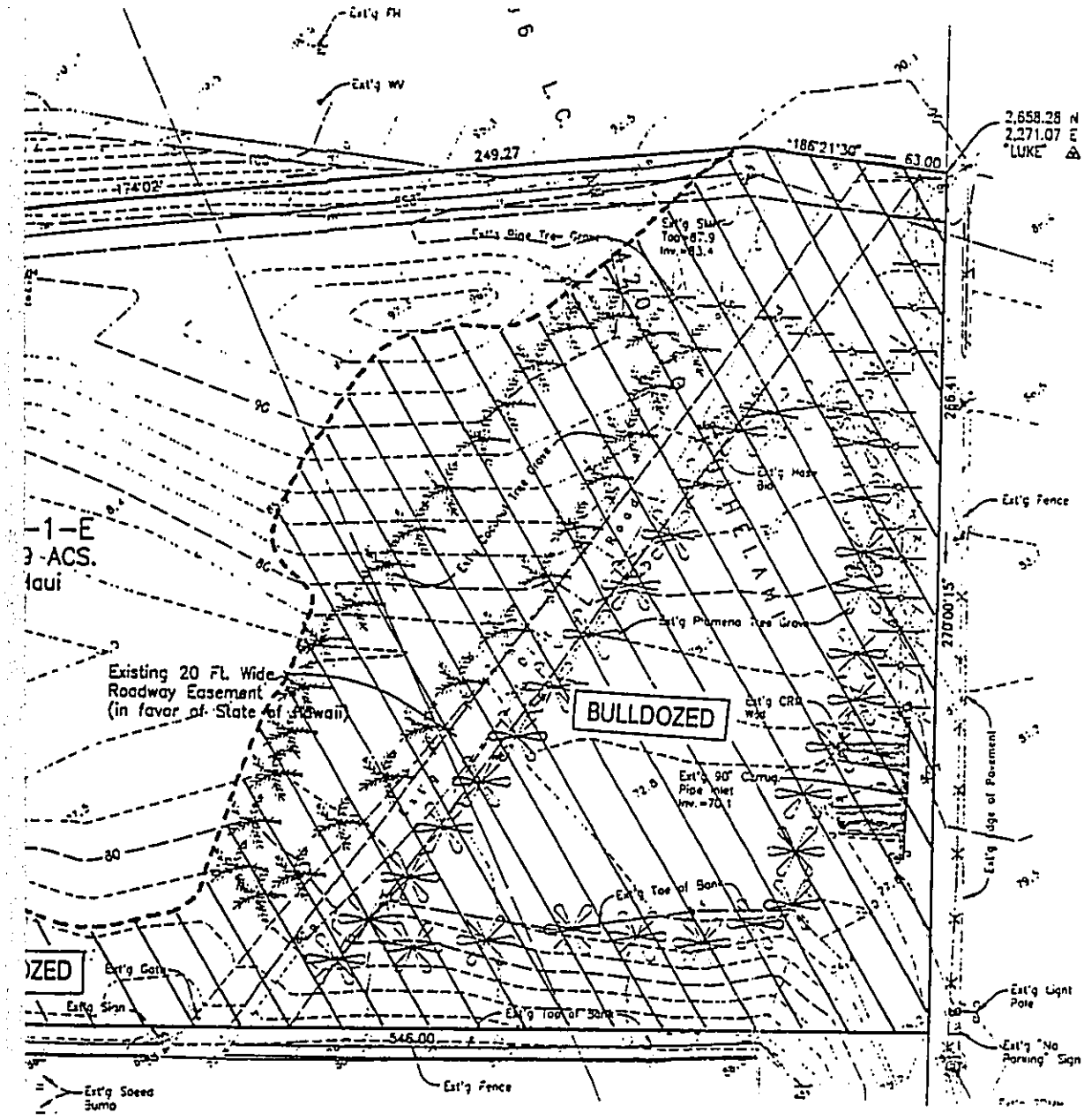


Figure 8 Project area showing locations of test units and previously bulldozed areas


Ext'g FH
Ext'g WV
249.27
186°21'30"
63.00
2,658.28 N
2,271.07 E
"LUKE"
174°02'
Ext'g Pine Tree Grove
Ext'g Stub Top=87.9 Inv.=83.4
266.41
Ext'g Fence
Ext'g Coconut Tree Grove
Ext'g Mass Rock
Ext'g Plumeria Tree Grove
Existing 20 Ft. Wide Roadway Easement (in favor of State of Hawaii)
BULLDOZED
Ext'g CRB Wall
Ext'g 90" Corrug. Pipe Inlet Inv.=70.1
Ext'g Edge of Pavement
Ext'g Toe of Slope
Ext'g Gate
Ext'g Sign
Ext'g Top of Slope
546.00
Ext'g Fence
Ext'g Light Pole
Ext'g "No Parking" Sign
Ext'g Sewer Jump
-1-E
-ACS.
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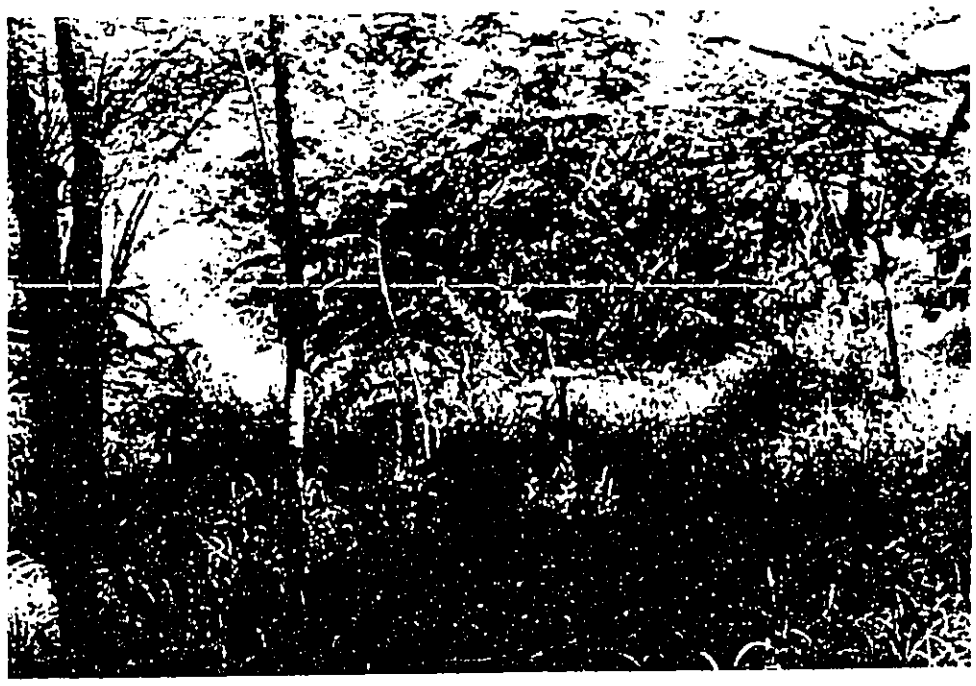


Figure 9 Low-lying central portion of the project area showing grass and *koa haole* trees; view to south

Figure 10 Undisturbed perimeter of the project area showing large *kiawe* trees; view to west

Figure 11 Northern portion of project area showing previously-graded plumeria nursery; view to east

Figure 12 Western boundary of project area showing graded bank, road and sewer easement; view to north

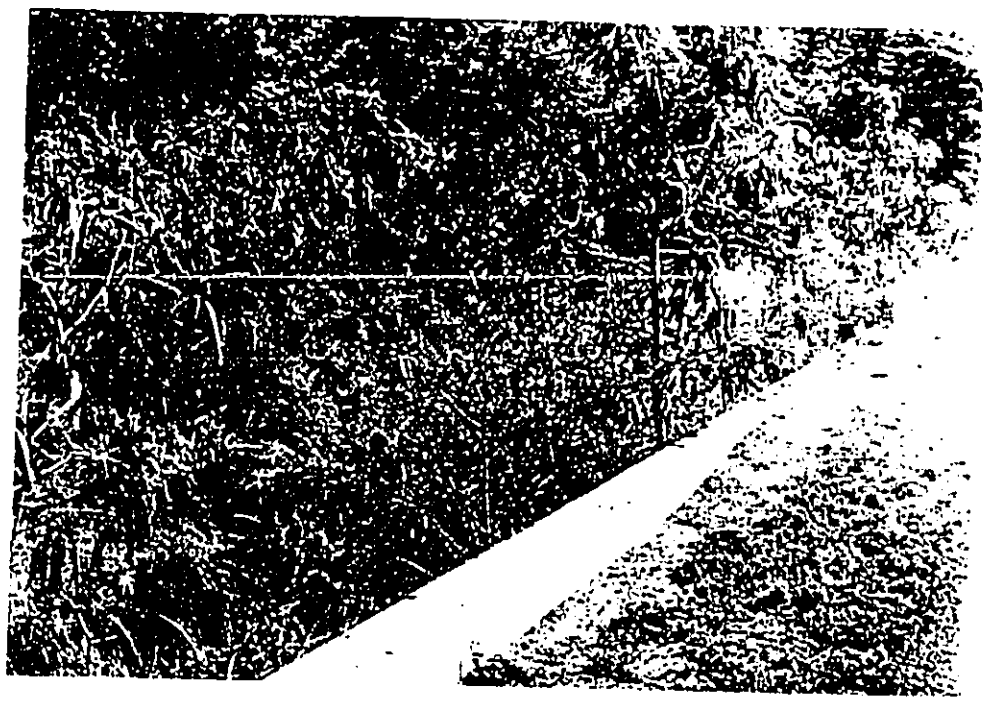


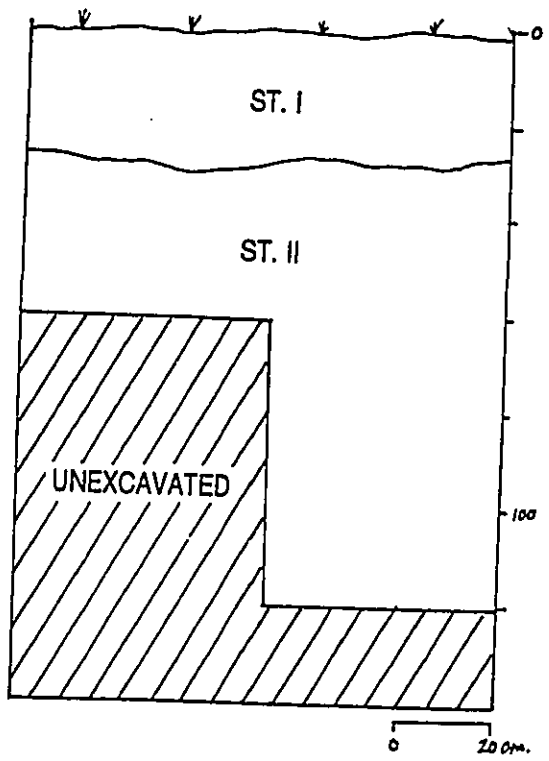
Figure 13 Southern portion of project area showing graded area with sewer easement along edge of hospital parking lot; view to northeast

Figure 14 Drainage for storm water exiting project area to the north; view to north

C. Testing Results

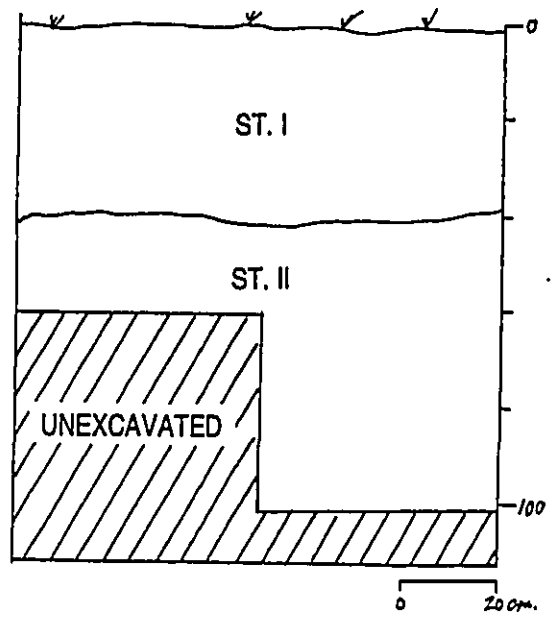
Test Unit Descriptions

Test Unit # 1 (Figure 15). Location: 55 ft., 26°TN, from sewer manhole at southwest corner of project area; trench is 1m. x 50cm. to 60cm. depth, then 50cm.^{2} to maximum depth of 120cm.; description of south profile:



Stratum	Depth in cm.	Description
Str. I	0-25	A horizon; 10YR 6/4 light yellowish brown fine to medium sand with litnified pebbles & cobbles, 5-10% loose; very abrupt, wavy boundary possibly disturbed by adjacent sewerline construction.
Str. II	25-120+	10YR 8/3 very pale brown fine to medium sand; cemented with carbonate coated root cast and cemented pebbles; 5% undisturbed cemented dune sand.

Test Unit # 2 (Figure 16). Location: 80 ft., 52°TN, from sewer manhole at southwest corner of project area; trench is 1m. x 50cm. to 60cm. depth, then 50cm.^{2} to maximum depth of 100cm.; description of south profile:



Stratum	Depth in cm.	Description
Str. I	0-40	A horizon; 10YR 6/4 light yellowish brown fine to medium sand with lithified pebbles & cobbles, 5-10% loose; very abrupt, wavy boundary possibly disturbed by adjacent sewerline construction.
Str. II	40-100+	10YR 8/3 very pale brown fine to medium sand; cemented with carbonate coated root cast and cemented pebbles; 5% undisturbed cemented dune sand.

Testing Summary

The excavation of the two test units at the southern portion of the project area showed a weak A-horizon developed on coralline dune sand, varying from 25 to 40cm. thickness. Underlying this A-horizon is a relatively unmodified C-horizon consisting of partly cemented coralline dune sand with very pale brown color. Even though the trenching did not extend beyond 1.2 m. in depth, it is assumed that this sandy C-horizon extends many meters in thickness down to underlying lava deposits.

No archaeological layers were encountered and no isolated artifacts or midden materials were observed.

Figure 15 Test unit 1; south profile showing Strata 1 & 2

Figure 16 Test unit 2; south profile showing Strata 1 & 2

IX. SUMMARY AND RECOMMENDATIONS

A. Summary

The results of the surface survey and limited subsurface testing show no archaeological sites or features present within the project area. Previous grubbing and grading of 1/3 to 1/2 of the property was documented during the surface survey. No archaeological materials were encountered in either of the two hand-excavated trenches. In addition, other cut banks and disturbed areas were carefully examined for signs of subsurface archaeological materials. None were encountered.

The two areas designated by the project planner for future grading were carefully examined for potential of containing archaeological materials (Figure 17). One of these areas, Area A, in the northeastern portion of the project area, is a high dune ridge extending to 97.3 ft. a.m.s.l. and is oriented north/south paralleling the project boundary. This area was determined to be a lithified dune whose sediments are clearly exposed on the western side, adjacent to the sewerline easement road (Figure 18). Because of the obvious lithified dune deposits, archaeological testing was not considered appropriate in this area. No archaeological materials were encountered on the surface or in the cut bank of this dune.

The other area designated for grading, Area B, borders the southern and southwestern boundary of the project area, adjacent to the Maui Memorial Hospital parking lot and an existing sewerline easement. The southern portion of this area has already been graded level, probably by the construction of the hospital parking lot and for the installation of the existing sewerline (Figure 19). Further downslope to the north, the area designated for future grading appears to be relatively undisturbed. This undisturbed area was chosen for subsurface testing with the excavation of two hand-dug test trenches.

B. Archaeological Recommendations

No further archaeological survey or testing is recommended prior to development of the property. However, in spite of the negative findings of both the surface and subsurface survey reported here, there is still potential for encountering archaeological materials, especially human burials, in any areas of the Wailuku Sand Hills. This is evidenced by the multiple burial finds in the adjacent Maui Lani Development area (see PREVIOUS ARCHAEOLOGY section above). Because of this potential, on-site archaeological monitoring is recommended during initial grubbing and grading of the project area. This monitoring should be carried out according to the procedures of the State Historic Preservation Division (SHPD) which calls for preparation of a monitoring plan to be reviewed and approved by the SHPD before commencement of ground disturbing activities.

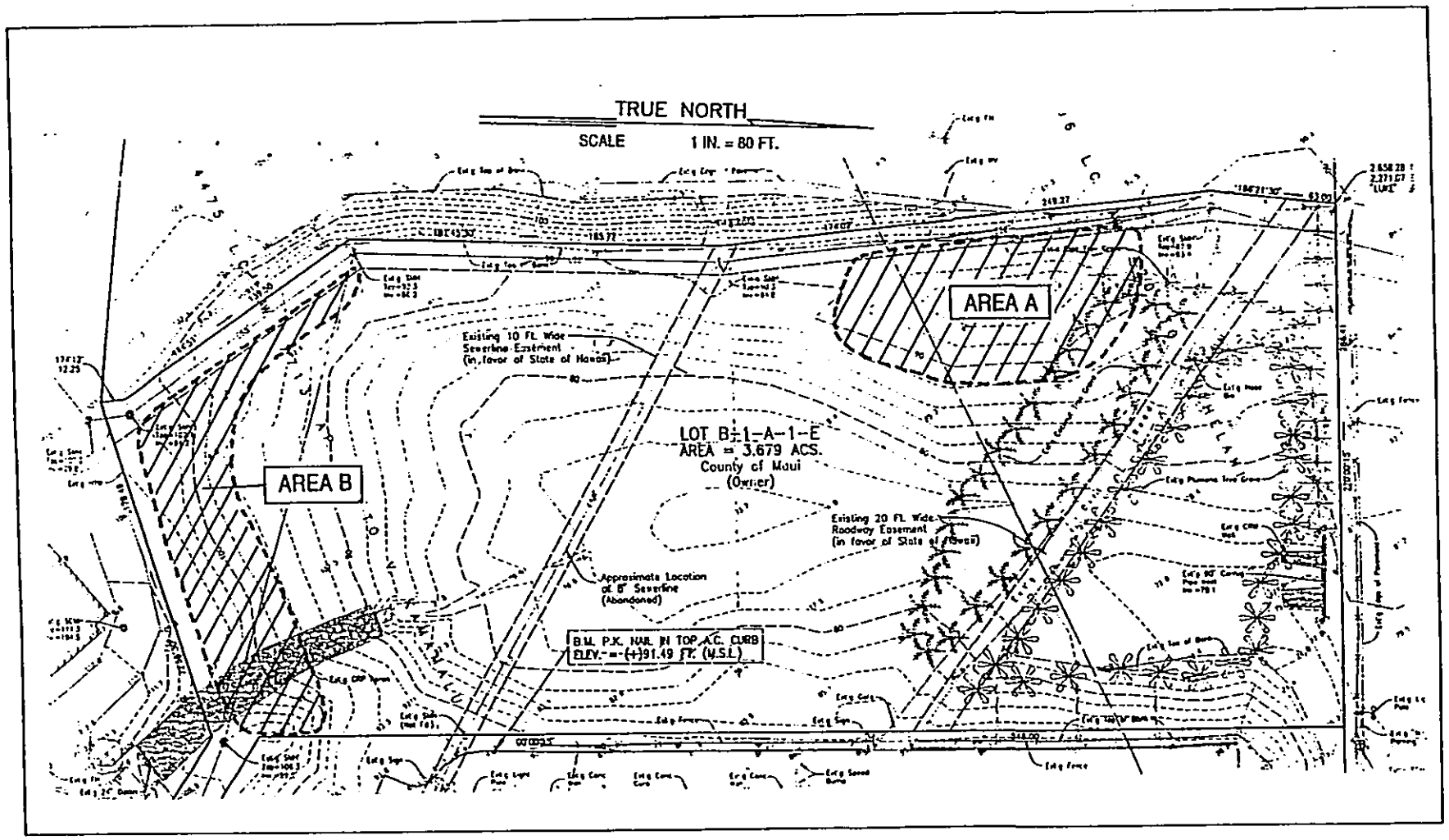


Figure 17 Project area showing two areas proposed for future grading

Figure 18 Cut in lithified dune at northwestern portion of project area designated for future grading showing cemented sand deposits; view to east

Figure 19 Southern portion of project area designated for future grading showing previously-graded area for sewerline; PVC pipe marks location of existing sewer manhole; view to west

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Appendix A-1

Historic Preservation Review of an Archaeological Inventory Survey for the Proposed Expansion of Cameron Center

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

GILBERT COLOMA AGARAN

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND DIVISION
STATE PARKS
WATER AND LAND DEVELOPMENT

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

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DEPT. OF PLANNING
COUNTY OF MAUI
RECEIVED

January 22, 1998

Dr. Hallett Hammatt
Cultural Surveys Hawaii
733 North Kalaheo Avenue
Kailua, Hawaii 96734

LOG NO: 20612
DOC NO: 9711BD56

Dear Dr. Hammatt:

SUBJECT: **Chapter 6E-42 Historic Preservation Review of an Archaeological Inventory Survey for Proposed Expansion of the Cameron Center**
Wailuku Ahupua'a, Wailuku District, Island of Maui TMK 3-8-46:27

This letter is a Historic Preservation review of a document entitled *Archaeological Inventory Survey of a 3.670-Acre Parcel in Wailuku Ahupua'a, Island of Maui (TMK 3-8-46:27)* submitted in November 1997 by Cultural Surveys Hawaii.

It appears that the field methods employed in this inventory survey were appropriate to locate all likely historic sites on the property. The background section of the report which includes historical documentation and a synthesis of previous archaeology in the *ahupua'a* of Wailuku is also adequate. One minor point needs revision, with a replacement page resubmitted, and we have a few minor informational comments (see attachment). With the understanding that the replacement page will be sent, we can conclude that the background section and survey findings sections are acceptable.

No historic sites were encountered during the inventory survey and subsurface testing of the property, although the general area of the Pu'uone sand dunes is known to contain isolated and clustered human burials. Since the area has undergone considerable modification through previous grading and the planting of a tree nursery, it is unlikely that any significant historic sites remain undisturbed today. Therefore, we find the proposed project will have "no effect" on known historic sites.

However, we agree with your contingency recommendation that archaeological monitoring occur in case more deeply buried human remains are found beneath the surface disturbances. Archaeological monitoring should be conducted of all ground-altering construction and landscaping activities associated with the proposed Cameron Center facilities.

If you have any questions please contact Boyd Dixon at 243-5169.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

Attachment

cc. Maui County Planning Department (fax: 243-7634)
Maui County Department of Public Works (fax: 243-7972)
Maui / Lana'i Island Burial Council (fax: 244-6775)

Attachment

Comments

Archaeological Inventory Survey for Proposed Expansion of the Cameron Center
Wailuku Ahupua`a, Wailuku District, Island of Maui

Cultural Surveys Hawaii

IV. Previous Archaeological Research

Paragraph 1, page 20 - An earlier calibrated radiocarbon date of AD 233-410 was recorded from the Nisei Veterans Memorial Center on the end of the Pu`uone sand dune, *makai* of the Cameron Center (Frederiscksen and Fredericksen 1992). Please revise this page and include this information.

VI. Inventory Survey

C. Testing Results

Paragraph 2, page 27 - For your information, recent deep mechanical excavations in the Maui Lani area *mauka* of the Cameron Center have encountered waterworn gravel and cobble outwash from the West Maui mountains at an approximate depth of 15-30 feet beneath the present surface. This horizon is frequently overlain by an additional 1-5 feet of alluvial soils found immediately underneath the Pu`uone sand dunes, presumably being deposited before the formation of the dunes. These sand dunes (including the lithified sand deposits noted in Area A) probably did not form until Pliestocene Period fluctuations in sea level dating perhaps 40-10,000 years BP. It therefore appears likely that volcanic lava flows from the West Maui mountains (which date prior to approximately 1 million years BP) are even more deeply buried in the project area.

Appendix B

Preliminary Engineering Report

Established 1969

PRELIMINARY ENGINEERING REPORT

CAMERON CENTER EXPANSION

Wailuku, Maui, Hawaii
TMK: 3-8-46: 27

PREPARED FOR: J. Walter Cameron Center
95 Mahalani Street
Wailuku, Maui, Hawaii

DATE: November 1997

WARREN S. UNEMORI ENGINEERING, INC.
Civil and Structural Engineers - Land Surveyors
Wells Street Professional Center - Suite 403
2145 Wells Street
Wailuku, Maui, Hawaii 96793

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APPENDIX

PRELIMINARY ENGINEERING REPORT
FOR
CAMERON CENTER EXPANSION PROJECT

1.0 INTRODUCTION

The purpose of this report is to provide a brief description and evaluation of existing infrastructure in the vicinity of the project site. It also provides a brief summary of probable infrastructural improvements that may be needed to support the Cameron Center Expansion (CCE).

