HAWAII HEALTH SYSTEMS
C O R P O R A T I O N
"Touching Lives Everyday"

July 8, 1999

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Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
Department of Health
235 S. Beretania Street, #702
Honolulu, HI 96813

Dear Ms. Salmonson:

SUBJECT: Maui Memorial Medical Center – Expansion Improvements

In accordance with the provisions of Chapter 343, Hawaii Revised Statutes, and Title 11, Chapter 200 of the Administrative Rules of the State Department of Health, a Final Environmental Assessment (EA) has been prepared for the proposed project.

As the approving agency, Hawaii Health Systems Corporation believes that there will be no significant impacts as a result of the proposed action and is filing a Finding of No Significant Impact (FONSI).

Enclosed are one (1) copy of the OEQC Publication form and four (4) copies of the Final EA. In addition, please be advised that the Project Summary will be transmitted under separate cover via e-mail. We respectfully request that notice of the availability of the Final EA be published in the next edition of the Environmental Notice.

Very truly yours,

Tom Driskill

THOMAS M. DRISKILL, JR.
President and Chief Executive Officer
Hawaii Health Systems Corporation

c: Gerald Matsui, Maui Memorial Medical Center
Bob Tsushima, SSFM Engineers, Inc.
Glenn Tadaki, Munekiyo, Arakawa & Hiraga, Inc.

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1999-07-23-MA-FEA-

Final Environmental Assessment

MAUI MEMORIAL MEDICAL CENTER EXPANSION IMPROVEMENTS

Prepared for:

Hawaii Health Systems Corporation

July 1999

MUNEKIYO, ARAKAWA & HIRAGA, INC.

Final Environmental Assessment

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Preface

Hawaii Health Systems Corporation (HHSC), a State agency and public benefit corporation, proposes to implement expansion improvements to Maui Memorial Medical Center on lands identified by TMK Nos. 3-8-46: 13 and por. 29. Major improvements include a new helistop, new surface parking with 70 stalls on the northwest side of the site and renovations to the existing east wing of the medical center. A new three-level medical center addition on the east of the site, including a new three-level parking structure with 225 stalls, is also proposed.

Because HHSC lands and revenue bonds will be utilized for the project, this Environmental Assessment has been prepared as required by Chapter 343, Hawaii Revised Statutes.

Chapter I

Project Overview

I. PROJECT OVERVIEW

A. PROPERTY LOCATION, EXISTING USE, AND LAND OWNERSHIP

Hawaii Health Systems Corporation (HHSC), a State agency and public benefit corporation, is proposing to implement improvements to the existing Maui Memorial Medical Center (MMMC) site and facilities in Wailuku, Maui, Hawaii. MMMC is a community based, acute care medical center licensed for 194 beds that provides services to residents and visitors to the islands of Maui, Lanai, and Molokai.

The MMMC site is presently comprised of two (2) parcels, TMK 3-8-46: 13 consisting of approximately 15.1 acres and TMK 3-8-46: 29 containing about 2.4 acres. With the exception of kiawe, koa haole, and grass vegetation within its northern and northwestern extent, the majority of Parcel 13 is occupied by the medical center's existing patient care and support facilities. The remainder of the subject property is occupied by MMMC staff housing on Parcel 29. Access to MMMC is provided by Mahalani Street, a two-lane County roadway. See Figure 1.

The lands underlying TMK 3-8-46: 13 and a 1.2-acre portion of TMK 3-8-46: 29 were recently transferred to HHSC by the State of Hawaii and the County of Maui, respectively. (In October 1998, the County of Maui granted final approval for the consolidation of Parcels 13 and 29 and the adjustment of the boundaries between the original two (2) parcels.) Once the TMK parcel map has been updated, Parcel 13 will include the 1.2-acre portion of Parcel 29 that was transferred to HHSC by the County. Parcel 13 will then consist of approximately 16.4 acres, while Parcel 29 will contain about 1.2 acres.