2.0 EXISTING INFRASTRUCTURE

2.1 Water System

Water for the Central Maui water system is provided by wells in Mokuhau in Iao Valley and in Upper Waiehu. These well sources draw water from the basal lens referred to as the Iao Aquifer. These wells are augmented by a tunnel source in Iao Valley that tap high-level perched or dyke water.

The Department of Water Supply recently developed two new deep wells in North Waihee. These wells, with a pumping capacity of approximately 1.0 MGD each, are currently drawing water from the heretofore undeveloped North Waihee aquifer and pumping it into the Central Maui system at Waihee Village. With the completion of the new 24-inch transmission line and the one million gallon storage reservoir and pumping facility now under construction in North Waihee, water will be pumped from the North Waihee aquifer to the Central Maui system in Upper Waiehu, supplementing water being drawn from the Iao Aquifer sources.

Water for CCE project site and vicinity is provided by the Mokuhau Source. A series of 24-, 18- and 16-inch transmission lines convey water from this source to a 1.3 MG storage tank located approximately 3000 feet southwest of the CCE project site. A 12-inch line then transports water to the vicinity of the project site on Mahalani Street.

2.2 Sewer System

There is an 8-inch gravity sewer line located along the westerly boundary of the CCE project site. This line presently serves the Maui Memorial Hospital (MMH) and the Wailuku Health Center (WHC). An 8-inch gravity sewer line from WHC also runs along the south boundary of this site. This line will have to be relocated to facilitate grading of the CCE site as proposed.

Wastewater generated by these institutions is conveyed across the Maui Police Department parking lot, across Kaahumanu Avenue to the gravity system south of the War Memorial Center and Kanaloa Avenue. According to the County's Wastewater Reclamation Division, this system is presently near capacity. The other gravity system in the vicinity of the project is located on Mahalani Street about 400 feet east of the CCE project site. This 12-inch line, which was installed to serve the J. Water Cameron Center (JWCC) facility, extends across Kaahumanu Avenue and connects to the 12-inch gravity line on Kanaloa Avenue. The line also handles wastewater generated by Maui Publishing Company, Kaiser Clinic and the Maui Police Department. The invert elevation of this line on Mahalani Street at the JWCC point of hookup is at elevation 74.8 feet. This will enable the CCE project site to connect to this 12-inch line by gravity.

2.3 Drainage System

Runoff from the project site and MMH property currently sheet flows into a 90-inch drainline at the north boundary of the CCE project site. In addition to runoff from these areas, this drainline was sized to handle runoff from portion of the Maui Lani project site. However, according to Maui Lani's drainage master plan, all runoff from Maui Lani will be retained onsite within the golf course fairways. This will result in a substantial reduction of offsite flows. Runoff collected by the existing system, including flow from the Maui Police Department's parking lot, is presently being conveyed across Kaahumanu Avenue and Kanaloa Avenue into a natural depression in the Central Park area that serves as a detention/desilting basin.

For a 50 year 1 hour rainfall, present runoff from MMH grounds and other offsite contributory areas is 51.8 cfs. Runoff from the CCE site alone is 2.94 cfs.

2.4 Roadway

Kaahumanu Avenue is the main highway arterial that links Wailuku to Kahului. This is a four lane divided highway with access control. Mahalani Street begins at a signalized intersection with Kaahumanu Avenue approximately 800 feet northeast of the CCE project site. Mahalani Street is an urban collector street that presently terminates at Maui Memorial Hospital. Future plans call for it being extended to Honoapiilani Highway via Waiale Road. The existing right-of-way of this street is about 42 feet. The pavement width varies between 24 and 30 feet.

2.5 Electricity and Telephone

Electrical and telephone overhead distribution lines are available on Mahalani Street approximately 400 feet east of the CCE project site.

3.0 PROPOSED INFRASTRUCTURAL IMPROVEMENTS

3.1 Water System

Separate water lines will have to be extended approximately 400 feet into the project site from Mahalani Street for domestic and fire protection purposes. In keeping with the County Department of Water Supply policy meters for these lines will be located on the west side of Mahalani Street. Fire hydrants will be installed onsite to provide the fire protection coverage required.

Storage, transmission and source development obligations will be fulfilled as part of and in conjunction with payment of the comprehensive meter fee.

3.2 Sewer System

A new 8-inch gravity line will be installed to convey wastewater generated by the project to the existing 12-inch gravity line on Mahalani Street. This line will be installed along the northerly boundary of the JWCC site.

Wastewater assessment fee for facility expansion of the Kahului Wastewater Treatment Facility will be paid prior to approval of the building permit as specified in Chapter 14.34 of the Maui County Code.

3.3 Drainage

Peak post-development runoff for a 1 hour 50 year recurrent interval storm from the project site only is projected to total 8.70 cfs. Total onsite/offsite runoff after development is projected to total 61.0 cfs. This amounts to approximately 15.0% of the inlet capacity of the existing 90-inch drainline that the runoff would be directed into.

Runoff from MMH parking lot, which is presently sheet flowing across the CCE site, will be intercepted by a drop intake catch basin and piped across the project site directly into the 90-inch drainage system. Catch basins will also be installed within the CCE project site to collect and direct onsite post-development runoff into this underground storm drain system.

3.4 Roadway

Access to the CCE project site from Mahalani will be provided over and across the J. Walter Cameron Center's south parking lot. An access and utility easement will be created for this purpose.

3.5 Electrical, Telephone and CATV

Electrical, telephone and CATV duct lines, pullboxes and manholes will be installed along the proposed access road to extend these facilities underground from their respective overhead distribution systems on Mahalani Street to the project site as required by the Maui County Code.

4.0 CONCLUSION

Based on the foregoing it is reasonable to conclude that any project related impact on the infrastructure can be readily mitigated with the installation of appropriate improvements as proposed above.

APPENDIX A

Preliminary Drainage and Soil Erosion Control Report

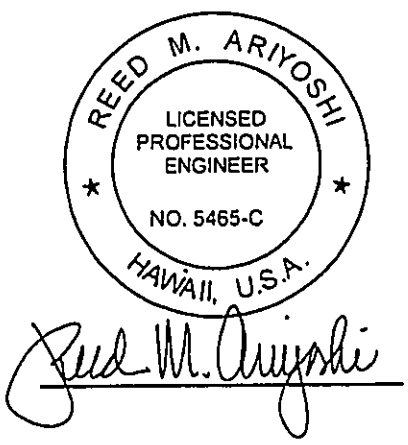
Established 1969

Preliminary Drainage and Soil Erosion Control Report

CAMERON CENTER EXPANSION

Wailuku, Maui, Hawaii
TMK: (2) 3-8-46:27

DEVELOPER: County of Maui
ADDRESS: Wailuku, Maui, Hawaii



WARREN S. UNEMORI ENGINEERING, INC.
Civil and Structural Engineers - Land Surveyors
Wells Street Professional Center - Suite 403
2145 Wells Street
Wailuku, Maui, Hawaii 96793

November, 1997

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Preliminary Drainage and Soil Erosion Control Report
for
Cameron Center Expansion
Wailuku, Maui, Hawaii

I. INTRODUCTION:

The purpose of this report is to examine both the existing and proposed drainage conditions for the proposed Cameron Center Expansion. The soil erosion potential over the course of construction will also be examined, in addition to soil erosion control measures during construction, in accordance with Chapter 20.08 of the Maui County Codes.

II. PROPOSED PROJECT:

A. Site Location:

The proposed Cameron Center Expansion project will be located in Wailuku on the island of Maui, and in the State of Hawaii. The project site encompasses Lot B-1-A-1-E of Maui Memorial Hospital Lot Subdivision. The proposed site is located approximately 300 feet south of Kaahumanu Avenue (F.A.P. No. 032-1(3)) and approximately 400 feet west of Mahalani Street. It is situated immediately west of the existing Cameron Center project site (See Exhibit 1).

The project site encompasses an area of approximately 3.7 acres.

B. Project Description:

The proposed plan for the Cameron Center Expansion project is to construct improvements to expand the existing J. Walter Cameron Center Facility, including but not limited to the development of new asphalt paved

parking and a new access roadway from Mahalani Street. Site improvements will include, but not limited to, asphalt paved parking and roadway areas, concrete sidewalks, concrete curb and gutters and retaining walls. Utility improvements will consist of underground drainage, sewer, water distribution and fire protection systems, as well as underground electrical, telephone and cable distribution systems. An irrigation system and landscaping will also be provided within the project site.

III. EXISTING CONDITIONS:

A. Topography and Soil Conditions:

Presently, the majority of the project site is undeveloped and is not being used for any particular purpose. A portion of the project site is currently being used by the adjacent Ka Lima O Maui Nursery to cultivate plumeria and coconut trees. It is expected that these cultivated trees will be removed prior to commencement of construction. The natural vegetation consists of bermudagrass, kiawe and lantana.

The existing ground on the southerly portion of the project site slopes in a southerly to northerly direction from an elevation of approximately (+) 104± feet M.S.L. to (+) 74± feet M.S.L. with an average slope of approximately 11%. The existing ground on the northerly portion of the project site slopes in a southwesterly to northerly direction from an elevation of approximately 97± feet M.S.L. to 74± feet M.S.L. with an average slope of approximately 14%.

According to the "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, (August 1972)", prepared by the United States Department of Agriculture, Soil Conservation Service, the soil type present on the project site is Puuone Sand (PZUE, 7 to 30 percent slopes). (See Exhibit 2). The Puuone Sand is characterized as a somewhat excessively drained soil, having rapid permeability above the cemented layer and slow runoff. The wind erosion hazard is considered to be moderate to severe.

B. Drainage:

Presently, the onsite and offsite surface runoff volume, is calculated to be approximately 51.8 cfs. The existing onsite and offsite surface runoff generated from the project site, Maui Memorial Hospital, Wailuku Health Center, and a portion of Lot 11-A of Maui Lani Large-Lot Subdivision sheet flows through the project site in the direction of an existing 90" drainline inlet located on the northerly portion of the project site. The inlet for the existing 90" drainline has an inlet capacity calculated to be approximately 400 cfs. (See Appendix C.)

C. Flood and Tsunami Zone:

According to Panel Number 150003 0190D of the Flood Insurance Rate Map, revised March 16, 1995, prepared by the U.S. Federal Emergency Management Agency, the project site is situated in an area designated as Zone C, which is prone to minimal flooding. (See Exhibit 3).

IV. DRAINAGE PLAN:

A. General:

According to our calculations, the onsite and offsite post development surface runoff volume generated by the project site will be approximately 61.0 cfs. Accordingly, there will be a net increase of onsite surface runoff of approximately 9.2 cfs due to the proposed development. This calculation is based on a 50-year recurrence interval - 1 hour duration storm. (See Appendix A.)

Grated inlet catch basins will be installed as part of the proposed improvements to intercept the onsite surface runoff. An inlet structure and a concrete swale will be installed on the southerly boundary of the project site to intercept the offsite surface runoff generated from the area located immediately south of the project site (Maui Memorial Hospital).

A portion of the offsite runoff generated from the area located immediately west of the project site (Lot 11-A of Maui Lani Large-Lot Subdivision) will be conveyed into retention basins which will be constructed within the proposed Maui Lani Golf Course, and upon completion, will reduce the offsite runoff currently sheet flowing into the project site.

The onsite and offsite surface runoff volume will be intercepted by new catch basins and conveyed by a new underground drainage system which will be constructed as part of the proposed improvements to outlet into an existing 90-inch drainline located on the northerly boundary of the project site, as it is presently doing.

B. Hydrology Calculations:

The hydrologic calculations presented in this report are based on the "Rules for the Design of Storm Drainage Facilities in the County of Maui, Title MC-15, Chapter 4", prepared by the County of Maui, and the "Rainfall Frequency Atlas of the Hawaiian Islands", Technical Paper No. 43, U.S. Department of Commerce, Weather Bureau. Calculations are based upon the Rational Formula:

$$Q = CIA$$

Where Q = Rate of Flow (cfs)
C = Rainfall Coefficient
I = Rainfall Intensity (inches/hour)
A = Area (acres)

The hydrologic calculations for this project may be found in Appendix A.

C. Conclusion:

The after development onsite and offsite surface runoff volume generated from the proposed development is expected to be approximately 61.0 cfs. Accordingly there will be a net increase in onsite and offsite surface runoff volume of approximately 9.2 cfs.

The onsite and offsite surface runoff generated by the proposed development will be intercepted by new grated inlet type catch basins and conveyed by means of a new underground drainage system, where it will be allowed to discharge into an existing 90-inch drainline located on the northerly boundary of the project site which is capable of accommodating the increase in surface runoff volume. This surface runoff volume will then be allowed to

release into a retention basin in the proposed Maui Central Park Project which has ample storage for the increase in surface runoff.

Since the additional surface runoff volume generated by the proposed development will be conveyed to an adequate existing 90-inch drainline and a retention basin, it is our professional opinion that the proposed Cameron Center Expansion project will not adversely affect the adjoining properties.

V. SOIL EROSION CONTROL PLAN:

A. General:

The Hawaii Environmental Simulation Laboratory (HESL) equations will be utilized to determine if the soil loss during the construction period is well within the tolerable limits.

B. Soil Erosion Control Plan:

The following measures will be taken to control erosion during the site development period.

1. Minimize time of construction.
2. Retain existing ground cover until latest date to complete construction.
3. Early construction of drainage control features.
4. Use temporary area sprinklers in non-active construction areas when ground cover is removed.
5. Station water truck on site during construction period to provide for immediate sprinkling, as needed, in active construction zones (weekends and holidays included).

6. Use temporary berms and cut-off ditches, where needed, for control of erosion.

7. Graded areas shall be thoroughly watered after construction activity has ceased for the day and on weekends.

8. All cut and fill slopes shall be sodded or planted immediately after grading work has been completed.

The development project is provided with adequate facilities for drainage control and storm water disposal. This, together with ultimate ground cover, shall preclude any appreciable onsite erosion.

C. Conclusion:

Based on our calculations, the sedimentation hazard to coastal waters and downstream properties is minimal (see Appendix B). The soil loss per unit area and severity rating computed for the proposed development are well within the tolerable limits and additional control measures are not required.

Report Prepared By:

Carlos R. Rivera

Carlos R. Rivera

Report Reviewed By:

Reed M. Ariyoshi

Reed M. Ariyoshi

X:\WP50DATA\LSSWP\97035001.RPT

VI. REFERENCES

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

2. *Flood Insurance Rate Map, Maui County, Hawaii.* Community-Panel Number 150003 0190D March 16, 1995. Federal Emergency Management Agency, Federal Insurance Administration.

3. *Drainage Master Plan for the County of Maui, State of Hawaii.* October 1971. R.M. Towill Corporation.

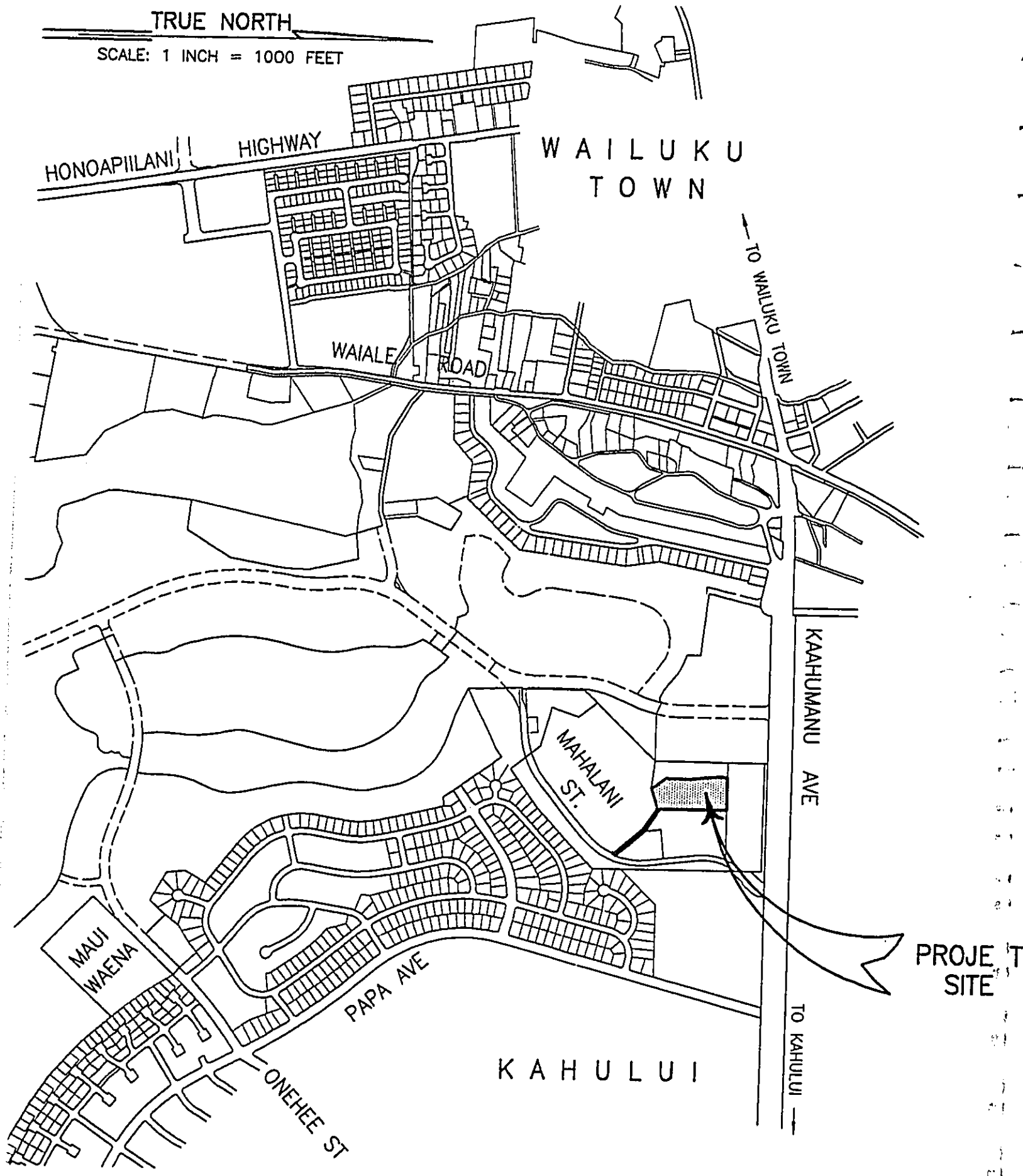
4. *Rainfall Frequency Atlas of the Hawaiian Islands, Technical Paper No. 43. 1962.* U.S. Department of Commerce, Weather Bureau.

5. *Rules for the Design of Storm Drainage Facilities in the County of Maui, Title MC-15, Chapter 4.* November, 1995. Department of Public Works and Waste Management, County of Maui.

6. *Storm Drainage Standards.* Revised Printing May 1988. Department of Public Works, City and County of Honolulu, Division of Engineering.

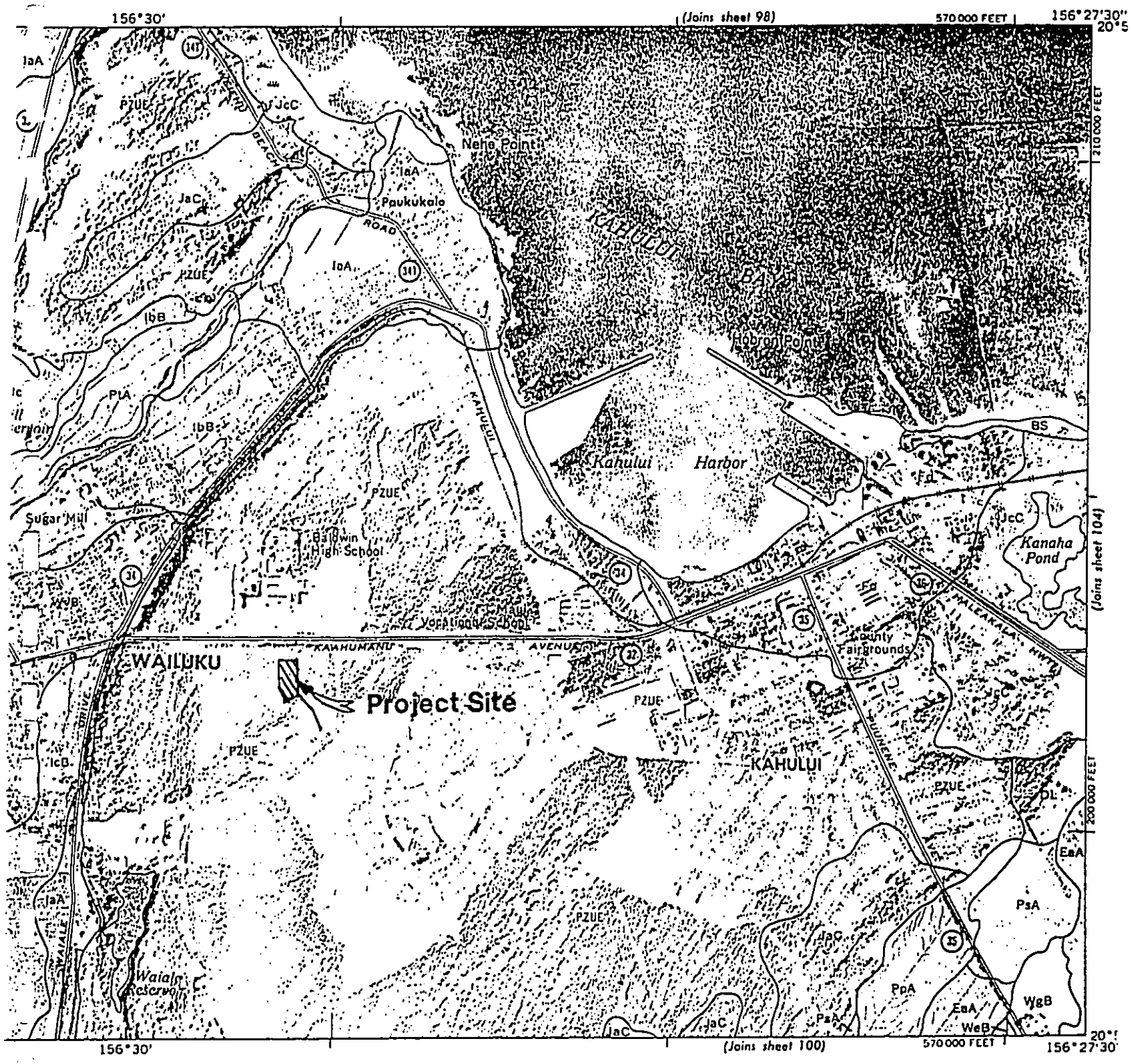
EXHIBITS

1. Location Map
2. Soil Survey Map
3. Flood Insurance Rate Map
4. Pre-Development Drainage Area Map
5. Post-Development Drainage Area Map