B. BACKGROUND

Maui Memorial Medical Center (MMMC) was formerly known as Central

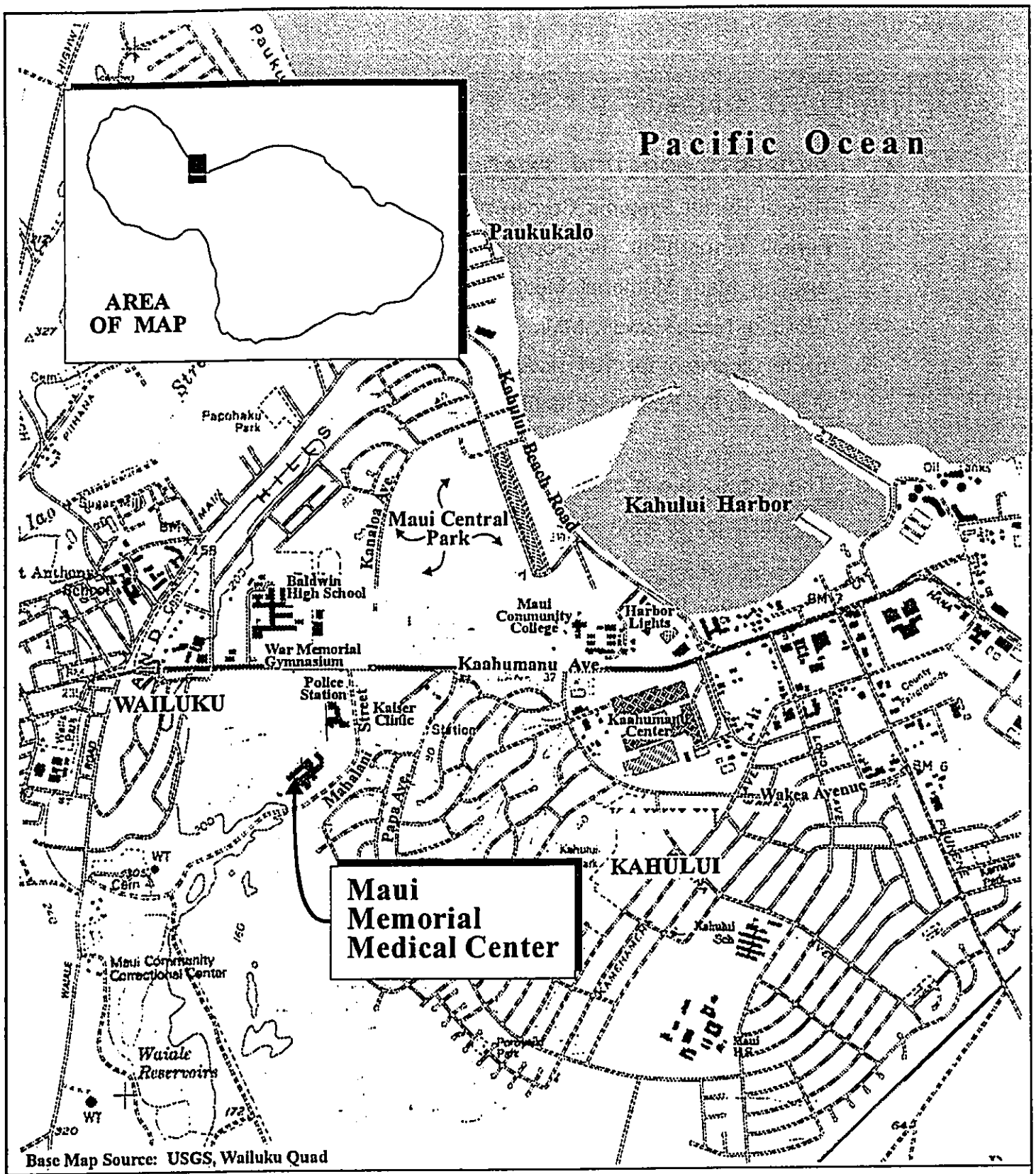


Figure 1 Maui Memorial Medical Center Expansion Improvements

Regional Location Map

MUNEKIYO, ARAKAWA & HIRAGA, INC.