LOCATION MAP

SCALE: 1 INCH = 1000 FEET



2 Miles

10 000 Feet

EXHIBIT 2
SOIL SURVEY

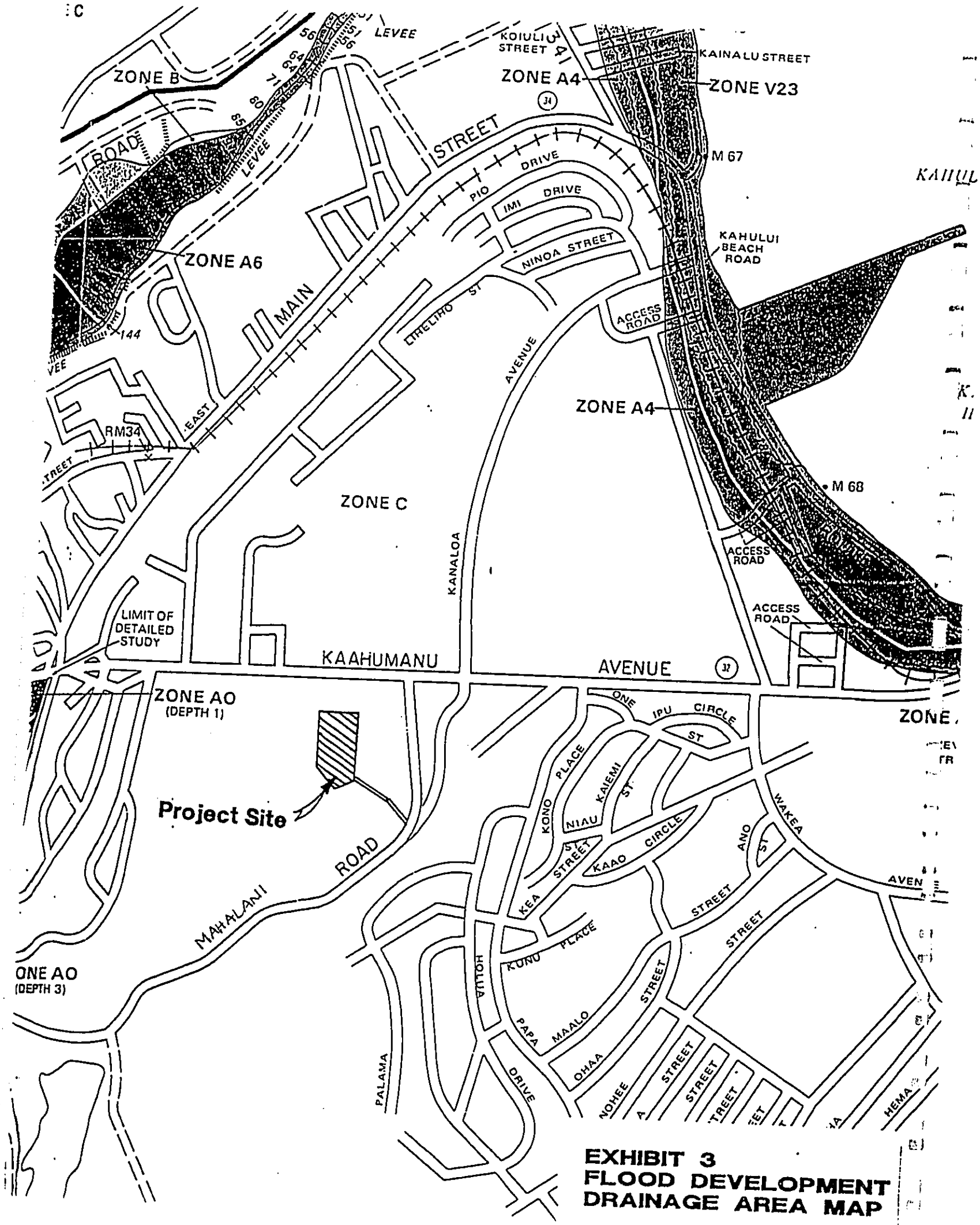


EXHIBIT 3
FLOOD DEVELOPMENT DRAINAGE AREA MAP

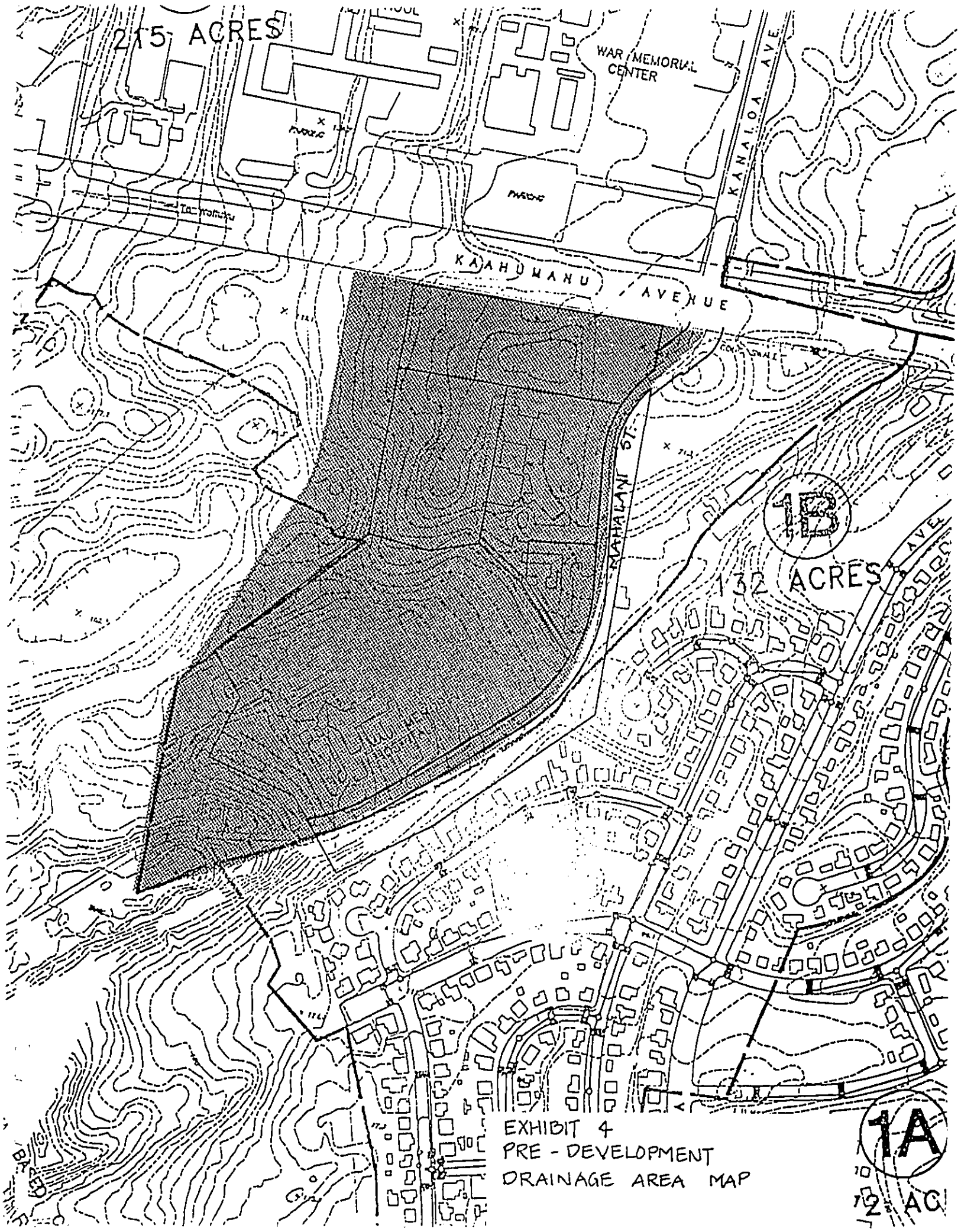


EXHIBIT 4
PRE - DEVELOPMENT
DRAINAGE AREA MAP

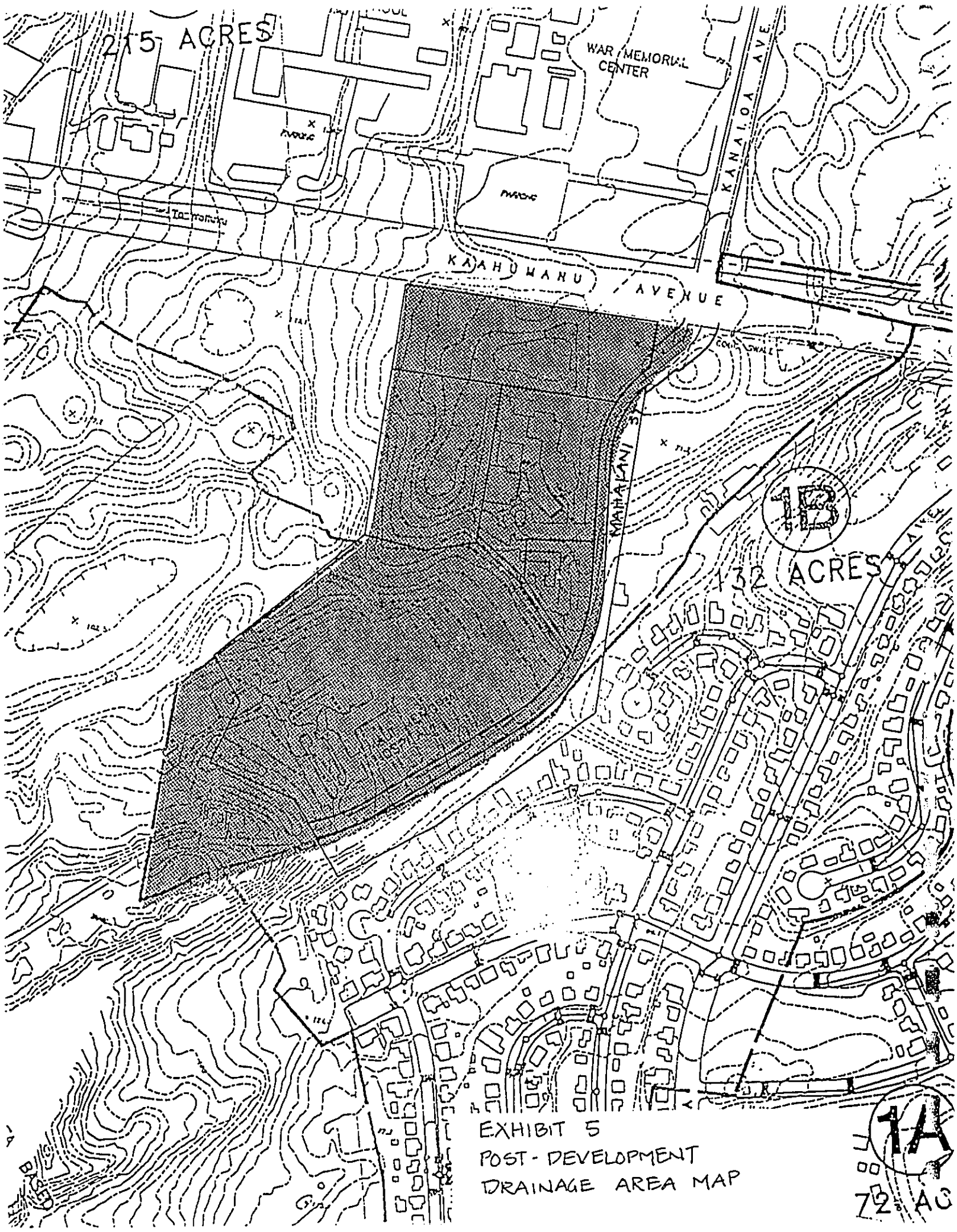


EXHIBIT 5
POST-DEVELOPMENT
DRAINAGE AREA MAP

APPENDIX A

HYDROLOGIC CALCULATIONS

W.S. UNEMORI ENGINEERING, INC.
2145 Wells Street Suite 403
Wailuku, Maui, Hawaii 96793

BY: CRR
DATE: November 12, 1997

HYDROLOGIC STUDY
FOR
CAMERON CENTER EXPANSION

WAILUKU, MAUI, HAWAII

PRE-DEVELOPMENT ONSITE SURFACE RUNOFF VOLUME

RECURRENCE INTERVAL:	50 years	HYDRAULIC LENGTH:	610.0 ft.
ONE-HOUR RAINFALL:	2.50 inches	ELEV'N. DIFFERENTIAL:	30.00 ft.
		HYDRAULIC SLOPE:	0.049 ft./ft.
WEIGHTED RUNOFF COEFFICIENT, C:	0.21	TIME OF CONCENTRATION:	23.0 min.
INTENSITY, I:	3.80 inches		
AREA, A:	3.68 acres	SUB BASINS CONSIDERED:	1

Q = C*I*A = 2.94 cfs

COMMENTS:

W.S. UNEMORI ENGINEERING, INC.
2145 Wells Street Suite 403
Wailuku, Maui, Hawaii 96793

BY: CRR
DATE: November 12, 1997

CAMERON CENTER EXPANSION
[continued]

TABULATION OF RUNOFF COEFFICIENTS & AREAS:

SUB-BASIN 1 OF 1 : PROJECT SITE

INFILTRATION:	High	0.00	
RELIEF:	Rolling (5-15%)	0.03	>>> COMPOSITE C = 0.210
VEGETAL COVER:	Good (10-50%)	0.03	>>> AREA = 3.680 acres
DEVELOPMENT:	Agricultural	0.15	

W.S. UNEMORI ENGINEERING, INC.
2145 Wells Street Suite 403
Wailuku, Maui, Hawaii 96793

BY: CRR
DATE: November 12, 1997

HYDROLOGIC STUDY
FOR
CAMERON CENTER EXPANSION

WAILUKU; MAUI, HAWAII

POST-DEVELOPMENT ONSITE SURFACE RUNOFF VOLUME

RECURRENCE INTERVAL:	50 years	HYDRAULIC LENGTH:	610.0 ft.
ONE-HOUR RAINFALL:	2.50 inches	ELEV'N. DIFFERENTIAL:	24.50 ft.
		HYDRAULIC SLOPE:	0.040 ft./ft.
WEIGHTED RUNOFF COEFFICIENT, C:	0.50	TIME OF CONCENTRATION:	13.0 min.
INTENSITY, I:	4.70 inches		
AREA, A:	3.68 acres	SUB BASINS CONSIDERED:	2

Q = C*I*A = 8.70 cfs

COMMENTS:

W.S. UNEMORI ENGINEERING, INC.
2145 Wells Street Suite 403
Wailuku, Maui, Hawaii 96793

BY: CRR
DATE: November 12, 1997

CAMERON CENTER EXPANSION
[continued]

TABULATION OF RUNOFF COEFFICIENTS & AREAS:

SUB-BASIN 1 OF 2 : IMPERVIOUS AREA

INFILTRATION:	Negligible	0.20	
RELIEF:	Flat (0-5%)	0.00	>>> COMPOSITE C = 0.720
VEGETAL COVER:	None	0.07	>>> AREA = 2.200 acres
DEVELOPMENT:	Hotel / Apartment	0.45	

SUB-BASIN 2 OF 2 : LANDSCAPE AREA

INFILTRATION:	High	0.00	
RELIEF:	Flat (0-5%)	0.00	>>> COMPOSITE C = 0.180
VEGETAL COVER:	Good (10-50%)	0.03	>>> AREA = 1.480 acres
DEVELOPMENT:	Agricultural	0.15	

W.S. UNEMORI ENGINEERING, INC.
2145 Wells Street Suite 403
Wailuku, Maui, Hawaii 96793

BY: CRR
DATE: November 10, 1997

HYDROLOGIC STUDY
FOR
CAMERON CENTER EXPANSION

WAILUKU, MAUI, HAWAII

PRE-DEVELOPMENT ONSITE AND OFFSITE SURFACE RUNOFF VOLUME

RECURRENCE INTERVAL:	50 years	HYDRAULIC LENGTH:	2140.0 ft.
ONE-HOUR RAINFALL:	2.50 inches	ELEV'N. DIFFERENTIAL:	146.00 ft.
		HYDRAULIC SLOPE:	0.068 ft./ft.
WEIGHTED RUNOFF COEFFICIENT, C:	0.44	TIME OF CONCENTRATION:	41.0 min.
INTENSITY, I:	3.10 inches		
AREA, A:	37.60 acres	SUB BASINS CONSIDERED:	2

Q = C*I*A = 51.76 cfs

COMMENTS:

W.S. UNEMORI ENGINEERING, INC.
2145 Wells Street Suite 403
Wailuku, Maui, Hawaii 96793

BY: CRR
DATE: November 10, 1997

CAMERON CENTER EXPANSION
[continued]

TABULATION OF RUNOFF COEFFICIENTS & AREAS:

SUB-BASIN 1 OF 2 : IMPERVIOUS AREA

INFILTRATION:	Negligible	0.20	
RELIEF:	Rolling (5-15%)	0.03	>>> COMPOSITE C = 0.750
VEGETAL COVER:	None	0.07	>>> AREA = 16.300 acres
DEVELOPMENT:	Hotel / Apartment	0.45	

SUB-BASIN 2 OF 2 : LANDSCAPE AREA

INFILTRATION:	High	0.00	
RELIEF:	Rolling (5-15%)	0.03	>>> COMPOSITE C = 0.210
VEGETAL COVER:	Good (10-50%)	0.03	>>> AREA = 21.300 acres
DEVELOPMENT:	Agricultural	0.15	

W.S. UNEMORI ENGINEERING, INC.
2145 Wells Street Suite 403
Wailuku, Maui, Hawaii 96793

BY: CRR
DATE: November 10, 1997

HYDROLOGIC STUDY
FOR
CAMERON CENTER EXPANSION

WAILUKU, MAUI, HAWAII

POST-DEVELOPMENT ONSITE AND OFFSITE SURFACE RUNOFF VOLUME

RECURRENCE INTERVAL:	50 years	HYDRAULIC LENGTH:	2140.0 ft.
ONE-HOUR RAINFALL:	2.50 inches	ELEV'N. DIFFERENTIAL:	146.00 ft.
		HYDRAULIC SLOPE:	0.068 ft./ft.
WEIGHTED RUNOFF COEFFICIENT, C:	0.52	TIME OF CONCENTRATION:	25.0 min.
INTENSITY, I:	3.70 inches		
AREA, A:	32.00 acres	SUB BASINS CONSIDERED:	2

Q = C*I*A = 61.03 cfs

COMMENTS:

W.S. UNEMORI ENGINEERING, INC.
2145 Wells Street Suite 403
Wailuku, Maui, Hawaii 96793

BY: CRR
DATE: November 10, 1997

CAMERON CENTER EXPANSION
[continued]

TABULATION OF RUNOFF COEFFICIENTS & AREAS:

SUB-BASIN 1 OF 2 : IMPERVIOUS AREA

INFILTRATION:	Negligible	0.20	
RELIEF:	Rolling (5-15%)	0.03	>>> COMPOSITE C = 0.750
VEGETAL COVER:	None	0.07	>>> AREA = 18.100 acres
DEVELOPMENT:	Hotel / Apartment	0.45	

SUB-BASIN 2 OF 2 : LANDSCAPE AREA

INFILTRATION:	High	0.00	
RELIEF:	Rolling (5-15%)	0.03	>>> COMPOSITE C = 0.210
VEGETAL COVER:	Good (10-50%)	0.03	>>> AREA = 13.900 acres
DEVELOPMENT:	Agricultural	0.15	

APPENDIX B

UNIVERSAL SOIL LOSS EQUATION CALCULATIONS

W.S. UNEMORI ENGINEERING, INC.
2145 Wells Street Suite 403
Wailuku, Maui, Hawaii 96793

BY: CRR
DATE: November 4, 1997

H_E_S_L_
FOR
CAMERON CENTER

CAMERON CENTER
SOIL ERQSIN ANALYSIS

1. HESL EQUATION: E = R*K*LS*C*P

WHERE:
E = Soil Loss (tons/acre/year)
R = Average Annual Rainfall Factor for Erosion
K = Soil Erodibility Factor
L = Horizontal Slope Length (feet)
S = Average Slope (%)
LS = Slope Factor (function of L and S)
C = Cover and Management Factor
P = Erosion Control Practice Factor

R = 190.0 tons/acre/year
(Soil Erosion & Sediment Control Guide for Hawaii; Appendix A: Average Annual Values of Rainfall Factor)

K = 0.10 Soil Series: PUUONE SERIES
(Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii; Soil Type Plates & Table 4; Soil Properties Related to Erosion & Sedimentation ....)

L = 620.0 feet
δ = 25.0 feet
(Soil Erosion & Sediment Control Guide for Hawaii; Table 16)

S = (δ/L)
= 4.0 %

LS= 0.844

BY: CRR
DATE: November 4, 1997

CAMERON CENTER
[Continued]

C = 1.00
(Soil Erosion & Sediment Control Guide for Hawaii Tables 17-22, Pages 59-61: C=1.00 for Bare Soil)

P = 1.00
(Soil Erosion & Sediment Control Guide for Hawaii: the Universal Soil Loss Equation in Hawaii)'

E = R*K*LS*C*P
= 16.0 tons/acre/year

2. SEVERITY RATING NUMBER EQUATION: H=[(2*F*T)+(3*D)]*A*E

WHERE:
H = Severity rating number
T = Duration of land-disturbing activity (years)
A = Area subject to disturbance (acres)
E = Rate of soil loss under disturbed conditions (tons/acre/year)
F = Downslope-downstream rating factor (rating points/ton)
D = Coastal water rating factor (rating points/ton)

T = 1.00 years

A = 3.70 acres

E = R*K*LS*C*P
= 16.0 tons/acre/year

F = 4 (Downslope-downstream detriment: Major)

D = 1 (Coastal water rating factor: Class B)

H = [(2*F*T)+(3*D)]*A*E
= 652.7

Standard severity rating (allowable): 50,000 ≥ 652.7 =>OK

W.S. UNEMORI ENGINEERING, INC.
2145 Wells Street Suite 403
Wailuku, Maui, Hawaii 96793

BY: CRR
DATE: November 4, 1997

CAMERON CENTER
[Continued]

3. MAXIMUM ALLOWABLE SOIL LOSS: E max = H max/(2FT+3D)A

E max = H max/(2FT+3D)A, Hmax = 50,000
= 1,228.5 tons/acre/year ≥ 16.0 tons/acre/year =>OK

Coastal Hazard: Class B waters are approximately 5,000 feet from the site.

CONCLUSION: Sedimentation hazard to coastal waters and downstream properties is minimal. Erosion rate computed for this project site is well within the tolerable limits and additional control measures are not required.

4. REFERENCES:

1. Soil Conservation Service (USDA); 'Guidelines For Use of the Universal Soil Loss Equation in Hawaii,' Technical Notes, March 1975. (Revised Draft)

2. County of Maui; (Ord No. 816), 'Chapter 24, Soil Erosion and Sedimentation Control,' June 13, 1975.

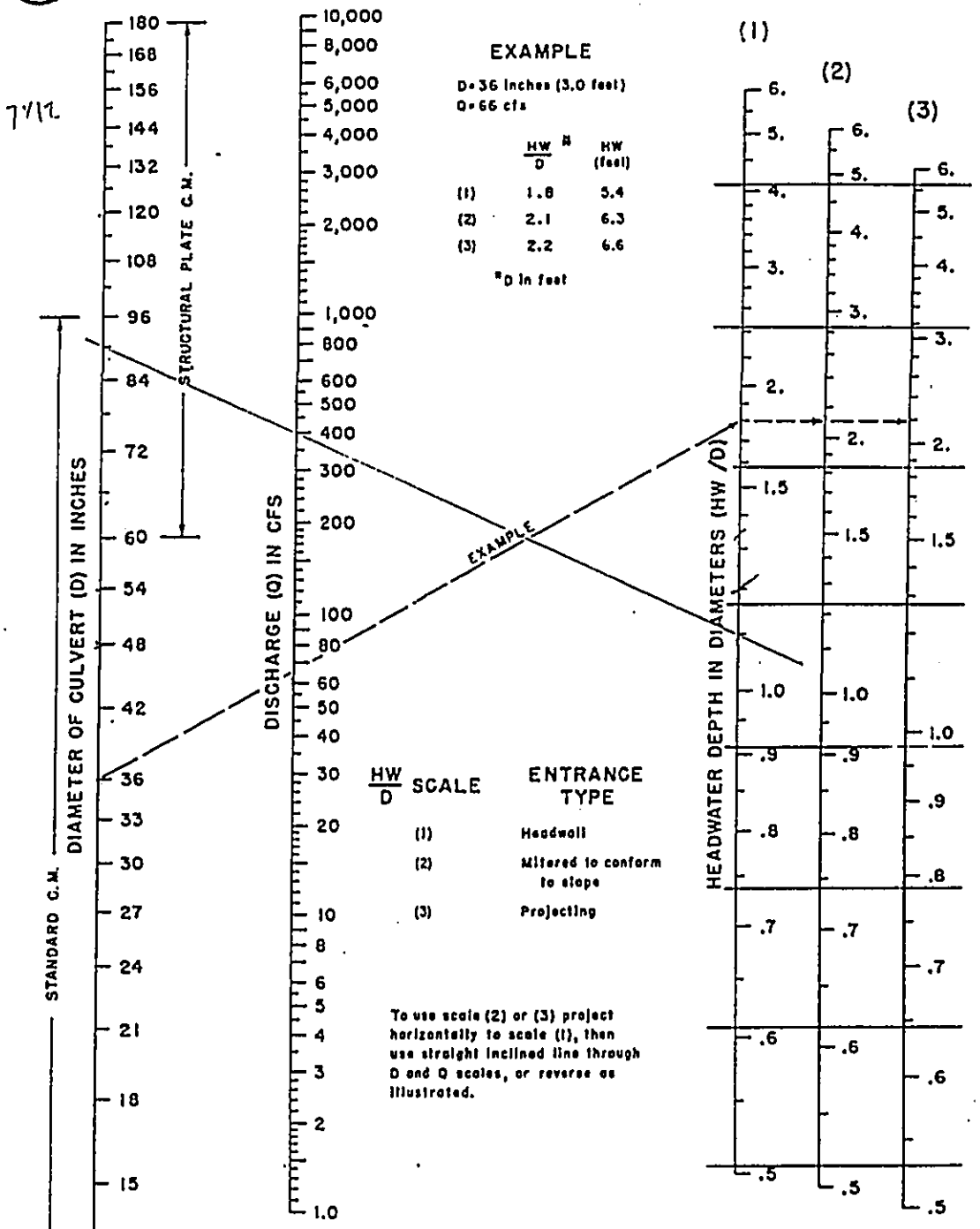
3. Soil Conservation Service (USDA); 'Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai; State of Hawaii, August 1972.

4. Hawaii Environmental Simulation Laboratory; 'Guidelines for Data Preparation, Part 1: Universal Soil Loss Equation; Undated (Draft).

APPENDIX C

HEADWATER DEPTH
FOR CM PIPE CULVERTS WITH INLET CONTROL

CHART 2



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EXAMPLE

D = 36 inches (3.0 feet)
Q = 66 cfs

	$\frac{HW}{D}$ [a]	HW (feet)
(1)	1.8	5.4
(2)	2.1	6.3
(3)	2.2	6.6

[a] D in feet

$\frac{HW}{D}$ SCALE — ENTRANCE TYPE

(1) Headwall
(2) Mitered to conform to slope
(3) Projecting

To use scale (2) or (3) project horizontally to scale (1), then use straight inclined line through D and Q scales, or reverse as illustrated.

HEADWATER DEPTH FOR C. M. PIPE CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN. 1963

Appendix C

Traffic Impact Analysis Report

TRAFFIC IMPACT ANALYSIS REPORT FOR THE PROPOSED J. WALTER CAMERON CENTER EXPANSION

Prepared For

J. WALTER CAMERON CENTER

December 1997

Prepared By

Austin, Tsutsumi & Associates, Inc.
Civil Engineers • Surveyors
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Honolulu • Wailuku, Hawaii

TRAFFIC IMPACT ANALYSIS REPORT FOR THE PROPOSED J. WALTER CAMERON CENTER EXPANSION

Prepared For

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TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED
J. WALTER CAMERON CENTER
EXPANSION

Prepared For

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December 1997

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TABLE OF CONTENTS

TABLE OF CONTENTS

AUSTIN, TSUTSUMI & ASSOCIATES, INC. CIVIL ENGINEERS • SURVEYORS
CONTINUING THE ENGINEERING PRACTICE FOUNDED BY H. A. R. AUSTIN IN 1934

TED S. KAWAHIGASHI, P.E.
KENNETH K. KUROKAWA, P.E.
IVAN K. NAKATSUKA, P.E.
LAMBERT J. YAMASHITA, P.E.
HOWARD H.W. MAU, P.E.

TRAFFIC IMPACT ANALYSIS REPORT FOR THE PROPOSED J. WALTER CAMERON CENTER EXPANSION

I. INTRODUCTION

A. Purpose of Study

The purpose of this traffic study is to analyze the traffic impacts resulting from the proposed expansion of the J. Walter Cameron Center in Wailuku, Maui. The expansion to the Cameron Center would add a child care facility and accommodate the relocation of the Maui Economic Opportunity Inc. (MEO) administrative offices and Family Center. This report presents the findings and recommendations of the study.

B. Project Description

The existing J. Walter Cameron Center is located on approximately 5 acres of County of Maui owned land, identified as TMK: 3-8-046:015. The proposed expansion, located on an adjoining parcel identified as TMK: 3-8-046:027, will add approximately 3.7 acres of land also owned by the County of Maui. Figure 1 shows the location of the project site. The Cameron Center currently provides comprehensive health, community and cultural services to the general public, as well as individuals with physical, mental, social and educational handicaps.

The following proposed actions are part of the master-planned expansion of the Cameron Center:

1. A 6,000 square foot (SF) child care center.
2. A 19,000 SF MEO family center.

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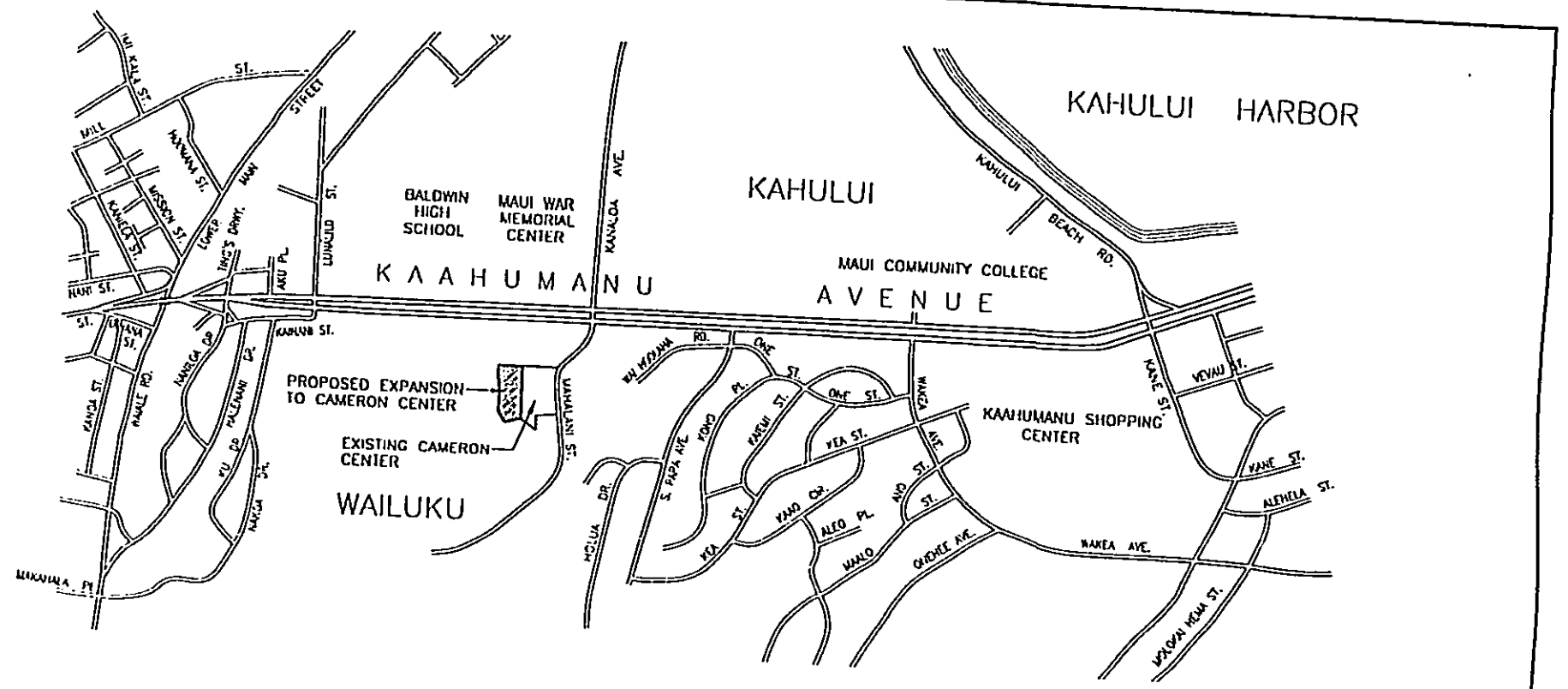
OFFICES IN:
HONOLULU, HAWAII
WAILUKU, MAUI, HAWAII • HILO, HAWAII



J. WALTER CAMERON CENTER EXPANSION	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	VICINITY MAP	1

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Conceptually, the single-story 6,000 SF child care center will provide 24-hour child care services for about 40 infants, toddlers and preschool children with parents working in the vicinity of the Cameron Center. It is estimated that there will be a staff of 14.

The two-story, 19,000 SF MEO Family Center will include administrative and counseling offices, as well as a library, meeting, conference and children's playroom facilities. The hours of operation of the Family Center will be between 7:45 AM and 4:30 PM on weekdays only. It is estimated to have a staff of 40.

Figure 2 shows the proposed project site plan with the proposed expansion projects.

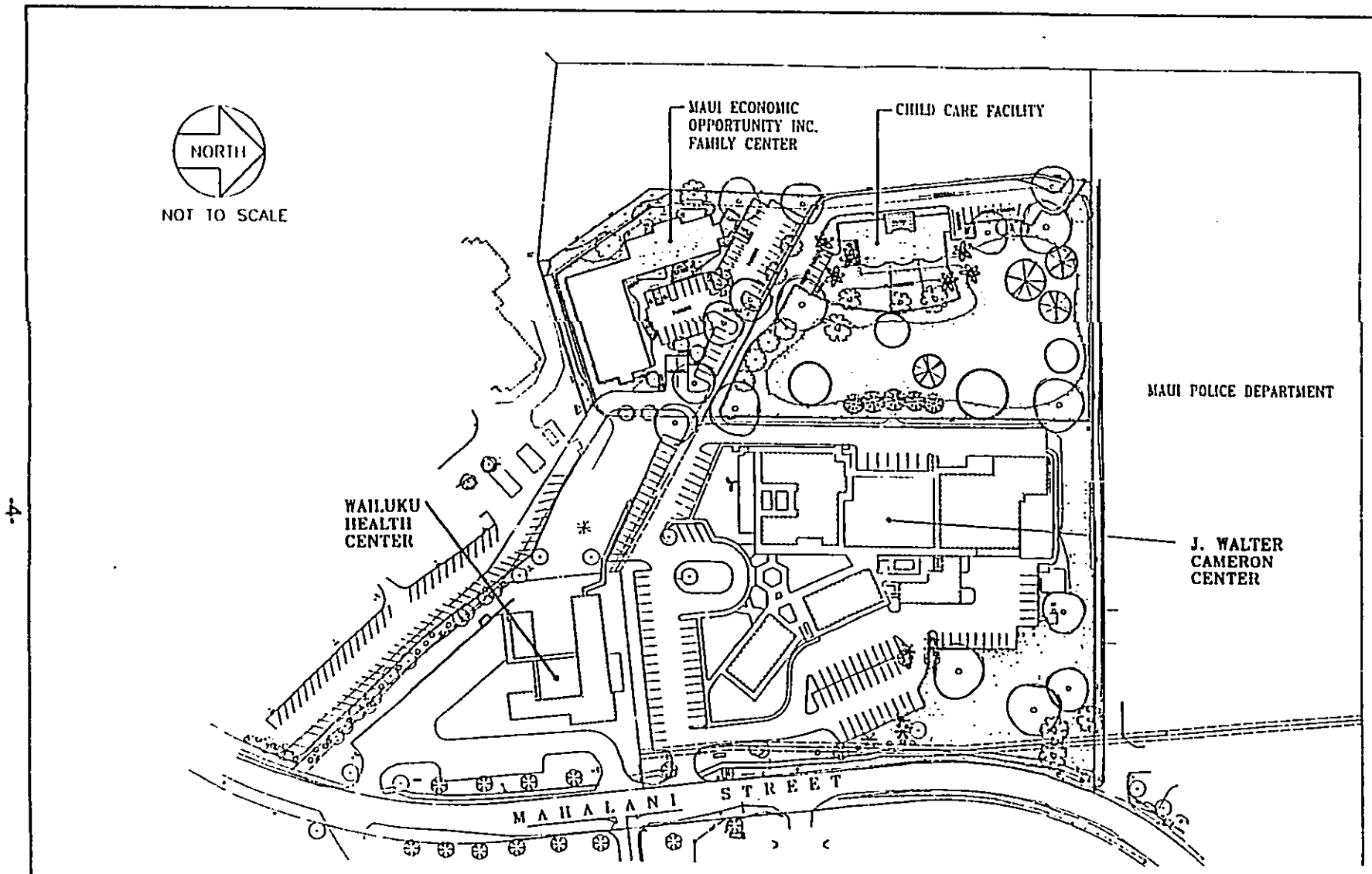
C. Study Methodology

The study will address the following:

1. Evaluation of the existing roadway and traffic conditions.
2. Base Year traffic projections without project-generated traffic, and analyses of traffic conditions.
3. Development of trip generation and traffic assignment characteristics for the proposed project.
4. Superimposing the site-generated traffic onto the Base Year traffic projections.
5. The identification and analyses of traffic impacts resulting from the proposed project.
6. Recommendation of improvements, if appropriate, that would mitigate the traffic impacts resulting from the development of the proposed project.

The intersections to be analyzed during the AM and PM peak hours of traffic scenarios described above include the following:

- Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue signalized intersection.
- Mahalani Street and Cameron Center Driveway.



J. WALTER CAMERON CENTER EXPANSION	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	SITE MAP	2

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II. EXISTING CONDITIONS

A. Roadway System

Currently, Cameron Center's only access is provided by way of Kaahumanu Avenue and Mahalani Street. A single driveway off Mahalani Street provides access to Cameron Center. The following is a brief description of the nearby roadways to Cameron Center.

Kaahumanu Avenue – is a four-lane, east-west, divided, major State arterial between Wells Street in Wailuku and Kahului Beach Road in Kahului. East of Kahului Beach Road it is a six-lane divided arterial to Hana Highway. Traffic signal systems, left-turn lanes and right-turn lanes are provided at the major intersections on Kaahumanu Avenue. Kaahumanu Avenue is heavily utilized during the commuter hour of traffic.

Mahalani Street – is a two-lane County collector road which currently terminates just south of the Hale O Mana'O Lana Hou housing facility and the Hui Malama Learning Center. It provides access from Kaahumanu Avenue to the Maui Police Station, Maui Memorial Hospital, Kaiser Permanente Medical Clinic, the Maui News offices, a State office facility and the Wailuku Health Center. At its approach to Kaahumanu Avenue, Mahalani Street has a shared left-turn/through lane, and a right-turn lane. Roadside parking is permitted on Mahalani Street from a point south of the Police Station driveway. North of Kaahumanu Avenue, Mahalani Street becomes Kanaloa Avenue. Mahalani Street is proposed to be widened to a four-lane roadway and extended to ultimately intersect with Waiale Road. It will also connect to the new Maui Lani Parkway.

Kanaloa Avenue – is a four-lane, north-south County collector road between Kaahumanu Avenue and the makai limits of the War Memorial Center area where it narrows to a two-lane wide roadway to its intersection with Kahului Beach Road. At its intersection with Kaahumanu Avenue, a dedicated left, a shared left-through and a dedicated right-turn lane are provided for the southbound traffic.

B. Existing Traffic Volumes

Weekday AM and PM peak period traffic turning movement counts were conducted on Wednesday, May 14, 1997, Thursday, May 22, 1997 at the Kaahumanu Avenue/Mahalani Street/Kanaloa Avenue intersection. Traffic volume counts were obtained on Thursday, November 6, and Thursday, November 13, 1997 at the Cameron Center driveway/Mahalani Street intersection. Turning movement count data are contained in Appendix A.

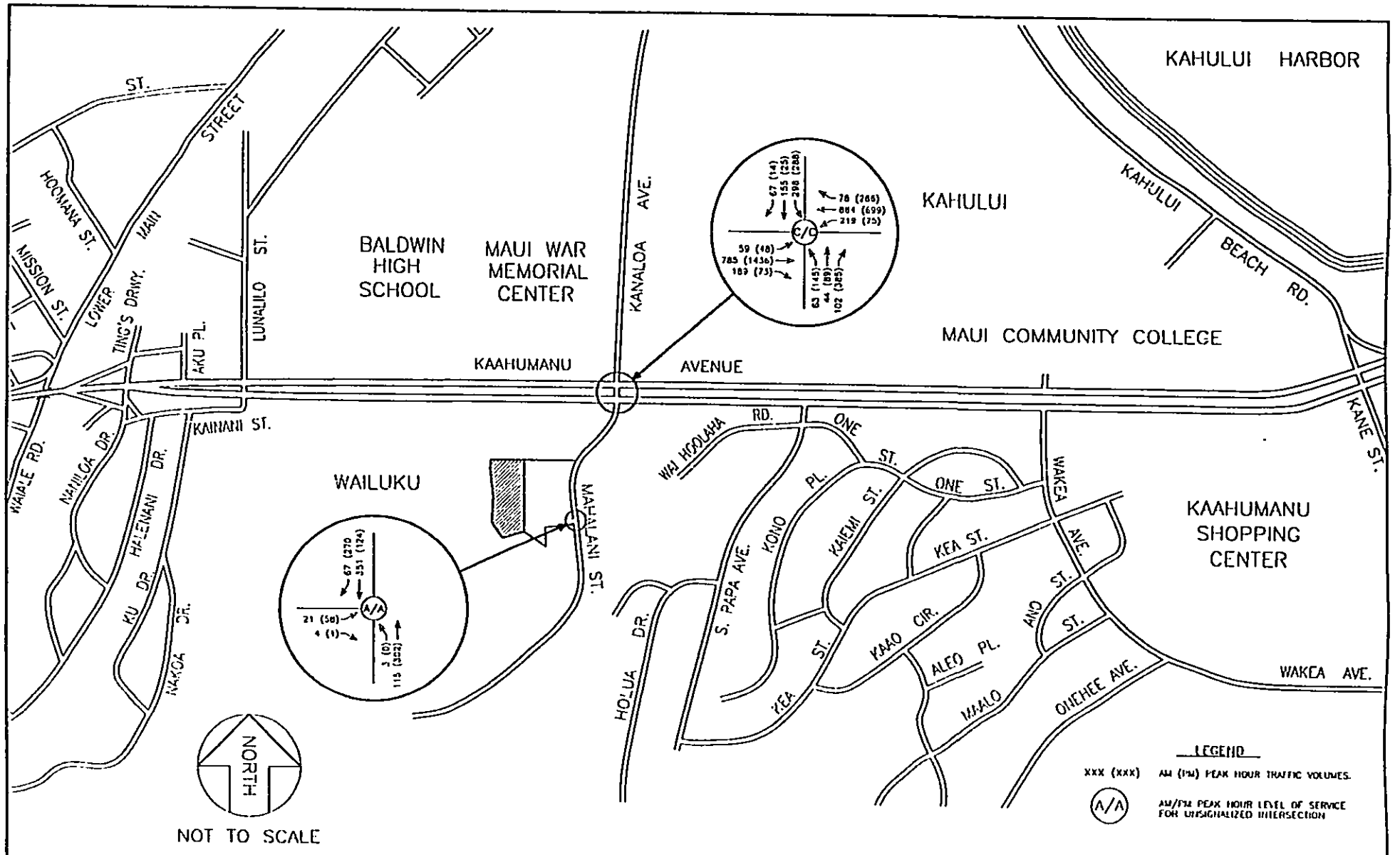
C. Existing Level of Service Analysis

Level of Service (LOS) is a qualitative measure used to describe the conditions of traffic flow, ranging from free-flow conditions at LOS A to congested conditions at LOS F. Methods for calculating volume-to-capacity ratios, delays and corresponding level of service from the 1994 Highway Capacity Manual - Special Report 209 were utilized for this study. Level of Service definitions for unsignalized and signalized intersections are provided in Appendix B. Figure 3 shows the LOS results at the two study intersections.

Based upon visual observations of traffic operations and intersection analyses within the study area, traffic generally flows well through the area.

During the PM peak period of traffic, northbound traffic on Mahalani Street often queues back to a point just south of the Maui Police Station driveway. However, this back-up of traffic dissipates as the traffic signal at Kaahumanu Avenue services Mahalani Street.

The traffic signal system at the intersection of Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue operates as a 6-phase system. The left-turn movements from Kaahumanu Avenue have a leading protected (green arrow) phase before the through movements on Kaahumanu Avenue are permitted to move. When the through movements on Kaahumanu Avenue are permitted to move, the left-turn movements are also permitted, providing there are adequate gaps in the opposing traffic stream. This operation is commonly called a "protected-permissive" mode of operation. The traffic signal phases for Mahalani Street and for Kanaloa Avenue are programmed to operate as separate (split) phases.



J. WALTER CAMERON CENTER EXPANSION

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS, SURVEYORS • HONOLULU, HAWAII

FIGURE 3

EXISTING TRAFFIC CONDITIONS

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At varying times of the day, the left-turn traffic demand from Kaahumanu Avenue to Mahalani Avenue was observed to be quite heavy, resulting in vehicles "overflowing" from the left-turn storage lane into the through lane, causing congestion in the westbound lanes of Kaahumanu Avenue.

III. 2000 BASE YEAR TRAFFIC CONDITIONS

A. Growth Factor

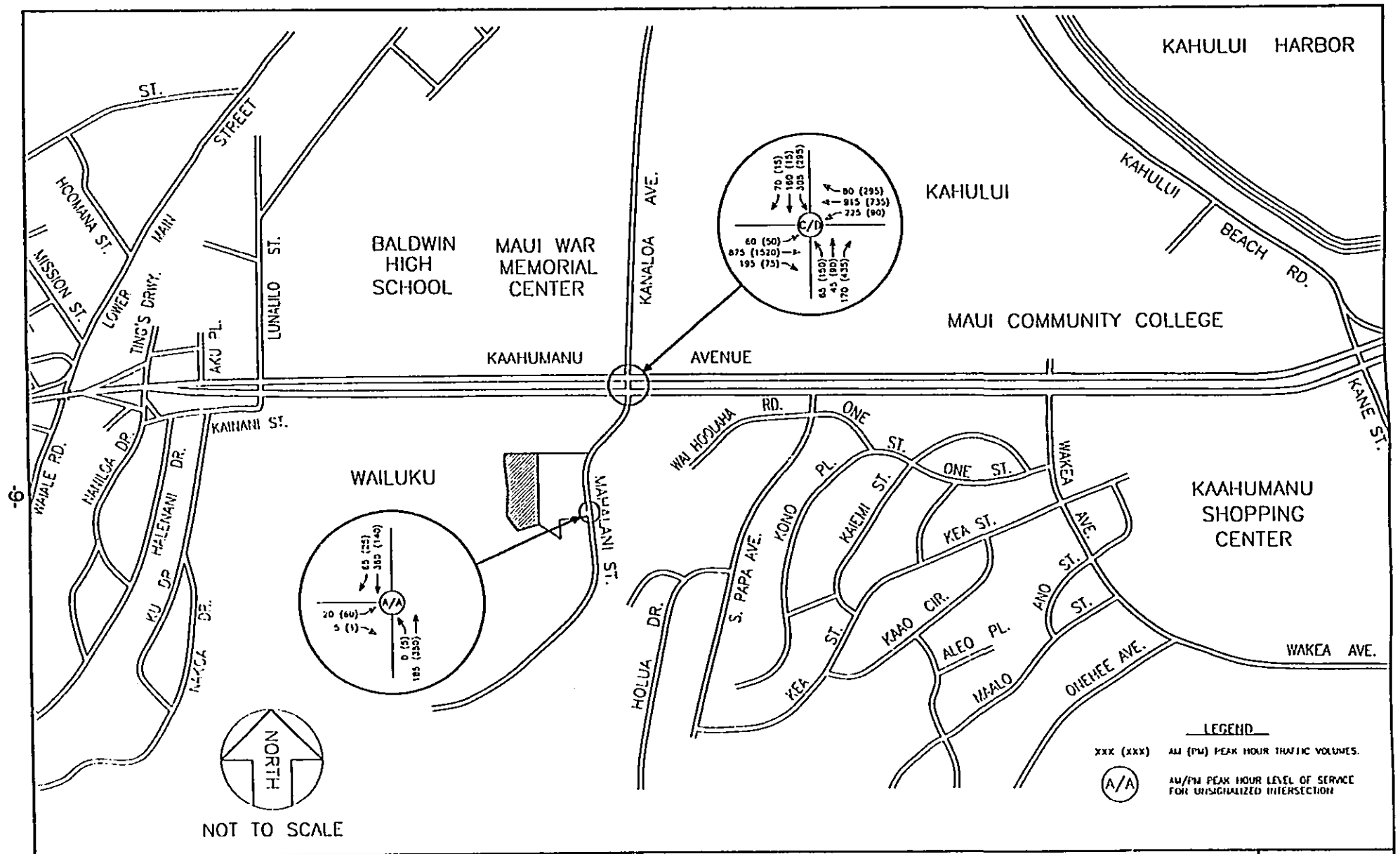
Growth factors are generally used to account for traffic growth for projects that cannot be accounted for but attract or generate traffic. A de facto growth factor of 1% per year was calculated from data contained in the State of Hawaii, Department of *Transportation*, *Traffic Survey* Data, Islands of Maui and Molokai, 1995 at the Kaahumanu Avenue/Mahalani Street/Kanaloa Avenue intersection. A de facto growth factor of 1.03 was applied to all volumes, except those accessing Cameron Center, to estimate the Base Year 2000 traffic volume projections. Figure 4 shows the Base Year 2000 traffic projections.