1000 0 2000 4000 Feet

Prepared for: Hawaii Health Systems Corporation

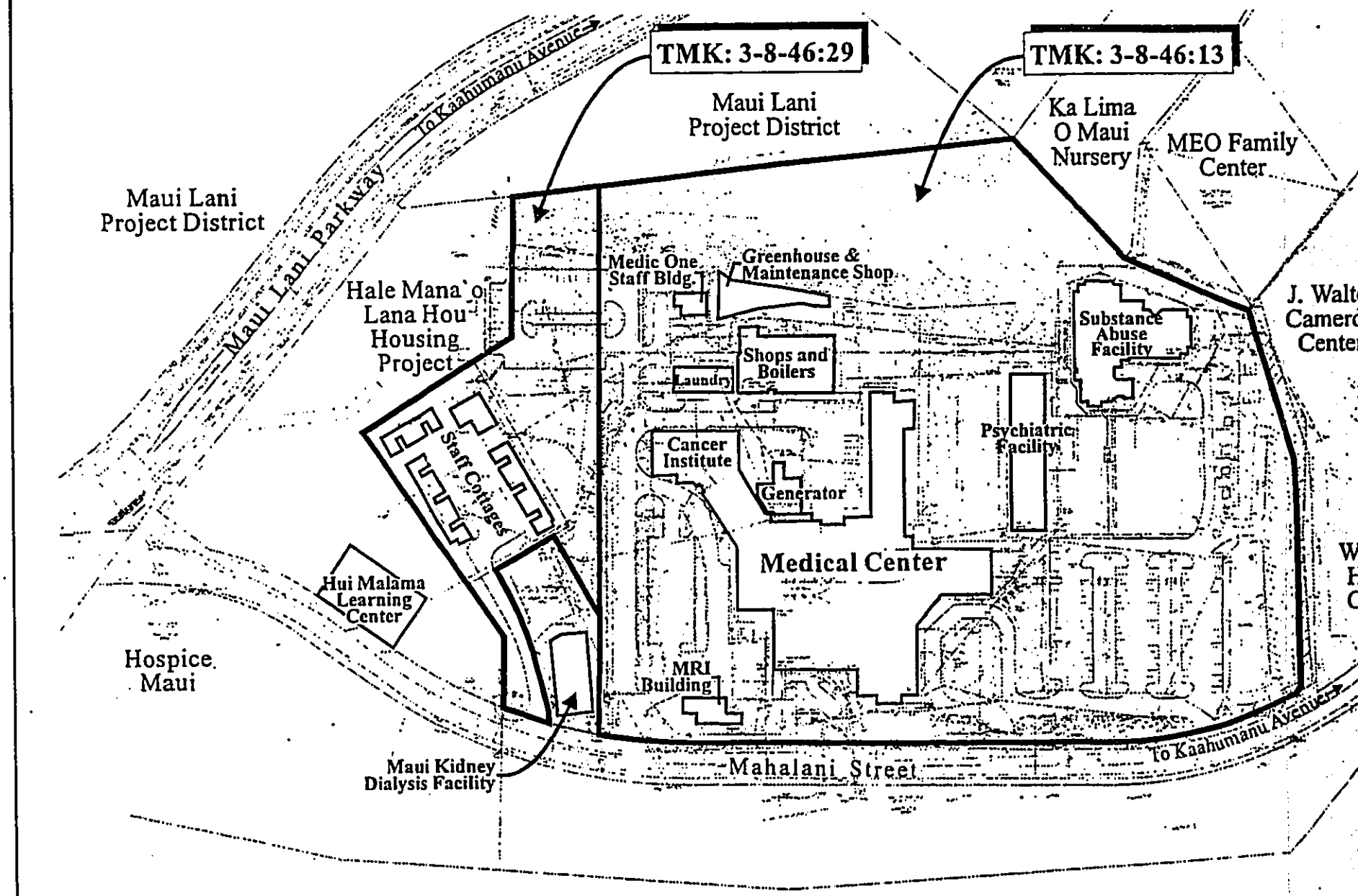
Maui Memorial Hospital (CMMH). Originally built in 1952 by the County of Maui, the name of the hospital was changed to Maui Memorial Hospital (MMH) in 1963. In 1966, the management of MMH was transferred from the County to the State of Hawaii. After the management of MMH was subsequently transferred from the State Department of Health (DOH) to HHSC in 1996, the hospital was renamed in 1998 to reflect its evolution from a hospital into a comprehensive, state-of-the-art healthcare center. *See Figure 2.*

The primary service area for MMMC is the County of Maui, which includes the islands of Maui, Lanai, and Molokai. MMMC is the only acute care medical center on these islands. The majority of Maui County residents requiring inpatient care are admitted to MMMC, while the remainder are typically admitted to hospitals on Oahu. In 1996, MMMC had about 82 percent of the acute care admissions from Maui County.

In the last decade, MMMC has grown substantially due to renovations to its physical plant and the addition and improvement of services. As a result of some of these changes, Maui residents can now receive comprehensive diagnostic and therapeutic services at the medical center rather than flying to Oahu for care. Residents can also remain on Maui for MRI, angiography, cancer radiation therapy, and adolescent psychiatric services. In addition to operating one of the busiest emergency departments in the State, MMMC maintains a highly acclaimed obstetrics program and is a leader in the adoption of telemedicine capabilities.

The patient care services provided by MMMC include medical, surgical, psychiatric, nursing, and support services.

The medical patient care services provide treatment and therapy for



Source: Ronald M. Fukumoto Engineering, Inc.

Figure 2 Maui Memorial Medical Center Expansion Improvements

Existing Site Conditions

Prepared for: Hawaii Health Systems Corporation

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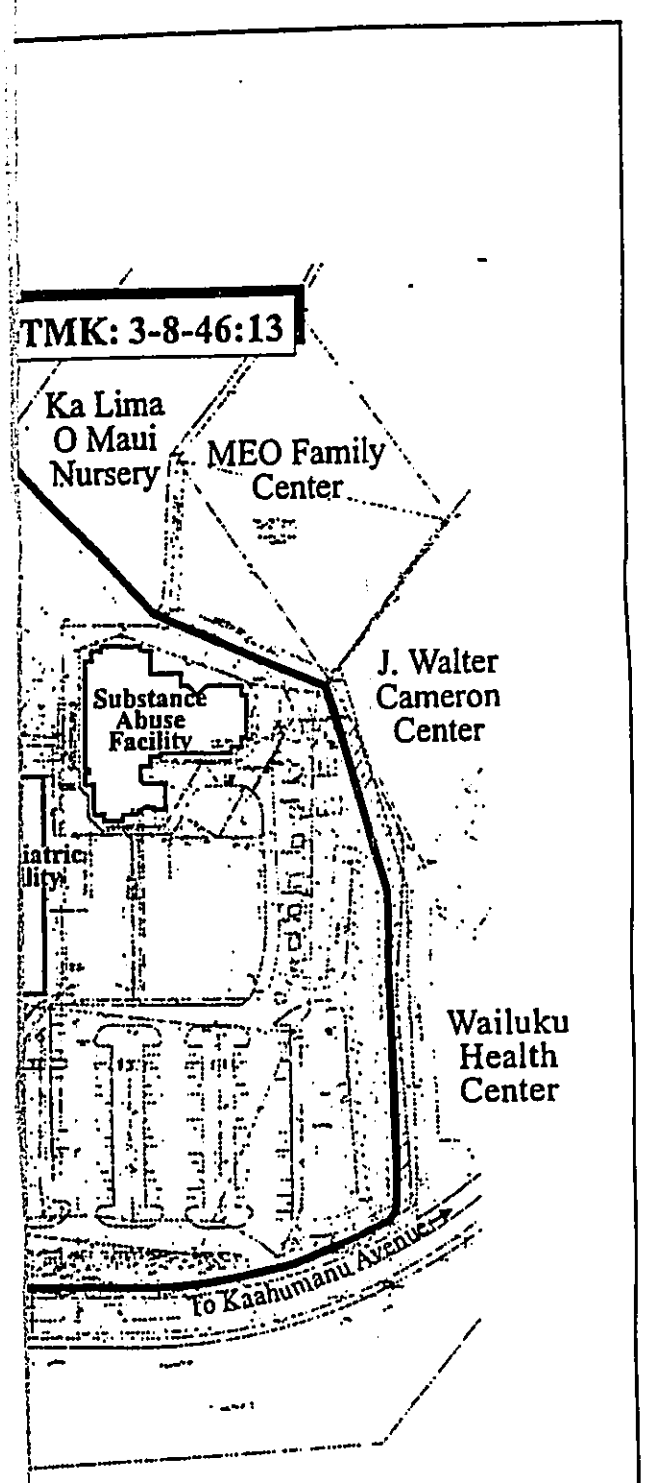