B. Planned Roadway Improvements

There are several roadway improvements proposed in the vicinity of Cameron Center. These improvements include the following:

- Construction of Maui Lani Parkway and extension of Mahalani Street. Construction of a four-lane north-south divided collector roadway, Maui Lani Parkway, begins at Kaahumanu Avenue and terminates, with provisions to continue the parkway, at its intersection with Mahalani Street. This project also includes the installation of a traffic signal system at its intersection with Kaahumanu Avenue. When completed, the new intersection will permit all traffic movements into and out of Baldwin High School. Construction of Maui Lani Parkway is nearly completed.

- Extension and widening of Mahalani Street. The County of Maui is developing plans to extend and widen Mahalani Street as a 60-foot right-of-way collector road from Kaahumanu Avenue to Waiale Drive. The first phase, extending Mahalani Street between Maui Lani Parkway and Waiale Drive, is scheduled to be completed by early 1999. The second phase, widening of Mahalani Street between Kaahumanu Avenue and its



J. WALTER CAMERON CENTER EXPANSION	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE 4
	BASE YEAR 2000 TRAFFIC CONDITIONS	

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connection to the newly constructed Maui Lani Parkway, is scheduled to be completed by the end of 1999.

- Traffic Signals Upgrade/Interconnect. The State Department of Transportation is currently preparing project plans to modernize the existing traffic signal systems on Kaahumanu Avenue, and interconnect and coordinate the operations of the traffic signal system on Kaahumanu Avenue.

- Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue Intersection. The State Department of Transportation has under design the improvement of this intersection to provide the following:

  a. A double left-turn lane from Kaahumanu Avenue to Mahalani Street.

  b. The widening of Mahalani Street to provide 2 southbound lanes and 3 northbound lanes to Kaahumanu Avenue.

  c. A continuous auxiliary lane on eastbound Kaahumanu Avenue between Mahalani Street and Papa Avenue.

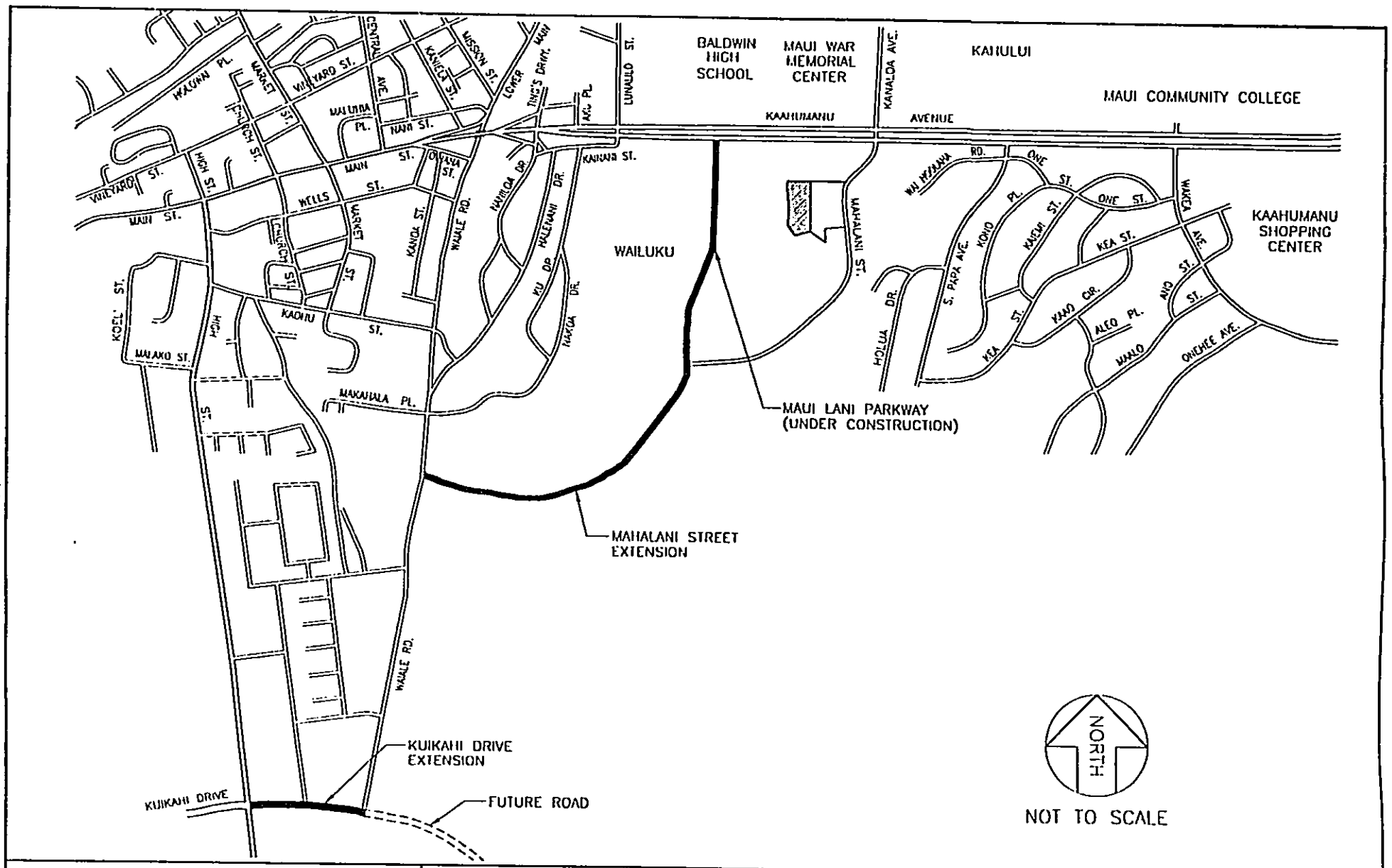
  These intersection improvements are scheduled for completion before the end of 1998.

- Waiale Drive Improvements to Honoapiilani Highway at Kuikahi Drive and to Mill Street via Imi Kala Street. The County of Maui has under design the improvement of Waiale Drive to 60-foot collector road standards, providing connections to Honoapiilani Highway: near Waikapu, and to Mill Street and Lower Main Street in Wailuku. Project completion has not been firmly established as of this writing.

Figure 5 shows the planned roadway improvements near Cameron Center.

C. Subjective Analysis of Proposed Roadway Improvements

The above new roadways and roadway improvements to existing facilities will certainly reduce the traffic demand on Kaahumanu Avenue between Wailuku and Kahului, and will improve traffic operations at the intersection of Kaahumanu



J. WALTER CAMERON CENTER EXPANSION	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	PLANNED ROADWAY IMPROVEMENTS	5

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Avenue and Mahalani Street/Kanaloa Avenue, especially during the peak periods of commuter traffic by providing an alternative route for vehicles coming from and to West Maui areas.

The immediate impact of the Kaahumanu Avenue/Mahalani Street intersection improvement, and the widening of Mahalani Street from Kaahumanu Avenue to the new Maui Lani Parkway will be an increase in roadway capacity. Further, the completion of the Maui Lani Parkway and its connection to Mahalani Avenue south of Maui Memorial Hospital will provide an alternative route to and from the existing facilities on Mahalani Street for vehicles coming from and to the Wailuku and West Maui areas. This will all have the effect of reducing the traffic demand at the Kaahumanu Avenue/Mahalani Street intersection.

Also contributing to the reduction in traffic demand on the Kanaloa Avenue approach to the Kaahumanu Avenue intersection is the completion of the Maui Lani Parkway/Kaahumanu Avenue signalized intersection at Baldwin High School. This intersection can now function as a full-service intersection, with no restrictions on turning movements. Therefore, motorists desiring to head east on Kaahumanu Avenue from Baldwin High School can now execute the left-turn movement onto Kaahumanu Avenue at the Baldwin High School driveway. Formerly, motorists had to drive through the War Memorial Center and enter Kanaloa Avenue and then turn left onto Kaahumanu Avenue.

Analyses of the Kaahumanu Avenue/Mahalani Street intersection and the driveway at Cameron Center without the proposed expansion projects show that they will operate at LOS D or better during the AM and PM peak hours of traffic even without any of the roadway improvements.

IV. PROJECT-GENERATED TRAFFIC

A. Trip Generation and Assignment

Vehicular trips generated by the two different land uses were calculated by applying trip generation rates contained in "Trip Generation, 5th Edition"

Institute of Transportation Engineers (ITE) 1991. Table 1 summarizes the trip rates used for this study. Table 2 summarizes the trips generated by the proposed expansion.

B. Discussion

The 24-hour child care center is designed to provide service to parents who work in the vicinity of the Cameron Center. Therefore, the total vehicular trips generated by this facility will not be new trips on the roadways, but will be part of a previously existing trip. Further, this service is for about 40 children over a 24-hour period, albeit that the majority of the children will be accommodated during the normal 7:30 AM to 4:30 PM time period, still the vehicular trips will be tempered by the service area (Mahalani Street agencies), and, therefore, will most likely not impact traffic on Kaahumanu Avenue.

The traffic generated by the MEO Family Center will be mitigated by some of their Clients being transported to the facility by the MEO shuttle vans, and not by private vehicles.

However, for the analysis of the roadway capacities, the trips generated per the ITE trip generation rates were assigned to the intersection and analyzed.

Project-generated traffic volumes were assigned to the roadway network using the data from the turning movement survey conducted at the Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue intersection. The project trips were then added to the Base Year 2000 to estimate the Future Year 2000 with project traffic volumes. Figure 6 illustrates the project traffic assignments, while Figure 7 illustrates the Future Year 2000 with Project Traffic without any roadway improvements.

C. Level of Service Analysis

With the project traffic added to the Base Year 2000 traffic volumes, the Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue intersection is estimated to operate at LOS D or better during both peak hours of traffic.

Table 1
Trip Rates

Land Use	Unit	Avg. Daily Trip Rate	AM Peak Hour Rate	AM Peak Hour % IN	PM Peak Hour Rate	PM Peak Hour % IN
Day Care	*SF GFA*	*79.26*	*10.33*	*53%*	10.83	47%
Single Tenant Office Building	SF GFA	22.84	2.95	89%	0.26	16%

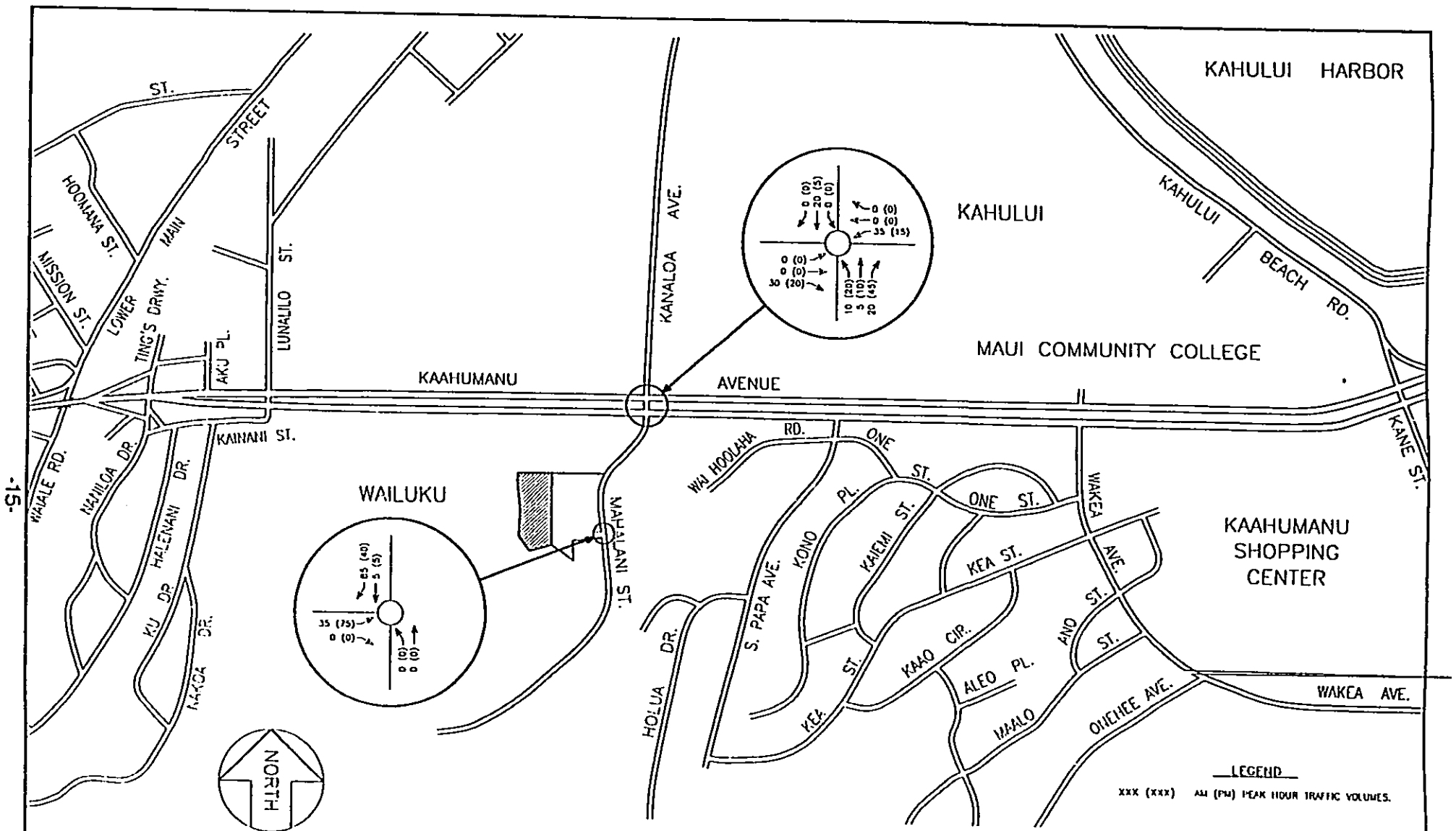
SF GFA - 1,000 Square Feet, Gross Floor Area

Source: "Trip Generation, 5th Edition ", Institute of Transportation Engineers, 1991

Table 2
Average Daily and Peak Hour Trips

Cameron Center Expansion

	Land Use	Units		Avg. Daily Trips	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Child Care	Day Care	6	SF GFA	476	33	29	62	31	34	65
MEO	Single Tenant	19	SF GFA	434	50	6	56	8	43	51
			Total	910	83	35	118	39	77	116



J. WALTER CAMERON CENTER EXPANSION	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	PROJECT TRAFFIC	6

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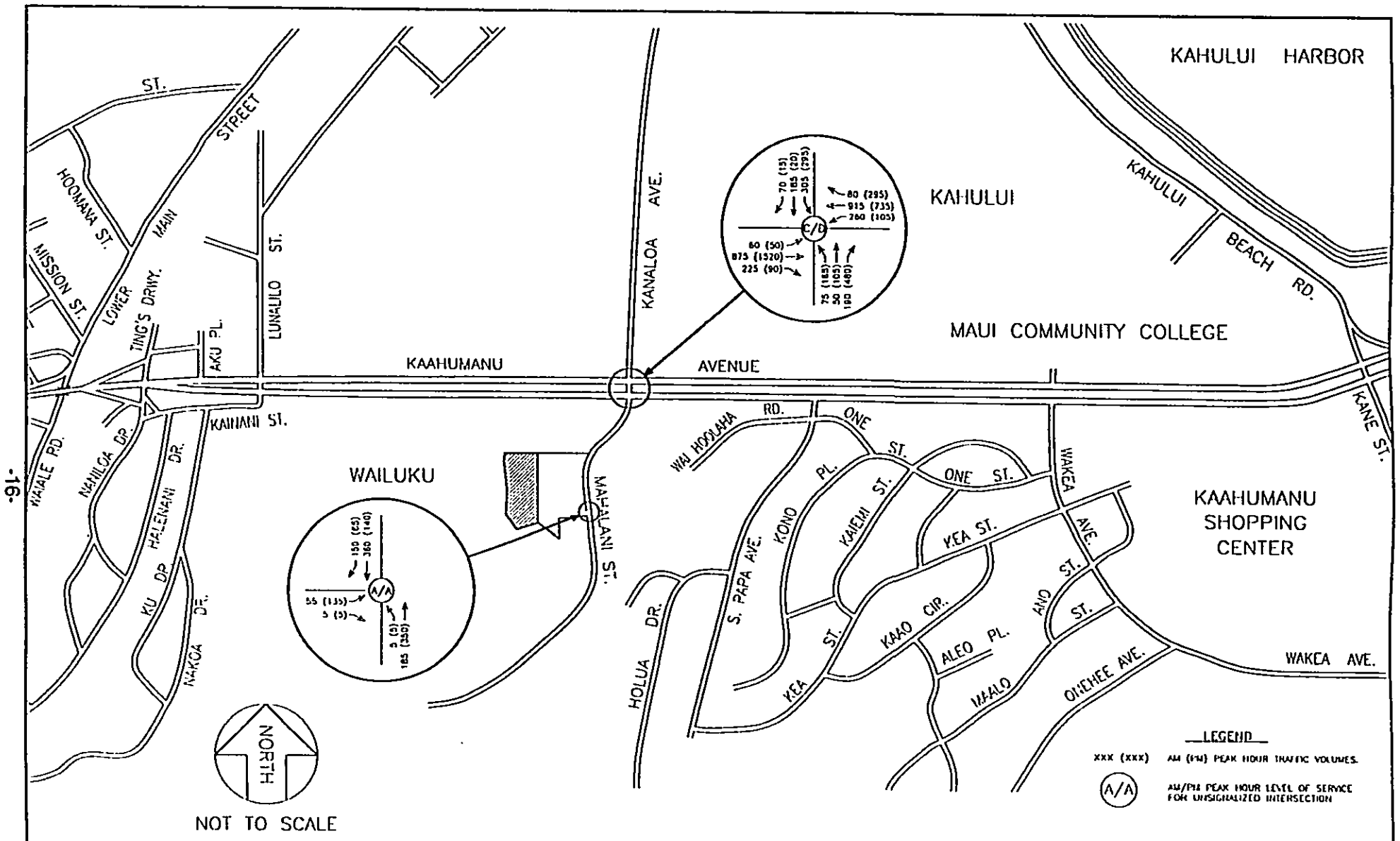

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J. WALTER CAMERON CENTER EXPANSION	ATA AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	YEAR 2000 WITH PROJECT TRAFFIC CONDITIONS	7

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The existing driveway is estimated to operate at LOS A during both the AM and PM peak hours of traffic. The left turn out of Cameron Center, heading northbound on Mahalani Street, is estimated to operate at LOS B during the AM and PM peak hour of traffic. Table 3 summarizes results from the LOS analysis.

V. CONCLUSION

A. The proposed expansion of Cameron Center will not adversely impact traffic operations on the existing roadways in the vicinity of Cameron Center. As discussed under Section III.C., the proposed roadway improvements will certainly improve traffic operations on Mahalani Street and even on Kaahumanu Avenue by providing alternative routes to the motorists.

B. Special events traffic, such as for the Hula Bowl, or for the annual County Fair will still cause congestion on Kaahumanu Avenue. However, these roadway improvements will also help to mitigate, but not eliminate, the special events traffic congestion.

C. The improved Keopulani Park (Maui Central Park) is not anticipated to have any adverse impact on traffic operations on Mahalani Street or Kaahumanu Avenue during the weekday commuter peak hour of traffic.

VI. RECOMMENDATIONS

Based upon the County of Maui's scheduled widening of Mahalani Street and the State DOT scheduled improvements on Kaahumanu Avenue, we do not recommend any off-site roadway improvements due to the proposed expansion of Cameron Center.

Table 3
Summary of Level-of-Service Operations

Intersection	Type of Intersection	Existing						Base Year 2000 without Improvements						Future Year 2000 with Project without Improvements					
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		v/c Ratio	Delay Sec.	LOS	v/c Ratio	Delay Sec.	LOS	v/c Ratio	Delay Sec.	LOS	v/c Ratio	Delay Sec.	LOS	v/c Ratio	Delay Sec.	LOS	v/c Ratio	Delay Sec.	LOS
1. Kaahumanu Avenue, Mahalani Street and Kanaloa Avenue	Signalized																		
Northbound Approach		--	18.7	C	--	31.2	D	--	18.1	C	--	36.1	D	--	18.6	C	--	36.0	D
Southbound Approach		--	19.5	C	--	20.9	C	--	20.5	C	--	21.6	C	--	22.5	C	--	26.6	D
Westbound Approach		--	16.4	C	--	10.3	B	--	16.6	C	--	10.6	B	--	17.2	C	--	11.8	B
Eastbound Approach		--	15.7	C	--	23.5	C	--	16.4	C	--	31.3	D	--	21.0	C	--	28.9	D
Overall Intersection		0.56	16.9	C	0.69	20.7	C	0.60	17.3	C	0.73	25.2	D	0.6	19.6	C	0.72	25.1	D
2. Mahalani Street and Existing Cameron Center Driveway	Unsignalized																		
Northbound Left-Turn		--	3.3	A	--	2.5	A	--	3.3	A	--	2.5	A	--	3.7	A	--	2.6	A
Eastbound Shared Left/Right		--	6.5	B	--	6.8	B	--	7.0	B	--	7.6	B	--	8.7	B	--	9.4	B
Overall Intersection		--	0.3	A	--	0.9	A	--	0.3	A	--	0.9	A	--	0.8	A	--	2.0	A

APPENDICES

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APPENDIX A

TRAFFIC COUNT DATA

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APPENDIX A

TRAFFIC COUNT DATA

ATA INC

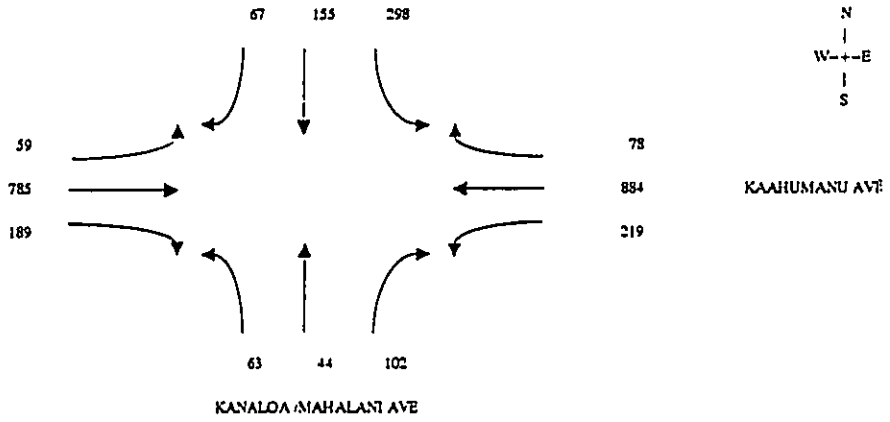
INTERSECTION COUNT SURVEY SUMMARY

North/South Street : KANALOA /MAHALANI AVE
East/West Street : KAAHUMANU AVE
Weather : CLEAR

Period: AM
Date: 5/22/97
Day : THU

	KANALOA /MAHALANI AVE						KAAHUMANU AVE						TOTAL VOLUME	
15 MINUTE PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			15 MIN	HOURLY
	LEFT	THRU	RGHT	LEFT	THRU	RGHT	LEFT	THRU	RGHT	LEFT	THRU	RGHT		
630 - 645	3	5	8	18	16	22	8	128	23	30	122	3	386	
645 - 700	15	7	20	33	14	17	5	130	48	26	146	11	472	
700 - 715	9	6	19	51	14	23	2	134	20	47	137	10	472	
715 - 730	12	8	21	70	32	29	6	169	48	61	211	14	681	2,011
730 - 745	23	20	34	72	57	14	24	263	64	63	262	25	921	2,546
745 - 800	15	8	17	80	34	12	5	217	51	54	271	22	786	2,860
800 - 815	13	8	30	76	32	12	24	136	26	41	140	17	555	2,943
815 - 830	14	13	25	52	39	13	7	132	38	33	135	15	516	2,778
PEAK 15 MINUTE PERIOD:														
730 - 745	23	20	34	72	57	14	24	263	64	63	262	25	921	-
PEAK HOUR PERIOD:														
715 - 815	63	44	102	298	155	67	59	785	189	219	884	78	-	2943
PEAK HOUR FACTOR:														
715 - 815	0.68	0.55	0.75	0.93	0.68	0.58	0.61	0.75	0.74	0.87	0.82	0.78		
		0.68			0.91			0.74			0.84			