Improvements

MUNEKIYO, ARAKAWA & HIRAGA, INC.

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illnesses in a number of specialties including cardiology, neurosurgical diagnostic imaging services, emergency medicine, gastroenterology, hematology, infectious diseases, internal medicine, obstetrics/gynecology, oncology, opthalmology, orthopedics, otolaryngology, patient education, pediatrics, neurology, and urology. Patients requiring psychiatric care/evaluation are served by a short-term, crisis intervention unit.

Support services provided at MMMC encompass a range of services including angiography, computerized axial tomography (CAT or CT), dietary, electrophysiologic diagnosis, endoscopy, health education, handicapped services, hemodialysis, laboratory, magnetic resonance imaging (MRI), nuclear medicine, occupational therapy, oncology, outpatient surgicenter, pharmacy, physical therapy, radiation therapy, radiology, respiratory care, stereotactic mammography, and ultrasound. Other support services include housekeeping, laundry, maintenance, personnel, purchasing, medical library, medical records, and social services.

Since the proposed action involves the use of HHSC lands and revenue bonds, this Environmental Assessment (EA) has been prepared to comply with the requirements of Chapter 343, Hawaii Revised Statutes (HRS).

C. ***PROPOSED ACTION***

The priority objectives for the proposed improvements are to provide additional higher acuity beds, more parking and increased out-patient services while maintaining existing services without interruption. The improvements proposed for implementation include the following:

1. ***Parking and Vehicular Access***

A new three-level parking structure (Levels A, B, and C) to the east

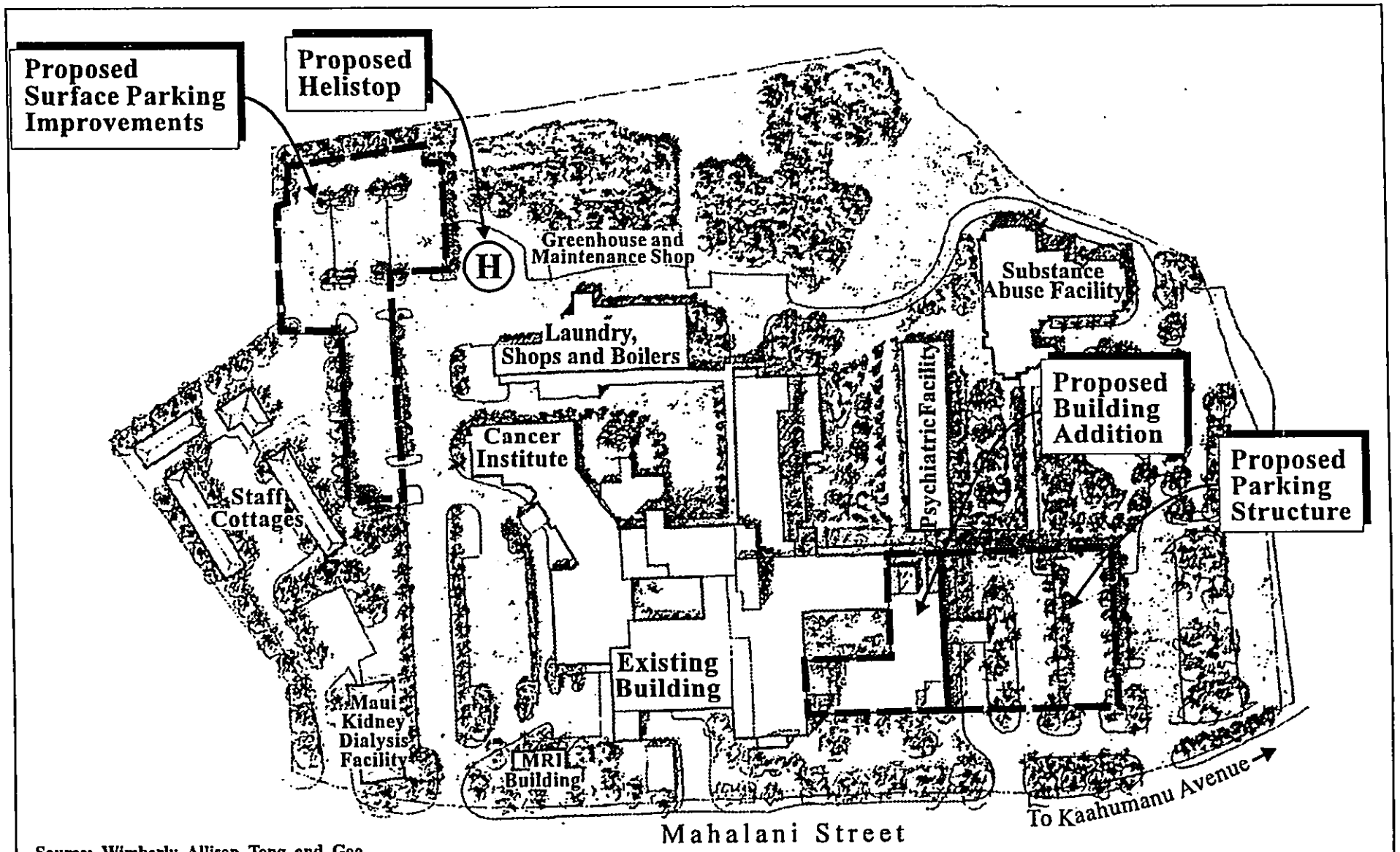
of the medical center's existing main building will provide approximately 225 new stalls. See Figure 3 and Figure 4. The parking structure will eliminate the steep walk to the lobby that is currently required and provides a lobby with elevators at each level that will ascend directly to the medical center's new main lobby. The main lobby will consist of a two-story space with an internal courtyard and openings to the exterior.

In addition, the existing on-grade parking lot on the northwest side of the site will be expanded by about 70 new stalls. Refer to Figure 3. Existing parking stalls and vehicular circulation in this area will also be modified to provide for the surface parking.

The existing drive aisle and drop-off parking at the main entry level (Level 1) will be relocated one floor lower (Level A) and enlarged to be more user-friendly. Refer to Figure 4. The new drop-off eliminates the steep incline for vehicles and pedestrians currently accessing the existing lobby. The present drive aisle that parallels Mahalani Street and slopes down the natural terrain will provide access to the three (3) levels of the new parking structure, thereby eliminating the need to construct internal ramping within the structure. The existing main entry will be relocated further north on Mahalani Street to be in-line with the new drop-off area.