PEAK HOUR TURNING MOVEMENT DIAGRAM



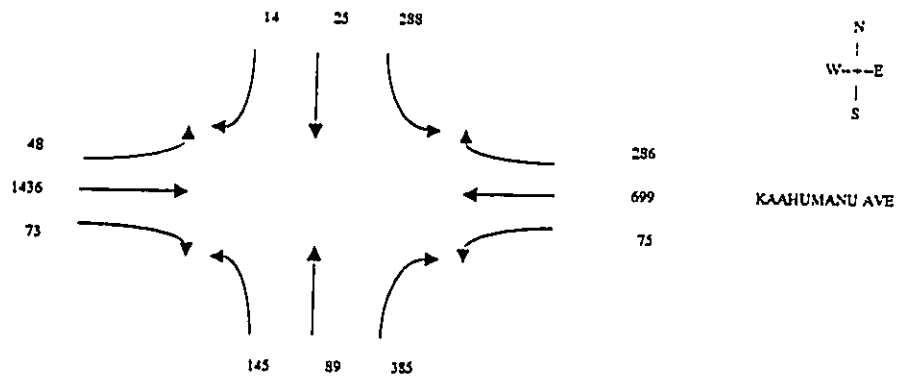
INTERSECTION COUNT SURVEY SUMMARY

North/South Street : KANALOA /MAHALANI AVE
East/West Street : KAAHUMANU AVE
Weather : CLEAR

Period: PM
Date: 5/14/97
Day : WED

15 MINUTE PERIOD	KANALOA /MAHALANI AVE NORTHBOUND LEFT	NORTHBOUND THRU	NORTHBOUND RGHT	SOUTHBOUND LEFT	SOUTHBOUND THRU	SOUTHBOUND RGHT	KAAHUMANU AVE EASTBOUND LEFT	EASTBOUND THRU	EASTBOUND RGHT	WESTBOUND LEFT	WESTBOUND THRU	WESTBOUND RGHT	TOTAL VOLUME 15 MIN	TOTAL VOLUME HOURLY
330 - 345	43	22	150	59	24	10	23	24	21	23	204	57	662	
345 - 400	25	15	83	63	7	5	6	493	23	26	171	58	975	
400 - 415	47	24	89	86	10	5	15	246	17	21	193	95	848	
415 - 430	36	29	86	67	5	2	20	302	20	11	134	52	764	3,249
430 - 445	37	21	127	72	3	2	7	395	13	17	201	81	976	3,563
445 - 500	42	20	72	96	3	5	17	317	10	38	186	86	892	3,480
500 - 515	15	22	86	65	3	5	14	300	11	5	174	67	767	3,399
515 - 530	2	15	47	66	4	3	12	243	6	16	137	68	617	3,252
PEAK 15 MINUTE PERIOD:														
430 - 445	37	21	127	72	3	2	7	395	13	17	201	81	976	--
PEAK HOUR PERIOD:														
345 - 445	145	89	385	288	25	14	48	1436	73	75	699	286	--	3563
PEAK HOUR FACTOR:														
345 - 445	0.77	0.77	0.76	0.84	0.63	0.70	0.60	0.73	0.79	0.72	0.87	0.75		
		0.84			0.81			0.75			0.86			

PEAK HOUR TURNING MOVEMENT DIAGRAM



ATA INC

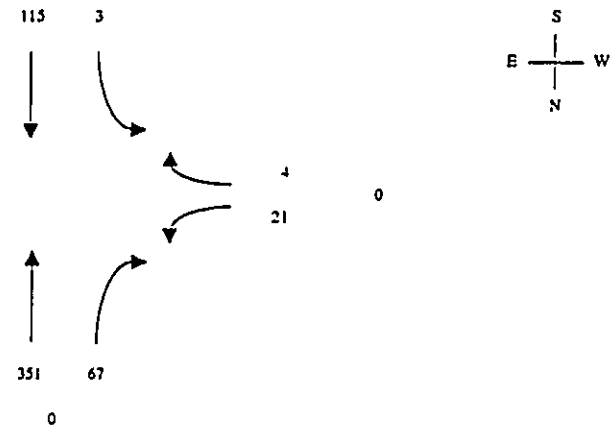
INTERSECTION COUNT SURVEY SUMMARY

North/South Street : Mahalani Street
East/West Street : Cameron Center Driveway
Weather : Clear

Period: AM
Date: 11/6/97
Day : Thurs

15 MINUTE PERIOD	NORTHBOUND LEFT	NORTHBOUND THRU	NORTHBOUND RGHT	SOUTHBOUND LEFT	SOUTHBOUND THRU	SOUTHBOUND RGHT	EASTBOUND LEFT	EASTBOUND THRU	EASTBOUND RGHT	WESTBOUND LEFT	WESTBOUND THRU	WESTBOUND RGHT	TOTAL VOLUME 15 MIN	TOTAL VOLUME HOURLY
630 - 645	0	10	0	0	43	4	2	0	0	0	0	0	59	
645 - 700	0	28	0	0	77	11	4	0	1	0	0	0	121	
700 - 715	1	29	0	0	97	10	4	0	1	0	0	0	142	
715 - 730	1	26	0	0	102	31	6	0	1	0	0	0	167	489
730 - 745	1	32	0	0	75	15	7	0	1	0	0	0	131	561
PEAK 15 MINUTE PERIOD:														
715 - 730	1	26	0	0	102	31	6	0	1	0	0	0	167	-
PEAK HOUR PERIOD:														
645 - 745	3	115	0	0	351	67	21	0	4	0	0	0	-	561
PEAK HOUR FACTOR:														
645 - 745	0.75	0.90	-	-	0.86	0.54	0.88	-	1.00	-	-	-		0.84
		0.89			0.79			0.89			-			

PEAK HOUR TURNING MOVEMENT DIAGRAM



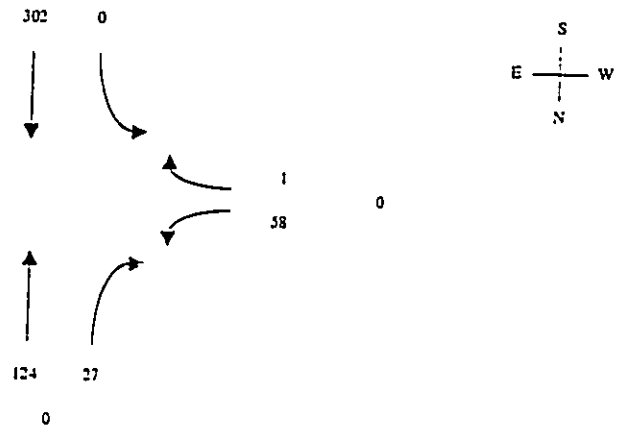
INTERSECTION COUNT SURVEY SUMMARY

North/South Street : Mahalani Street
East/West Street : Cameron Center Driveway
Weather : Clear

Period: PM
Date: 11/13/97
Day : Thurs

15 MINUTE PERIOD	NORTHBOUND LEFT	NORTHBOUND THRU	NORTHBOUND RGHT	SOUTHBOUND LEFT	SOUTHBOUND THRU	SOUTHBOUND RGHT	EASTBOUND LEFT	EASTBOUND THRU	EASTBOUND RGHT	WESTBOUND LEFT	WESTBOUND THRU	WESTBOUND RGHT	TOTAL VOLUME 15 MIN	TOTAL VOLUME HOURLY
300 - 315	0	107	0	0	38	10	14	0	0	0	0	0	169	
315 - 330	0	54	0	0	25	10	19	0	0	0	0	0	108	
330 - 345	0	77	0	0	27	4	14	0	1	0	0	0	123	
345 - 400	0	64	0	0	34	3	11	0	0	0	0	0	112	512
400 - 415	0	95	0	0	39	2	8	0	0	0	0	0	144	487
415 - 430	0	47	0	0	31	5	7	0	0	0	0	0	90	469
PEAK 15 MINUTE PERIOD:														
300 - 315	0	107	0	0	38	10	14	0	0	0	0	0	169	-
PEAK HOUR PERIOD:														
300 - 400	0	302	0	0	124	27	58	0	1	0	0	0	-	512
PEAK HOUR FACTOR:														
300 - 400	-	0.71	-	-	0.82	0.68	1.04	-	#DIV/0!	-	-	-		0.76
		0.71			0.79			1.05			-			

PEAK HOUR TURNING MOVEMENT DIAGRAM



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APPENDIX B

LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service definitions for unsignalized intersections is determined by the reserve or unused capacity of a lane. The potential capacity is determined by the size and frequency in gaps in conflicting traffic that can accommodate the side street demand. The reserve capacity is equal to the potential capacity minus the traffic demand. A lower Level of Service translates into longer side street delay. The Levels of Service criteria are shown in the following table:

Level-of-Service Criteria
for Unsignalized Intersections

Reserve Capacity (PCPH)	Level of Service	Expected Delay to Minor Street Traffic
≥ 400	A	Little or no delay
300-399	B	Short traffic delays
200-299	C	Average traffic delays
100-199	D	Long traffic delays
0- 99	E	Very long traffic delays
< 0	F	Extreme traffic delays

LEVEL OF SERVICE OF SIGNALIZED INTERSECTIONS

Level of service for signalized intersections is defined in terms of delay. Delay is a measure of driver discomfort, frustration, fuel consumption and lost travel time. specifically, level-of-service criteria are stated in terms of the average stopped delay per vehicle for a 15-minute analysis period. The criteria are given in Table A-1.

Table A-1. Level-of Service Criteria for Signalized Intersections

Level of Service	Stopped Delay for Vehicle (SEC)
A	$\leq$ 5.0
B	5.1 to 15.0
C	15.1 to 25.0
D	25.1 to 40.0
E	40.1 to 60.0
F	> 60.0

Delay is a complex measure, and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group or approach in question.

Level-of-service A describes operations with very low delay, i.e., less than 5.0 seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

Level-of-service B describes operations with delay in the range of 5.1 to 15.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.

Level-of-service C describes operations with delay in the range of 15.1 to 25.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

Level-of-service D describes operations with delay in the range of 25.1 to 40.0 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level-of-service E describes operations with delay in the range of 40.1 to 60.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths and high v/c ratios. Individual cycle failures are frequent occurrences.

LEVEL OF SERVICE OF SIGNALIZED INTERSECTIONS (CONTINUED)

Level-of-service F describes operations with delay in excess of 60.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

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APPENDIX C

LEVEL OF SERVICE CALCULATIONS

Cameron Center
Existing
AM PEAK HOUR

11/17/97
14:39:21

SIGNAL94/TEAPAC[V1 L1.4] - Summary of Parameter Values

Intersection Parameters for Int # 0 - Kaahumanu Ave & Mahalani St.

METROAREA	NONCBD	
LOSTTIME	3.0	
LEVELOFSERVICE	C	S
NODELOCATION	0	0

Approach Parameters

	SB	WB	NB	EB
APPLABELS				
GRADES	.0	.0	.0	.0
PEDLEVELS	LOW	LOW	LOW	LOW
PARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	20	20	20	20
BUSVOLUMES	0	0	0	0
RIGHTTURNONREDS	0	0	0	0

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
VOLUMES	67	155	298	78	884	219	102	44	63	189	785	59
WIDTHS	12.0	12.0	12.0	12.0	24.0	12.0	12.0	12.0	.0	12.0	24.0	12.0
LANES	1	1	1	1	2	1	1	1	0	1	2	1
UTILIZATIONS	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
TRUCKPERCENTS	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
PEAKHOURFACTORS	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
ACTUATIONS	NO	YES	YES	NO	YES	YES	NO	YES	YES	NO	YES	YES
REQCLEARANCES	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
MINIMUMS	5.0	15.0	5.0	5.0	20.0	5.0	5.0	4.0	5.0	5.0	20.0	5.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	DOPT	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	1539	1832	1770	1539	3725	1770	1539	1809	0	1539	3725	1770

Phasing Parameters

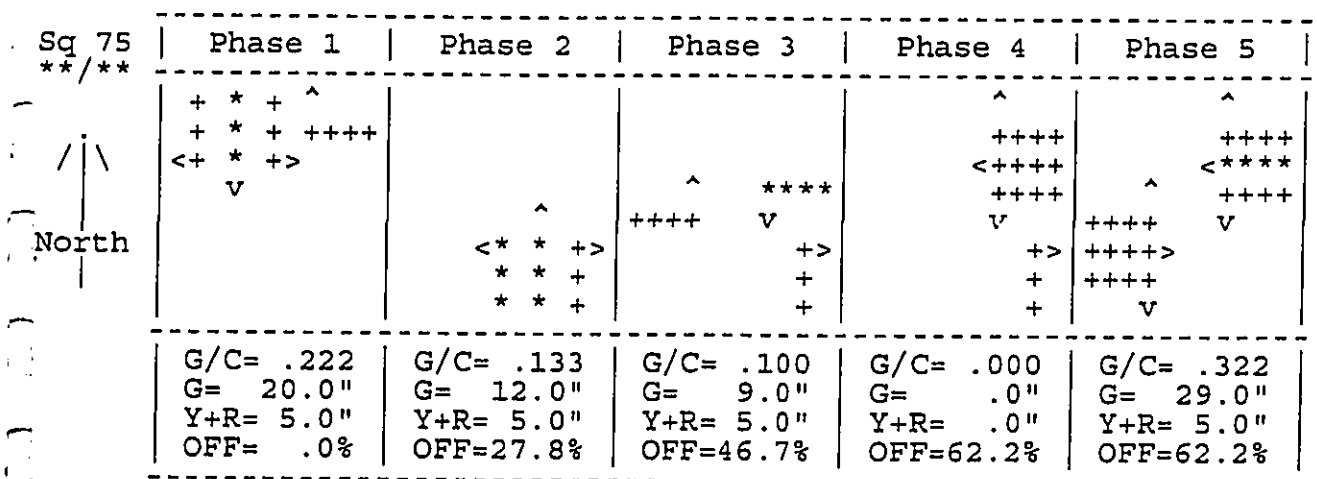
SEQUENCES	75						
PERMISSIVES	NO	YES	NO	YES			
OVERLAPS	YES	YES	YES	YES		LEADLAGS	NONE NONE
CYCLES	90	90	10			OFFSET	.00 1
GREENTIMES	20.00	12.00	9.00	.00	29.00	PEDTIME	.0 0
YELLOWTIMES	5.00	5.00	5.00	.00	5.00		
CRITICALS	2	8	6	0	5		
EXCESS	0						

Cameron Center
Existing
AM PEAK HOUR

11/17/97
14:39:39

SIGNAL94/TEAPAC[V1 L1.4] - Capacity Analysis Summary

Intersection Averages for Int # 0 - Kaahumanu Ave & Mahalani St.
Degree of Saturation (v/c) .56 Vehicle Delay 16.9 Level of Service C+



C= 90 sec G= 70.0 sec = 77.8% Y=20.0 sec = 22.2% Ped= .0 sec = .0%

Lane Group	Width/ Lanes	g/C Reqd	g/C Used	Service Rate @C (vph)	Service Rate @E (vph)	Adj Volume	v/c	HCM Delay	L S	90% Max Queue
SB Approach								19.5	C+	
RT	12/1	.109	.244	275	376	67	.178	17.4	C+	64 ft
TH	12/1-	.191	.244	336	448	232	.518	19.9	*C+	222 ft
LT	12/1+	.190	.244	323	433	221	.510	19.8	C+	211 ft
NB Approach								18.7	C+	
RT	12/1	.133	.311	385	479	102	.213	14.8	B	89 ft
LT+TH	12/1	.123	.156	164	275	106	.377	22.4	*C	113 ft
WB Approach								16.4	C+	
RT	12/1	.117	.622	920	958	78	.081	4.4	A	37 ft
TH	24/2	.277	.344	1164	1283	884	.689	17.5	*C+	367 ft
LT	12/1	.101	.122	251	299	219	.732	16.4	*C+	139 ft
EB Approach								15.7	C+	
RT	12/1	.191	.344	441	530	189	.357	14.4	B	157 ft
TH	24/2	.254	.344	1164	1283	785	.612	16.5	C+	325 ft
LT	12/1	.009	.122	252	299	59	.197	9.7	B+	40 ft

Cameron Center
Existing
PM PEAK HOUR

11/17/97
14:36:45

SIGNAL94/TEAPAC[V1 L1.4] - Summary of Parameter Values

Intersection Parameters for Int # 0 - Kaahumanu Ave & Mahalani St.

METROAREA	NONCBD	
LOSTTIME	3.0	
LEVELOFSERVICE	C	S
NODELOCATION	0	0

Approach Parameters

APPLABELS	SB	WB	NB	EB
GRADES	.0	.0	.0	.0
PEDLEVELS	LOW	LOW	LOW	LOW
PARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	20	20	20	20
BUSVOLUMES	0	0	0	0
RIGHTTURNONREDS	0	0	0	0

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
VOLUMES	14	25	288	286	699	75	385	89	145	73	1436	48
WIDTHS	12.0	12.0	12.0	12.0	24.0	12.0	12.0	12.0	.0	12.0	24.0	12.0
LANES	1	1	1	1	2	1	1	1	0	1	2	1
UTILIZATIONS	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
TRUCKPERCENTS	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
PEAKHOURFACTORS	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
ACTUATIONS	NO	YES	YES	NO	YES	YES	NO	YES	YES	NO	YES	YES
REQCLEARANCES	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
MINIMUMS	5.0	15.0	5.0	5.0	20.0	5.0	5.0	4.0	5.0	5.0	20.0	5.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	DOPT	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	1539	1787	1770	1539	3725	1770	1539	1807	0	1539	3725	1770

Phasing Parameters

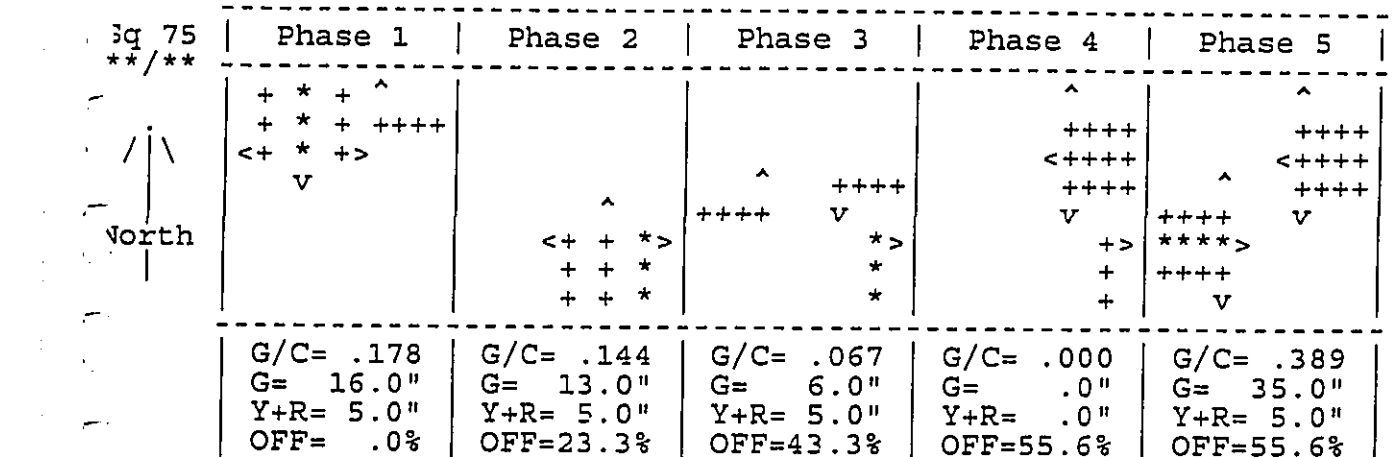
SEQUENCES	75							
PERMISSIVES	NO	YES	NO	YES		LEADLAGS	NONE	NONE
OVERLAPS	YES	YES	YES	YES		OFFSET	.00	1
CYCLES	90	90	10			PEDTIME	.0	0
GREENTIMES	16.00	13.00	6.00	.00	35.00			
YELLOWTIMES	5.00	5.00	5.00	.00	5.00			
CRITICALS	2	7	7	0	11			
EXCESS	0							

Cameron Center
Existing
PM PEAK HOUR

11/17/97
14:37:48

SIGNAL94/TEAPAC[V1 L1.4] - Capacity Analysis Summary

Intersection Averages for Int # 0 - Kaahumanu Ave & Mahalani St.
Degree of Saturation (v/c) .69 Vehicle Delay 20.7 Level of Service C



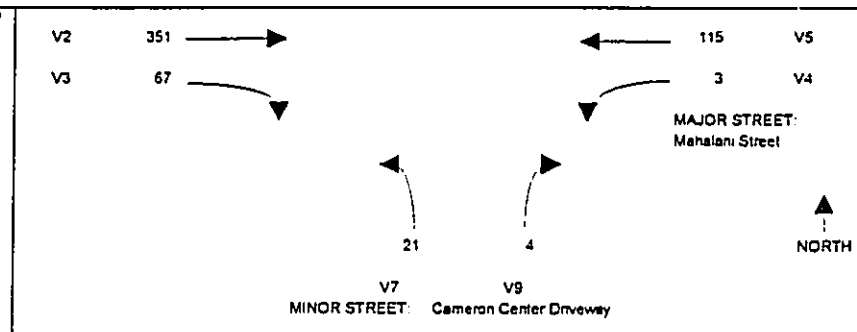
C= 90 sec G= 70.0 sec = 77.8% Y=20.0 sec = 22.2% Ped= .0 sec = .0%

Lane Group	Width/ Lanes	g/C Reqd	g/C Used	Service Rate @C (vph)	Service Rate @E (vph)	Adj Volume	v/c	HCM Delay	L S	90% Max Queue
SB Approach								20.9	C	
RT	12/1	.077	.200	204	305	14	.045	18.8	C+	25 ft
TH	12/1-	.155	.200	242	357	161	.451	21.1	*C	163 ft
LT	12/1+	.151	.200	240	354	152	.429	20.9	C	154 ft
NB Approach								31.2	D+	
RT	12/1	.312	.289	348	445	385	.865	30.9	*D+	346 ft
LT+TH	12/1	.195	.167	184	297	235	.781	31.6	D+	248 ft
WB Approach								10.3	B	
RT	12/1	.252	.644	958	992	286	.288	4.6	A	129 ft
TH	24/2	.233	.411	1441	1532	699	.456	12.6	B	260 ft
LT	12/1	.018	.089	194	240	75	.313	11.5	B	44 ft
EB Approach								23.5	C	
RT	12/1	.113	.411	555	633	73	.115	10.6	B	54 ft
TH	24/2	.410	.411	1441	1532	1436	.937	24.7	*C	535 ft
LT	12/1	.000	.089	238	276	48	.174	7.9	B+	30 ft

ATA Inc | STOP CONTROLLED T-INTERSECTION LEVEL OF SERVICE ANALYSIS | 1994 HCM

Major Street:	Mahalani Street	Print Date:	17-Nov
Minor Street:	Cameron Center Driveway	Analyst:	KKN
Peak Hour:	AM	File Name:	CAMERON
Scenario:	EXISTING	Intersection:	

Peak Hour Factor:	1.00						
——MAJOR STREET——		V2	351	→	←	115	V5
Num of Lanes - V2:	1						
Excl RT - V3 (Y/N):	N	V3	67	↘	↙	3	V4
Stop/Yield - V3 (Y/N):	N						
% Grade - V2,V3:	0						
Num of Lanes - V5:	1						
Excl LT - V4 (Y/N):	N						
% Grade - V4,V5:	0						
——MINOR STREET——							
Num of Lanes - V7,V9:	1						
Shared Lane (Y/N):	N						
% Grade - V7&V9:	0						



VOLUME ADJUSTMENTS						
MOVEMENT NO	2	3	4	5	7	9
VOLUME, V (vph)	351	67	3	115	21	4
VOLUME, v (pcph)	351	67	3	115	23	4

STEP 1: RT FROM MINOR STREET - V9							
Conflicting Flows:	Vc,9 = 1/2*V3+V2 =		34	+	351	=	385 vph
Potential Capacity:	Cp,9 =						884 pcph
Movement Capacity:	Cm,p = Cp,9 =						884 pcph
STEP 2: LT FROM MAJOR STREET - V4							
Conflicting Flows:	Vc,4 = V3+V2 =		67	+	351	=	418 vph
Potential Capacity:	Cp,4 =						1084 pcph
Movement Capacity:	Cm,4 = Cp,4 =						1084 pcph
Prob. of Queue-free State:	po,4 = 1-v4/Cm,4 =						1.00
Major Left Shared Lane Prob of Queue-free State:	p*o,4 =						1.00
STEP 3: LT FROM MINOR STREET - V7							
Conflicting Flows:	Vc,7 = 1/2V3+V2+V5+V4 =						503 vph
Potential Capacity:	Cp,7 =						542 pcph
Capacity Adjustment Factor Due To Impeding Movements:	f7=po,4=						1.00
Movement Capacity:	Cm,7 = Cp,7 =						540 pcph

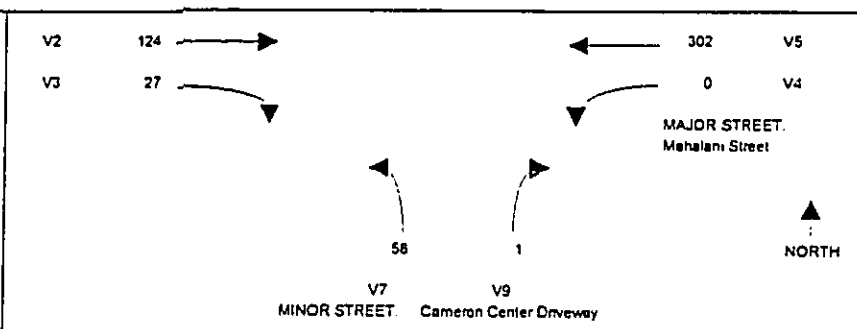
DELAY AND LEVEL OF SERVICE SUMMARY Movement	v(vph)	cm(pcph)	csh (pcph)	AVG TOTAL DELAY	LOS
MINOR LEFT TURN (7)	23	540	--NA--	7.0	B
MINOR RIGHT TURN (9)	4	884	--NA--	4.1	A
MAJOR LEFT TURN (4)	3	1084	——	3.3	A

AVERAGE MINOR APPROACH DELAY =	6.5 sec/veh	AVERAGE TOTAL INTERSECTION DELAY =	0.3 sec/veh
LEVEL OF SERVICE =	B	LEVEL OF SERVICE =	A

ATA Inc. STOP CONTROLLED INTERSECTION LEVEL OF SERVICE ANALYSIS 1994 HCM

Major Street:	Mahalani Street	Print Date	17-Nov
Minor Street:	Cameron Center Driveway	Analyst:	KKN
Peak Hour	PM	File Name	IKEEKOLU
Scenario	EXISTING	Intersection	

Peak Hour Factor:	1.00
——MAJOR STREET——	
Num of Lanes - V2:	1
Excl RT - V3 (Y/N)	N
Stop/Yield - V3 (Y/N):	N
% Grade - V2,V3:	0
Num of Lanes - V5:	1
Excl LT - V4 (Y/N)	N
% Grade - V4,V5:	0
——MINOR STREET——	
Num of Lanes - V7,V9:	1
Shared Lane (Y/N):	N
% Grade - V7&V9:	0



VOLUME ADJUSTMENTS

MOVEMENT NO.	2	3	4	5	7	9
VOLUME, V (vph)	124	27	0	302	58	1
VOLUME, v (pcph)	124	27	0	302	64	1

STEP 1: RT FROM MINOR STREET - V9

Conflicting Flows:	Vc,9 = 1/2*V3+V2 =	14	+	124	=	138 vph
Potential Capacity:	Cp,9 =					1179 pcph
Movement Capacity:	Cm,p = Cp,9 =					1179 pcph

STEP 2: LT FROM MAJOR STREET - V4

Conflicting Flows:	Vc,4 = V3+V2 =	27	+	124	=	151 vph
Potential Capacity:	Cp,4 =					1453 pcph
Movement Capacity:	Cm,4 = Cp,4 =					1453 pcph
Prob. of Queue-free State:	po,4 = 1-v4/Cm,4 =					1.00
Major Left Shared Lane Prob. of Queue-free State:	p*o,4 =					1.00

STEP 3: LT FROM MINOR STREET - V7

Conflicting Flows:	Vc,7 = 1/2V3+V2+V5+V4 =	440	vph
Potential Capacity:	Cp,7 =	589	pcph
Capacity Adjustment Factor Due To Impeding Movements:	f7*po,4=	1.00	
Movement Capacity:	Cm,7 = Cp,7 *	589	pcph

DELAY AND LEVEL OF SERVICE SUMMARY

Movement	v(vph)	cm(pcph)	csn (pcph)	AVG TOTAL DELAY	LOS
MINOR LEFT TURN (7)	64	589	–NA–	6.8	B
MINOR RIGHT TURN (9)	1	1179	–NA–	3.1	A
MAJOR LEFT TURN (4)	0	1453	——	2.5	A

AVERAGE MINOR APPROACH DELAY =	6.8	AVERAGE TOTAL INTERSECTION DELAY =	0.9 sec/veh
LEVEL OF SERVICE =	B	LEVEL OF SERVICE =	A

Cameron Center
2000 Base Year
AM PEAK HOUR

11/17/97
14:41:48

SIGNAL94/TEAPAC[V1 L1.4] - Summary of Parameter Values

Intersection Parameters for Int # 0 - Kaahumanu Ave & Mahalani St.

METROAREA	NONCBD	
LOSTTIME	3.0	
LEVELOFSERVICE	C	S
NODELOCATION	0	0

Approach Parameters

APPLABELS	SB	WB	NB	EB
GRADES	.0	.0	.0	.0
PEDLEVELS	LOW	LOW	LOW	LOW
PARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	20	20	20	20
BUSVOLUMES	0	0	0	0
RIGHTTURNONREDS	0	0	0	0

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
VOLUMES	70	160	305	80	915	225	170	45	65	60	875	195
WIDTHS	12.0	12.0	12.0	12.0	24.0	12.0	12.0	12.0	.0	12.0	24.0	12.0
LANES	1	1	1	1	2	1	1	1	0	1	2	1
UTILIZATIONS	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
TRUCKPERCENTS	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
PEAKHOURFACTORS	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
ACTUATIONS	NO	YES	YES	NO	YES	YES	NO	YES	YES	NO	YES	YES
REQCLEARANCES	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
MINIMUMS	5.0	15.0	5.0	5.0	20.0	5.0	5.0	4.0	5.0	5.0	20.0	5.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	DOPT	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	1539	1833	1770	1539	3725	1770	1539	1809	0	1539	3725	1770

Phasing Parameters

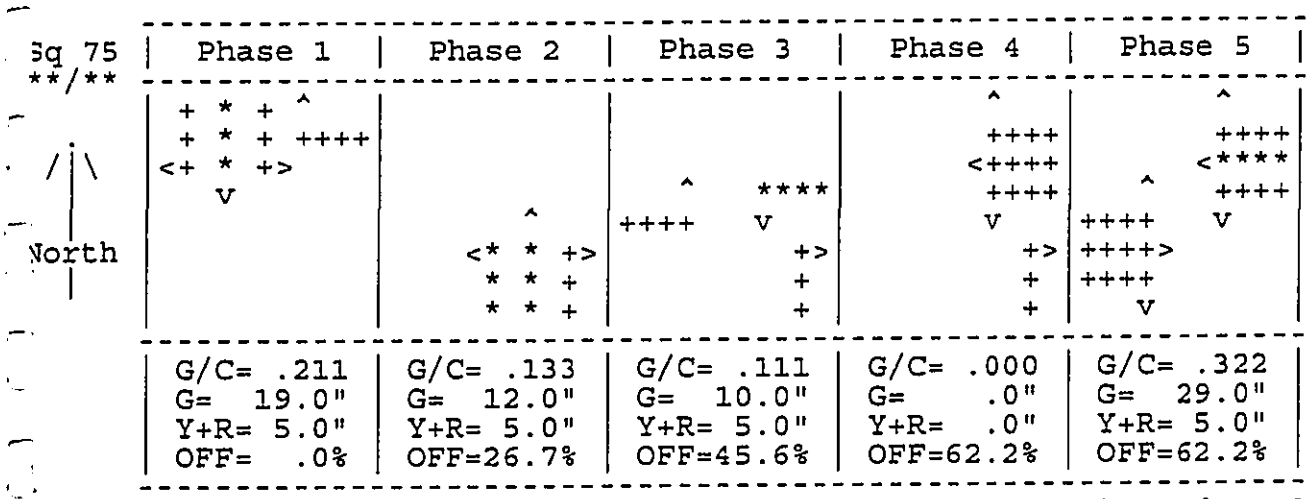
SEQUENCES	75							
PERMISSIVES	NO	YES	NO	YES		LEADLAGS	NONE	NONE
OVERLAPS	YES	YES	YES	YES		OFFSET	.00	1
CYCLES	90	90	10			PEDTIME	.0	0
GREENTIMES	19.00	12.00	10.00	.00	29.00			
YELLOWTIMES	5.00	5.00	5.00	.00	5.00			
CRITICALS	2	8	6	0	5			
EXCESS	0							

Cameron Center
2000 Base Year
AM PEAK HOUR

11/17/97
14:42:07

SIGNAL94/TEAPAC[V1 L1.4] - Capacity Analysis Summary

Intersection Averages for Int # 0 - Kaahumanu Ave & Mahalani St.
Degree of Saturation (v/c) .60 Vehicle Delay 17.3 Level of Service C+



C= 90 sec G= 70.0 sec = 77.8% Y=20.0 sec = 22.2% Ped= .0 sec = .0%

Lane Group	Width/ Lanes	g/C Reqd	g/C Used	Service Rate @C (vph)	Service Rate @E (vph)	Adj Volume	v/c	HCM Delay	L S	90% Max Queue
SB Approach								20.5	C	
RT	12/1	.111	.233	257	359	70	.195	17.9	C+	68 ft
TH	12/1-	.194	.233	314	428	238	.556	20.9	*C	231 ft
LT	12/1+	.194	.233	302	413	227	.550	20.8	C	220 ft
NB Approach								18.1	C+	
RT	12/1	.178	.322	404	496	170	.343	15.2	C+	146 ft
LT+TH	12/1	.125	.156	164	275	109	.388	22.5	*C	116 ft
WB Approach								16.6	C+	
RT	12/1	.118	.611	899	940	80	.085	4.6	A	39 ft
TH	24/2	.285	.344	1164	1283	915	.713	17.9	*C+	379 ft
LT	12/1	.105	.133	267	319	225	.705	15.4	*C+	142 ft
EB Approach								16.4	C+	
RT	12/1	.104	.344	441	530	60	.113	13.0	B	50 ft
TH	24/2	.275	.344	1164	1283	875	.682	17.4	C+	363 ft
LT	12/1	.088	.133	269	319	195	.611	13.0	B	129 ft

Cameron Center
2000 BASE YEAR
PM PEAK HOUR

11/17/97
14:43:51

SIGNAL94/TEAPAC[V1 L1.4] - Summary of Parameter Values

Intersection Parameters for Int # 0 - Kaahumanu Ave & Mahalani St.

METROAREA	NONCBD	
LOSTTIME	3.0	
LEVELOFSERVICE	C	S
NODELOCATION	0	0

Approach Parameters

APPLABELS	SB	WB	NB	EB
GRADES	.0	.0	.0	.0
PEDLEVELS	LOW	LOW	LOW	LOW
PARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	20	20	20	20
BUSVOLUMES	0	0	0	0
RIGHTTURNONREDS	0	0	0	0

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
VOLUMES	15	15	295	295	735	90	435	90	150	75	1520	50
WIDTHS	12.0	12.0	12.0	12.0	24.0	12.0	12.0	12.0	.0	12.0	24.0	12.0
LANES	1	1	1	1	2	1	1	1	0	1	2	1
UTILIZATIONS	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
TRUCKPERCENTS	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
PEAKHOURFACTORS	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
ACTUATIONS	NO	YES	YES	NO	YES	YES	NO	YES	YES	NO	YES	YES
REQCLEARANCES	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
MINIMUMS	5.0	15.0	5.0	5.0	20.0	5.0	5.0	4.0	5.0	5.0	20.0	5.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	DOPT	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	1539	1782	1770	1539	3725	1770	1539	1806	0	1539	3725	1770

Phasing Parameters

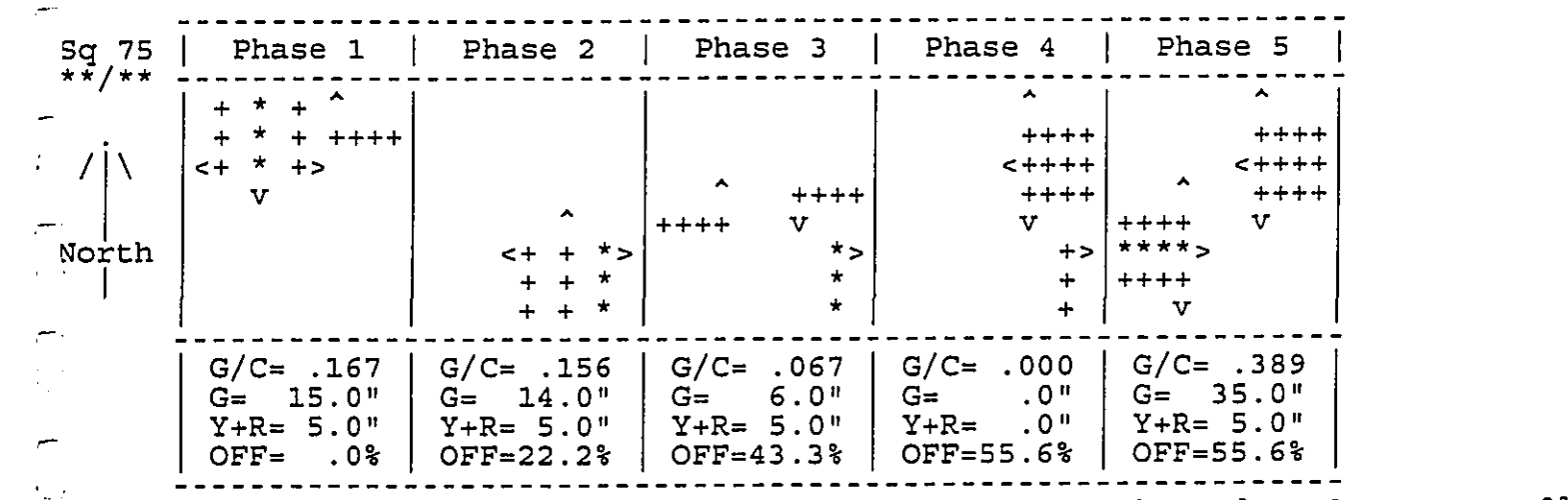
SEQUENCES	75							
PERMISSIVES	NO	YES	NO	YES		LEADLAGS	NONE	NONE
OVERLAPS	YES	YES	YES	YES		OFFSET	.00	1
CYCLES	60	180	10			PEDTIME	.0	0
GREENTIMES	15.00	14.00	6.00	.00	35.00			
YELLOWTIMES	5.00	5.00	5.00	.00	5.00			
CRITICALS	2	7	7	0	11			
EXCESS	0							

Cameron Center
2000 BASE YEAR
PM PEAK HOUR

11/17/97
14:44:08

SIGNAL94/TEAPAC[V1 L1.4] - Capacity Analysis Summary

Intersection Averages for Int # 0 - Kaahumanu Ave & Mahalani St.
Degree of Saturation (v/c) .73 Vehicle Delay 25.2 Level of Service D+



C= 90 sec G= 70.0 sec = 77.8% Y=20.0 sec = 22.2% Ped= .0 sec = .0%

Lane Group	Width/ Lanes	g/C Reqd	g/C Used	Service Rate @C (vph)	Service Rate @E (vph)	Adj Volume	v/c	HCM Delay	LS	90% Max Queue
SB Approach								21.6	C	
RT	12/1	.078	.189	187	287	15	.052	19.3	C+	25 ft
TH	12/1-	.155	.189	222	336	159	.472	21.8	*C	163 ft
LT	12/1+	.151	.189	219	333	151	.452	21.6	C	155 ft
NB Approach								36.1	D	
RT	12/1	.341	.300	367	462	435	.942	40.0	*D	385 ft
LT+TH	12/1	.197	.178	204	318	240	.748	29.0	D+	250 ft
WB Approach								10.6	B	
RT	12/1	.257	.633	939	975	295	.303	4.9	A	137 ft
TH	24/2	.241	.411	1441	1532	735	.480	12.7	B	274 ft
LT	12/1	.026	.089	194	240	90	.375	12.0	B	53 ft
EB Approach								31.3	D+	
RT	12/1	.114	.411	555	633	75	.118	10.6	B	56 ft
TH	24/2	.430	.411	1441	1532	1520	.992	33.1	*D	566 ft
LT	12/1	.000	.089	225	263	50	.190	8.0	B+	32 ft

ATA Inc.

STOP CONTROLLED T-INTERSECTION LEVEL OF SERVICE ANALYSIS

1994 HCM

Major Street: Manalani Street
Minor Street: Cameron Center Driveway
Peak Hour: AM
Scenario: 2000 Base Year

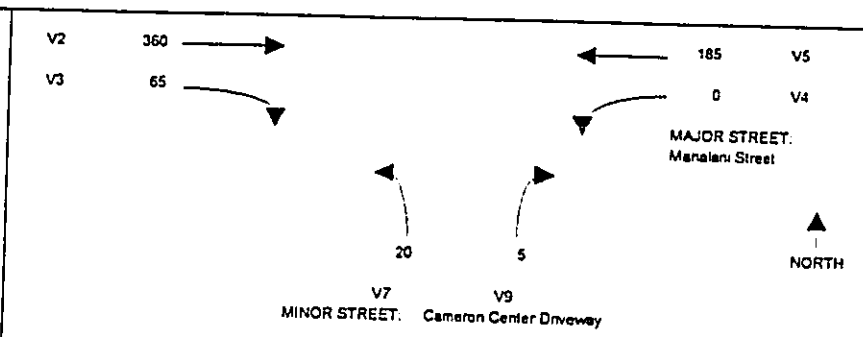
Print Date: 17-Nov
Analyst: KKN
File Name: CAMERON
Intersection:

Peak Hour Factor: 1.00

—MAJOR STREET—
Num of Lanes - V2: 1
Excl RT - V3 (Y/N): N
Stop/Yield - V3 (Y/N): N
% Grade - V2,V3: 0

Num of Lanes - V5: 1
Excl LT - V4 (Y/N): N
% Grade - V4,V5: 0

—MINOR STREET—
Num of Lanes - V7,V9: 1
Shared Lane (Y/N): N
% Grade - V7&V9: 0



VOLUME ADJUSTMENTS

MOVEMENT NO.	2	3	4	5	7	9
VOLUME, V (vph)	360	65	0	185	20	5
VOLUME, v (pcph)	360	65	0	185	22	6

STEP 1: RT FROM MINOR STREET - V9

Conflicting Flows:	Vc,9 = 1/2*V3+V2 =	33	+	360	=	393 vph
Potential Capacity:	Cp,9 =					876 pcph
Movement Capacity:	Cm,p = Cp,9 =					876 pcph

STEP 2: LT FROM MAJOR STREET - V4

Conflicting Flows:	Vc,4 = V3+V2 =	65	+	360	=	425 vph
Potential Capacity:	Cp,4 =					1075 pcph
Movement Capacity:	Cm,4 = Cp,4 =					1075 pcph
Prob. of Queue-free State:	po,4 = 1-v4/Cm,4 =					1.00
Major Left Shared Lane Prob. of Queue-free State:	p*o,4 =					1.00

STEP 3: LT FROM MINOR STREET - V7

Conflicting Flows:	Vc,7 = 1/2V3+V2+V5+V4 =					
Potential Capacity:	Cp,7 =					578 vph
Capacity Adjustment Factor Due To Impeding Movements:	f7=po,4=					490 pcph
Movement Capacity:	Cm,7 = Cp,7 =					1.00
						490 pcph

DELAY AND LEVEL OF SERVICE SUMMARY

Movement	v(vcph)	cm(pcph)	csh (pcph)	AVG TOTAL DELAY	LOS
MINOR LEFT TURN (7)	22	490	–NA–	7.7	B
MINOR RIGHT TURN (9)	6	876	–NA–	4.1	A
MAJOR LEFT TURN (4)	0	1075	——	3.3	A

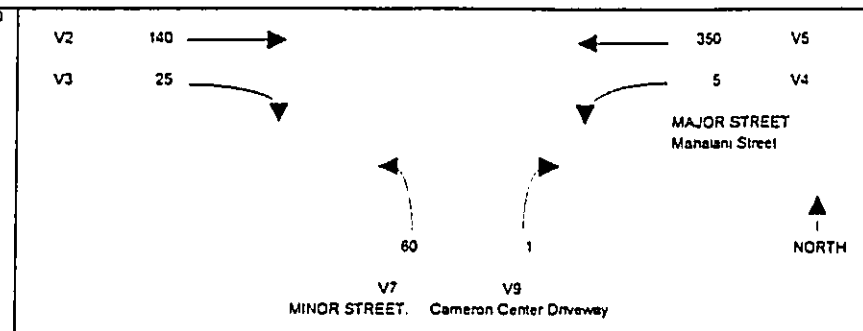
AVERAGE MINOR APPROACH DELAY = 7.0 sec/veh
LEVEL OF SERVICE = B

AVERAGE TOTAL INTERSECTION DELAY = 0.3 sec/veh
LEVEL OF SERVICE = A

ATA Inc | STOP CONTROLLED T-INTERSECTION LEVEL OF SERVICE ANALYSIS | 1994 HCM

Major Street:	Manalani Street	Print Date	17-Nov
Minor Street	Cameron Center Driveway	Analyst	KKN
Peak Hour	PM	File Name	IKEEKOLU
Scenario	2000 Base Year	Intersection	

Peak Hour Factor:	1.00
——MAJOR STREET——	
Num of Lanes - V2:	1
Excl RT - V3 (Y/N):	N
Stop/Yield - V3 (Y/N)	N
% Grade - V2,V3	0
Num of Lanes - V5:	1
Excl LT - V4 (Y/N)	N
% Grade - V4,V5:	0
——MINOR STREET——	
Num of Lanes - V7,V9:	1
Shared Lane (Y/N):	N
% Grade - V7&V9:	0



VOLUME ADJUSTMENTS

MOVEMENT NO.	2	3	4	5	7	9
VOLUME, V (vph)	140	25	5	350	60	1
VOLUME, v (pcph)	140	25	6	350	66	1

STEP 1: RT FROM MINOR STREET - V9

Conflicting Flows:	Vc,9 = 1/2*V3+V2 =		13	+	140	=	153 vph
Potential Capacity:	Cp,9 =						1159 pcph
Movement Capacity:	Cm,p = Cp,9 =						1159 pcph

STEP 2: LT FROM MAJOR STREET - V4

Conflicting Flows:	Vc,4 = V3+V2 =		25	+	140	=	165 vph
Potential Capacity:	Cp,4 =						1430 pcph
Movement Capacity:	Cm,4 = Cp,4 =						1430 pcph
Prob. of Queue-free State:	po,4 = 1-v4/Cm,4 =						1.00
Major Left Shared Lane Prob. of Queue-free State:	p*o,4 =						1.00

STEP 3: LT FROM MINOR STREET - V7

Conflicting Flows:	Vc,7 = 1/2V3+V2+V5+V4 =						508 vph
Potential Capacity:	Cp,7 =						538 pcph
Capacity Adjustment Factor Due To Impeding Movements:	f7=po,4=						1.00
Movement Capacity:	Cm,7 = Cp,7 =						536 pcph

DELAY AND LEVEL OF SERVICE SUMMARY

Movement	v(vcph)	cm(pcph)	csh (pcph)	AVG TOTAL DELAY	LOS
MINOR LEFT TURN (7)	66	536	--NA--	7.7	B
MINOR RIGHT TURN (9)	1	1159	--NA--	3.1	A
MAJOR LEFT TURN (4)	6	1430	-----	2.5	A

AVERAGE MINOR APPROACH DELAY =	7.6 sec/veh	AVERAGE TOTAL INTERSECTION DELAY =	0.9 sec/veh
LEVEL OF SERVICE =	B	LEVEL OF SERVICE =	A

Cameron Center
2000 WITH PROJECT
AM PEAK HOUR

11/17/97
14:49:30

SIGNAL94/TEAPAC[V1 L1.4] - Summary of Parameter Values

Intersection Parameters for Int # 0 - Kaahumanu Ave & Mahalani St.

METROAREA	NONCBD	
LOSTTIME	3.0	
LEVELOFSERVICE	C	S
NODELOCATION	0	0

Approach Parameters

APPLABELS	SB	WB	NB	EB
GRADES	.0	.0	.0	.0
PEDLEVELS	LOW	LOW	LOW	LOW
PARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	20	20	20	20
BUSVOLUMES	0	0	0	0
RIGHTTURNONREDS	0	0	0	0

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
VOLUMES	70	185	305	80	915	260	190	50	75	225	875	60
WIDTHS	12.0	12.0	12.0	12.0	24.0	12.0	12.0	12.0	.0	12.0	24.0	12.0
LANES	1	1	1	1	2	1	1	1	0	1	2	1
UTILIZATIONS	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
TRUCKPERCENTS	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
PEAKHOURFACTORS	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
ACTUATIONS	NO	YES	YES	NO	YES	YES	NO	YES	YES	NO	YES	YES
REQCLEARANCES	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
MINIMUMS	5.0	15.0	5.0	5.0	20.0	5.0	5.0	4.0	5.0	5.0	20.0	5.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	DOPT	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	1539	1839	1770	1539	3725	1770	1539	1809	0	1539	3725	1770

Phasing Parameters

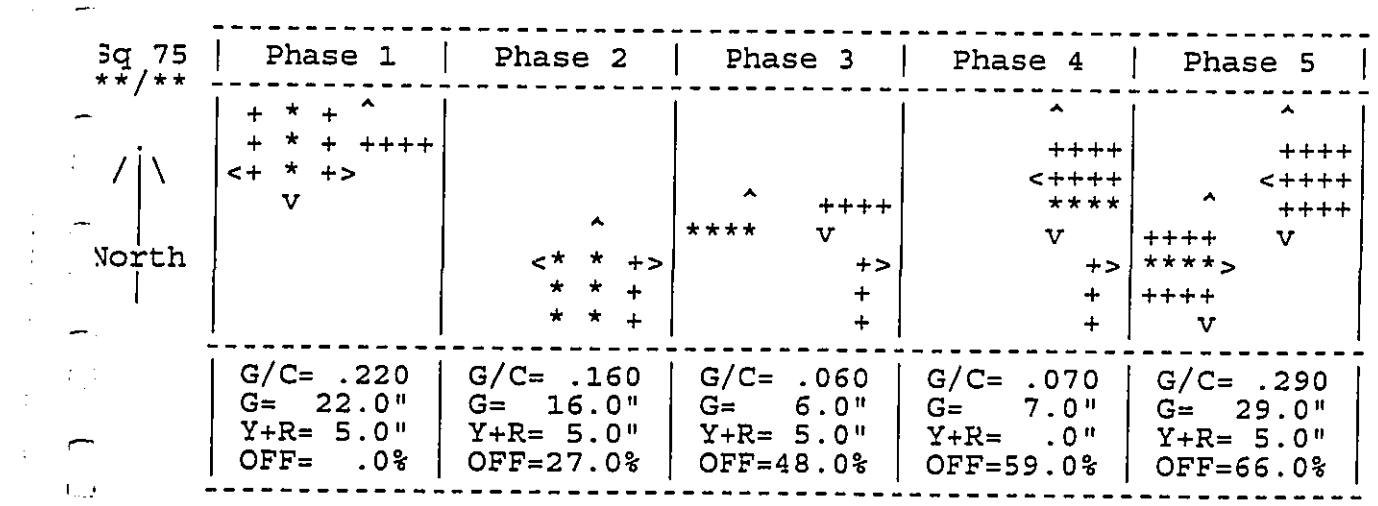
SEQUENCES	75							
PERMISSIVES	NO	YES	NO	YES		LEADLAGS	NONE	NONE
OVERLAPS	YES	YES	YES	YES		OFFSET	.00	1
CYCLES	100	100	10			PEDTIME	.0	0
GREENTIMES	22.00	16.00	6.00	7.00	29.00			
YELLOWTIMES	5.00	5.00	5.00	.00	5.00			
CRITICALS	2	8	12	6	11			
EXCESS	0							

Cameron Center
2000 WITH PROJECT
AM PEAK HOUR

11/17/97
14:49:46

SIGNAL94/TEAPAC[V1 L1.4] - Capacity Analysis Summary

Intersection Averages for Int # 0 - Kaahumanu Ave & Mahalani St.
Degree of Saturation (v/c) .60 Vehicle Delay 19.6 Level of Service C+



C=100 sec G= 80.0 sec = 80.0% Y=20.0 sec = 20.0% Ped= .0 sec = .0%

Lane Group	Width/ Lanes	g/C Reqd	g/C Used	Service Rate @C (vph)	Service Rate @E (vph)	Adj Volume	v/c	HCM Delay	L S	90% Max Queue
SB Approach								22.5	C	
RT	12/1	.145	.240	242	369	70	.190	19.6	C+	75 ft
TH	12/1-	.218	.240	297	441	251	.569	22.9	*C	268 ft
LT	12/1+	.218	.240	285	425	239	.562	22.9	C	255 ft
WB Approach								18.6	C+	
RT	12/1	.210	.360	451	554	190	.343	15.2	C+	171 ft
LT+TH	12/1	.162	.180	166	320	125	.383	23.7	*C	144 ft
NB Approach								17.2	C+	
RT	12/1	.150	.650	961	1000	80	.080	4.2	A	39 ft
TH	24/2	.296	.380	1280	1416	915	.646	17.2	C+	399 ft
LT	12/1	.139	.150	277	340	260	.765	21.3	*C	206 ft
EB Approach								21.0	C	
RT	12/1	.230	.310	364	477	225	.472	18.6	C+	218 ft
TH	24/2	.287	.310	975	1155	875	.758	22.2	*C	424 ft
LT	12/1	.014	.080	169	216	60	.276	13.1	*B	51 ft

Cameron Center
2000 WITH PROJECT
PM PEAK HOUR

11/17/97
14:47:05

SIGNAL94/TEAPAC[V1 L1.4] - Summary of Parameter Values

Intersection Parameters for Int # 0 - Kaahumanu Ave & Mahalani St.

METROAREA	NONCBD	
LOSTTIME	3.0	
LEVELOFSERVICE	C	S
NODELOCATION	0	0

Approach Parameters

APPLABELS	SB	WB	NB	EB
GRADES	.0	.0	.0	.0
PEDLEVELS	LOW	LOW	LOW	LOW
PARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	20	20	20	20
BUSVOLUMES	0	0	0	0
RIGHTTURNONREDS	0	0	0	0

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
VOLUMES	15	20	295	295	735	105	480	105	165	90	1520	50
WIDTHS	12.0	12.0	12.0	12.0	24.0	12.0	12.0	12.0	.0	12.0	24.0	12.0
LANES	1	1	1	1	2	1	1	1	0	1	2	1
UTILIZATIONS	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
TRUCKPERCENTS	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
PEAKHOURFACTORS	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
ACTUATIONS	NO	YES	YES	NO	YES	YES	NO	YES	YES	NO	YES	YES
REQCLEARANCES	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
MINIMUMS	5.0	15.0	5.0	5.0	20.0	5.0	5.0	4.0	5.0	5.0	20.0	5.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	DOPT	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	1539	1785	1770	1539	3725	1770	1539	1808	0	1539	3725	1770

Phasing Parameters

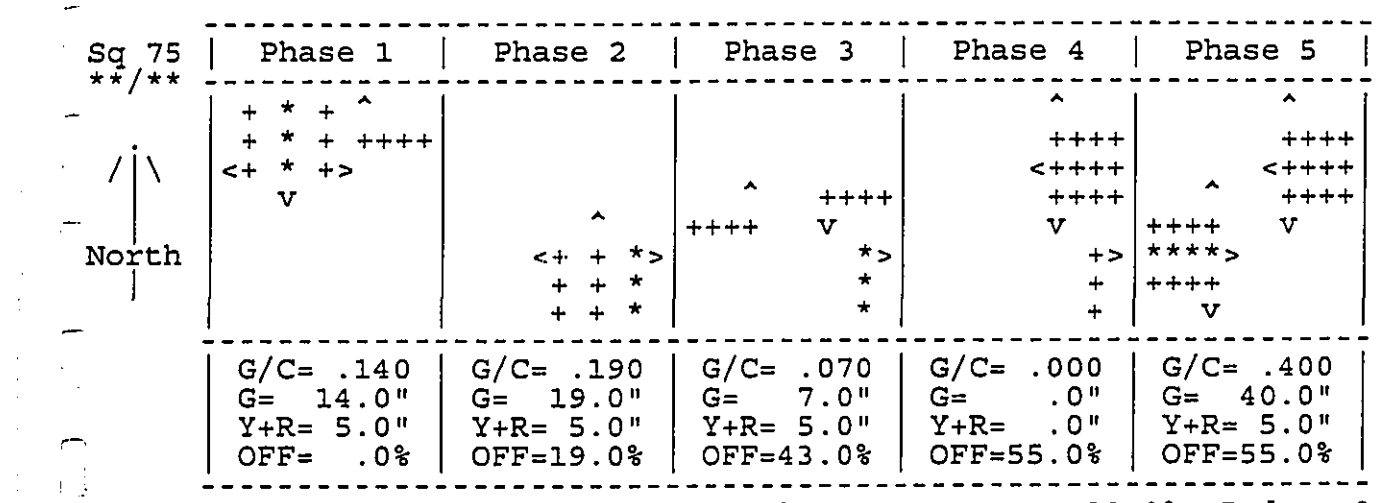
SEQUENCES	75							
PERMISSIVES	NO	YES	NO	YES		LEADLAGS	NONE	NONE
OVERLAPS	YES	YES	YES	YES		OFFSET	.00	1
CYCLES	60	180	10			PEDTIME	.0	0
GREENTIMES	14.00	19.00	7.00	.00	40.00			
YELLOWTIMES	5.00	5.00	5.00	.00	5.00			
CRITICALS	2	7	7	0	11			
EXCESS	0							

Cameron Center
2000 WITH PROJECT
PM PEAK HOUR

11/17/97
14:47:22

SIGNAL94/TEAPAC[V1 L1.4] - Capacity Analysis Summary

Intersection Averages for Int # 0 - Kaahumanu Ave & Mahalani St.
Degree of Saturation (v/c) .72 Vehicle Delay 25.1 Level of Service D+



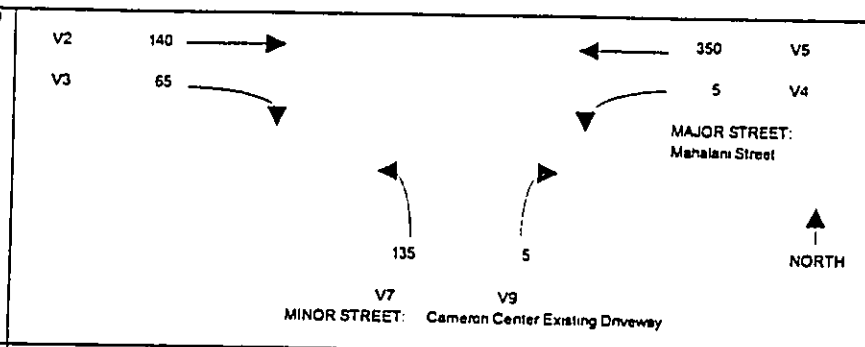
C=100 sec G= 80.0 sec = 80.0% Y=20.0 sec = 20.0% Ped= .0 sec = .0%

Lane Group	Width/ Lanes	g/C Reqd	g/C Used	Service Rate @C (vph)	Service Rate @E (vph)	Adj Volume	v/c	HCM Delay	L S	90% Max Queue
SB Approach								26.6	D+	
RT	12/1	.125	.160	100	236	15	.061	23.0	C	25 ft
TH	12/1-	.180	.160	119	278	162	.566	27.0	*D+	191 ft
LT	12/1+	.176	.160	118	274	153	.541	26.6	D+	181 ft
NB Approach								36.0	D	
RT	12/1	.377	.330	399	508	480	.945	40.5	*E+	452 ft
LT+TH	12/1	.230	.210	229	379	271	.713	28.0	D+	301 ft
WB Approach								11.8	B	
RT	12/1	.271	.610	891	939	295	.314	6.1	B+	162 ft
TH	24/2	.256	.420	1451	1565	735	.470	13.7	B	300 ft
LT	12/1	.040	.090	182	231	105	.449	14.0	B	68 ft
EB Approach								28.9	D+	
RT	12/1	.155	.420	556	646	90	.139	11.5	B	73 ft
TH	24/2	.437	.420	1451	1565	1520	.971	30.6	*D+	620 ft
LT	12/1	.000	.090	228	268	50	.187	8.6	B+	34 ft

ATA Inc. STOP CONTROLLED T-INTERSECTION LEVEL OF SERVICE ANALYSIS 1994 HCM

Major Street:	Mahalani Street	Print Date:	26-Nov
Minor Street:	Cameron Center Existing Driveway	Analyst:	KKN
Peak Hour:	PM	File Name:	IKEEKOLU
Scenario:	Future w/ Project	Intersection:	

Peak Hour Factor:	1.00
—MAJOR STREET—	
Num of Lanes - V2:	1
Excl RT - V3 (Y/N):	N
Stop/Yield - V3 (Y/N):	N
% Grade - V2,V3:	0
Num of Lanes - V5:	1
Excl LT - V4 (Y/N):	N
% Grade - V4,V5:	0
—MINOR STREET—	
Num of Lanes - V7,V9:	1
Shared Lane (Y/N):	N
% Grade - V7&V9:	0



VOLUME ADJUSTMENTS

MOVEMENT NO.	2	3	4	5	7	9
VOLUME, V (vph)	140	65	5	350	135	5
VOLUME, v (pcph)	140	65	6	350	149	6

STEP 1: RT FROM MINOR STREET - V9

Conflicting Flows:	Vc,9 = 1/2*V3+V2 =	33	+	140	=	173 vph
Potential Capacity:	Cp,9 =					1132 pcph
Movement Capacity:	Cm,p = Cp,9 =					1132 pcph

STEP 2: LT FROM MAJOR STREET - V4

Conflicting Flows:	Vc,4 = V3+V2 =	65	+	140	=	205 vph
Potential Capacity:	Cp,4 =					1369 pcph
Movement Capacity:	Cm,4 = Cp,4 =					1369 pcph
Prob. of Queue-free State:	po,4 = 1-v4/Cm,4 =					1.00
Major Left Shared Lane Prob. of Queue-free State:	p*o,4 =					0.99

STEP 3: LT FROM MINOR STREET - V7

Conflicting Flows:	Vc,7 = 1/2V3+V2+V5+V4 =		528 vph
Potential Capacity:	Cp,7 =		524 pcph
Capacity Adjustment Factor Due To Impeding Movements:	f7=po,4=		0.99
Movement Capacity:	Cm,7 = Cp,7 =		521 pcph

DELAY AND LEVEL OF SERVICE SUMMARY

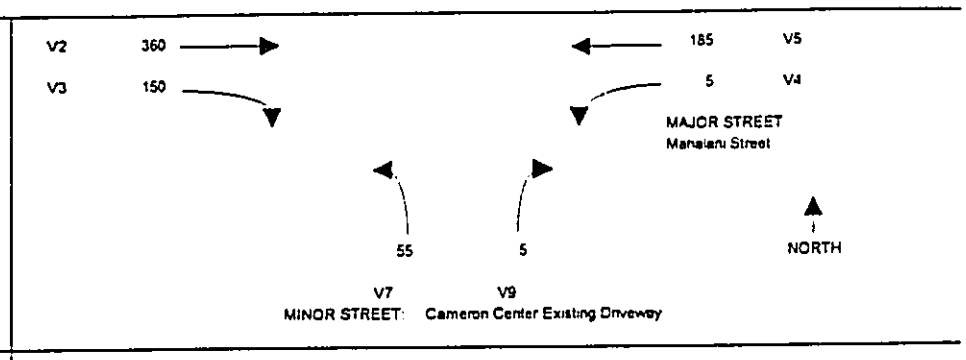
Movement	v(vcph)	cm(pcph)	can (pcph)	AVG TOTAL DELAY	LOS
MINOR LEFT TURN (7)	149	521	–NA–	9.6	B
MINOR RIGHT TURN (9)	6	1132	–NA–	3.2	A
MAJOR LEFT TURN (4)	6	1369	——	2.5	A

AVERAGE MINOR APPROACH DELAY =	9.4 sec/veh	AVERAGE TOTAL INTERSECTION DELAY =	2.0 sec/veh
LEVEL OF SERVICE =	B	LEVEL OF SERVICE =	A

ATA Inc | STOP CONTROLLED T-INTERSECTION LEVEL OF SERVICE ANALYSIS | 1994 HCM

Major Street:	Manalani Street	Print Date:	26-Nov
Minor Street:	Cameron Center Existing Driveway	Analyst:	KKN
Peak Hour:	AM	File Name	CAMERON
Scenario:	Future w/ Project	Intersection	

Peak Hour Factor:	1.00
——MAJOR STREET——	
Num of Lanes - V2:	1
Excl RT - V3 (Y/N):	N
Stop/Yield - V3 (Y/N)	N
% Grade - V2,V3:	0
Num of Lanes - V5:	1
Excl LT - V4 (Y/N):	N
% Grade - V4,V5	0
——MINOR STREET——	
Num of Lanes - V7,V9:	1
Shared Lane (Y/N):	N
% Grade - V7&V9:	0



VOLUME ADJUSTMENTS						
MOVEMENT NO.	2	3	4	5	7	9
VOLUME, V (vph)	360	150	5	185	55	5
VOLUME, v (pcph)	360	150	6	185	61	6

STEP 1: RT FROM MINOR STREET - V9								
Conflicting Flows:	Vc,9 = 1/2*V3+V2 =	75	+	360	=	435	vph
Potential Capacity:	Cp,9 =					834	pcph
Movement Capacity:	Cm,p = Cp,9 =					834	pcph

STEP 2: LT FROM MAJOR STREET - V4							
Conflicting Flows:	Vc,4 = V3+V2 =	150	+	360	=	510	vph
Potential Capacity:	Cp,4 =					980	pcph
Movement Capacity:	Cm,4 = Cp,4 =					980	pcph
Prob. of Queue-free State:	po,4 = 1-v4/Cm,4 =					0.99	
Major Left Shared Lane Prob. of Queue-free State:	p*o,4 =					0.99	

STEP 3: LT FROM MINOR STREET - V7							
Conflicting Flows:	Vc,7 = 1/2V3+V2+V5+V4 =					625	vph
Potential Capacity:	Cp,7 =					460	pcph
Capacity Adjustment Factor Due To Impeding Movements:	f7=po,4=					0.99	
Movement Capacity:	Cm,7 = Cp,7 =					457	pcph

DELAY AND LEVEL OF SERVICE SUMMARY

Movement	v(vcph)	cm(pcph)	can (pcph)	AVG TOTAL DELAY	LOS
MINOR LEFT TURN (7)	61	457	–NA–	9.1	B
MINOR RIGHT TURN (9)	6	834	–NA–	4.3	A
MAJOR LEFT TURN (4)	6	980	——	3.7	A

AVERAGE MINOR APPROACH DELAY =	8.7 sec/veh	AVERAGE TOTAL INTERSECTION DELAY =	0.6 sec/veh
LEVEL OF SERVICE =	B	LEVEL OF SERVICE =	A

Appendix D

Estimated Domestic, Fire, and Sewage Flow Requirements

ESTIMATED

DOMESTIC, FIRE, AND SEWAGE FLOW REQUIREMENTS

for

NEW MEO AND CHILD CARE FACILITIES IN WAILUKU

at

TMK: 2nd 3-08-46: 15

Wailuku, Maui, Hawaii

Prepared by:

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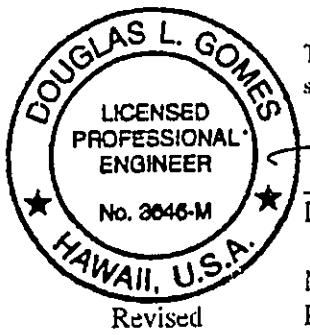

This work was done by me or under my direct supervision.

Douglas L. Gomes

November 17, 1997
Revised December 15, 1997

This report is an "instrument of service" and is part of an integrated process of technical design. Use outside this process is inappropriate and transfer of its observations, conclusions, or methodology to any other work may have serious consequences. Definitions used have only the meanings in the context employed.

ESTIMATED

DOMESTIC FLOW REQUIREMENTS

MEO FACILITIES: One two story office building and one single story building. Anticipated occupancy of 150 to 200 persons. Provide one set of men's and women's restroom on both levels of the two story building plus lunch/employee room with kitchen sink on each level. The one story building will assume to have one set of public restrooms.

FUTURE FIXTURES	NO. OF FIXTURES	FU/F	TOTAL FU
Two Story Building			
Water Closet (public-tank)	8	2.8	22.4
Lavatory (public-tank)	8	1.2	9.6
Urinal (public- FV)	2	2.8	5.6
Water Closet (private)	1	1.7	1.7
Lavatory (private)	1	0.6	0.6
Bar Sink	2	1.6	3.2
Service Sink	2	1.6	3.2
Hose Bibbs	8	3.0	24.0
		Subtotal	70.3
Single Story Building			
Water Closet (public-tank)	4	2.8	11.2
Lavatory (public-tank)	4	1.2	4.8
Urinal (public- FV)	1	2.8	2.8
Bar Sink	1	1.6	1.6
Service Sink	1	1.6	1.6
Hose Bibbs	4	3.0	12.0
		Subtotal	34.0
		Total	**104.3**

Domestic Demand Per Hunter Curve: 46 gpm

Irrigation demand will be provided with the use of an existing irrigation well on the Cameron Center site.

REQUIRED: **1 - Inch Water Meter.**

CHILD CARE FACILITIES: 6000 sq. ft. building with offices, restroom, nursery, playroom, residential kitchen.

FUTURE FIXTURES	NO. OF FIXTURES	FU/F	TOTAL FU
Water Closet (public-tank)	4	2.8	11.2
Lavatory (public-tank)	4	1.2	4.8
Urinal (public- FV)	1	2.8	2.8
Shower	1		
Water Closet (private)	1	1.7	1.7
Lavatory (private)	1	0.6	0.6
Bar Sink	2	1.6	3.2
Service Sink	1	1.6	1.6
Hose Bibbs	4	3.0	12.0
		Subtotal	37.9

Water Demand Per Hunter Curve: 24 gpm

Irrigation demand will be provided with the use of an existing irrigation well on the Cameron Center site.

REQUIRED: **3/4 - Inch Water Meter.**

ESTIMATED
FIRE FLOW REQUIREMENTS

Ref: Fire Suppression Rate Schedule
Insurance Services Office, 1980

MEO OFFICE: The project consists of one two story building and one single story building that are interconnected and therefore treated as a single building. Both buildings will be of joisted masonry construction. Total building area is approximately 19,000 sq. ft.

Ci	=	$18\ F\ (Ai)^{0.5}$
Ai	=	19,000 sq. ft.
F	=	1.0 (joisted masonry)
Ci	=	$18 \times 1.0 \times (19{,}000)^{0.5}$
	=	2,451 gpm Round to nearest 250 gpm
Use:		2,500 gpm

Occupancy Factor:

Oi = 0.85 C-1 (Limited Combustible)

Exposure Factor:

Direction	Distance	Length/Height	Construction Class	Exposure Factor
North	>100'	-		0
South	55'	320`	1	0.14
East	>100'	-		0
West	>100	-		0
			Total	0.14

Needed Fire flow = 2,500 x 0.85 x 1.14 = 2,422 gpm Round to nearest 250 gpm

Use: 2,500 gpm

CHILD CARE FACILITIES: A single story 6,000 sq. ft. of joisted masonry construction.

Ci = 18 F $(Ai)^{0.5}$
Ai = 6,000 sq. ft.
F = 1.0 (joisted masonry)
Ci = 18 x 1.0 x $(6,000)^{0.5}$
= 1,394 gpm Round to nearest 250 gpm
Use: 1,500 gpm

Occupancy Factor:

Oi = 0.85 C-1 (Limited Combustible)

Exposure Factor:

Direction	Distance	Length/Height	Construction Class	Exposure Factor
North	> 100'	-		0
South	> 100'	-		0
East	> 100'	-		0
West	> 100	-		0
			Total	0

Needed Fire flow = 1,500 x 0.85 x 1.00 = 1,275 gpm Round to nearest 250 gpm

Use: 1,250 gpm

ESTIMATED SEWAGE FLOW

MEO OFFICE:

Total Staff: 40 persons at 15 gpd
Visitors 30 estimate 25% of visitors will use restroom at 5 gpd

Estimated sewage flow = 40 x 15 + 8 x 5 = 640 gpd

CHILD CARE:

Total Staff: 14 persons at 15 gpd
Children: 40 at 15 gpd

Estimated sewage flow= 14 x 15 + 40 x 15 = 810 gpd