2. ***New Building Addition***

A building addition to the east side of the medical center's existing main building is proposed. The new building addition will consist of six (6) levels: C, B, A, 1, 2, and 3, with Level C as the lowest and 3 the highest. At Level 1, the new addition forms a courtyard with the south and east wings of the main building at Level 1.



Source: Wimberly Allison Tong and Goo

Figure 3

Maui Memorial Medical Center Expansion Improvements

Conceptual Site Development Plan

MUNEKIYO, ARAKAWA & HIRAGA, INC.

Prepared for: Hawaii Health Systems Corporation

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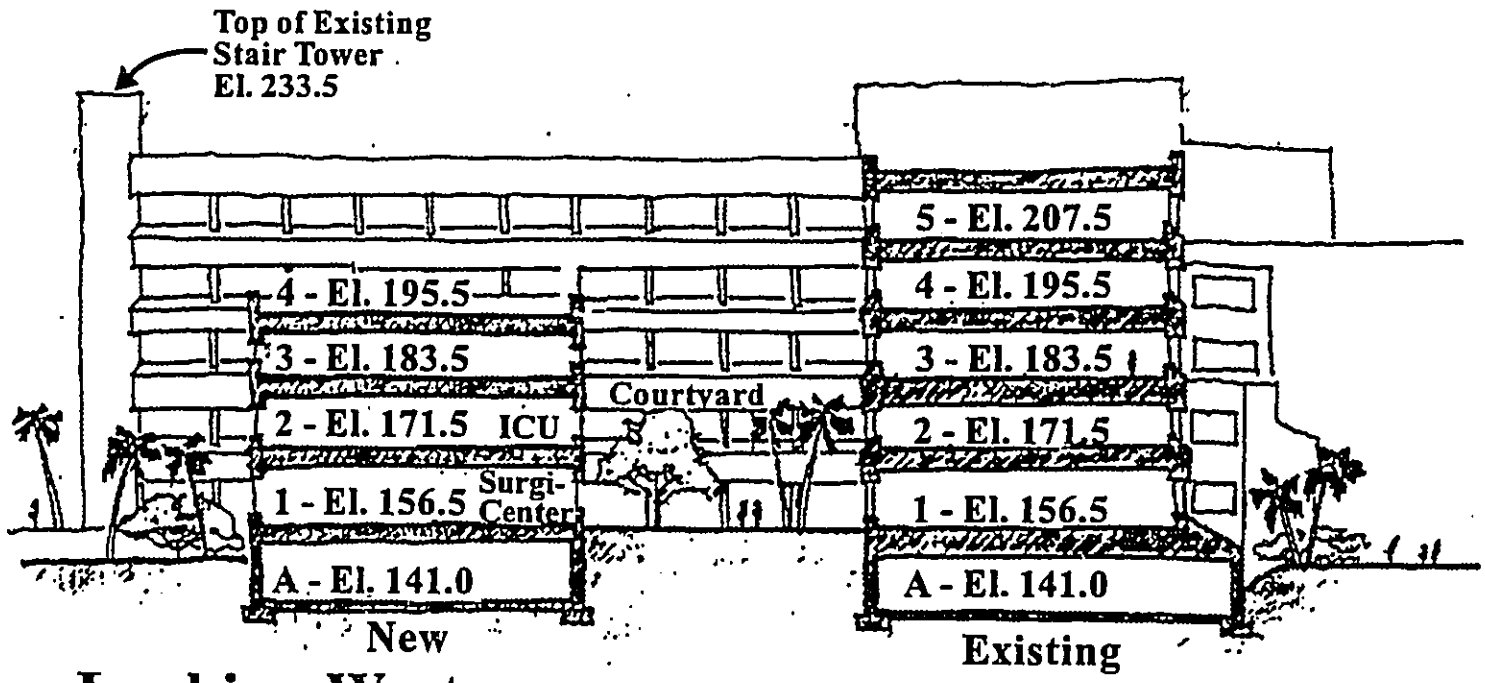
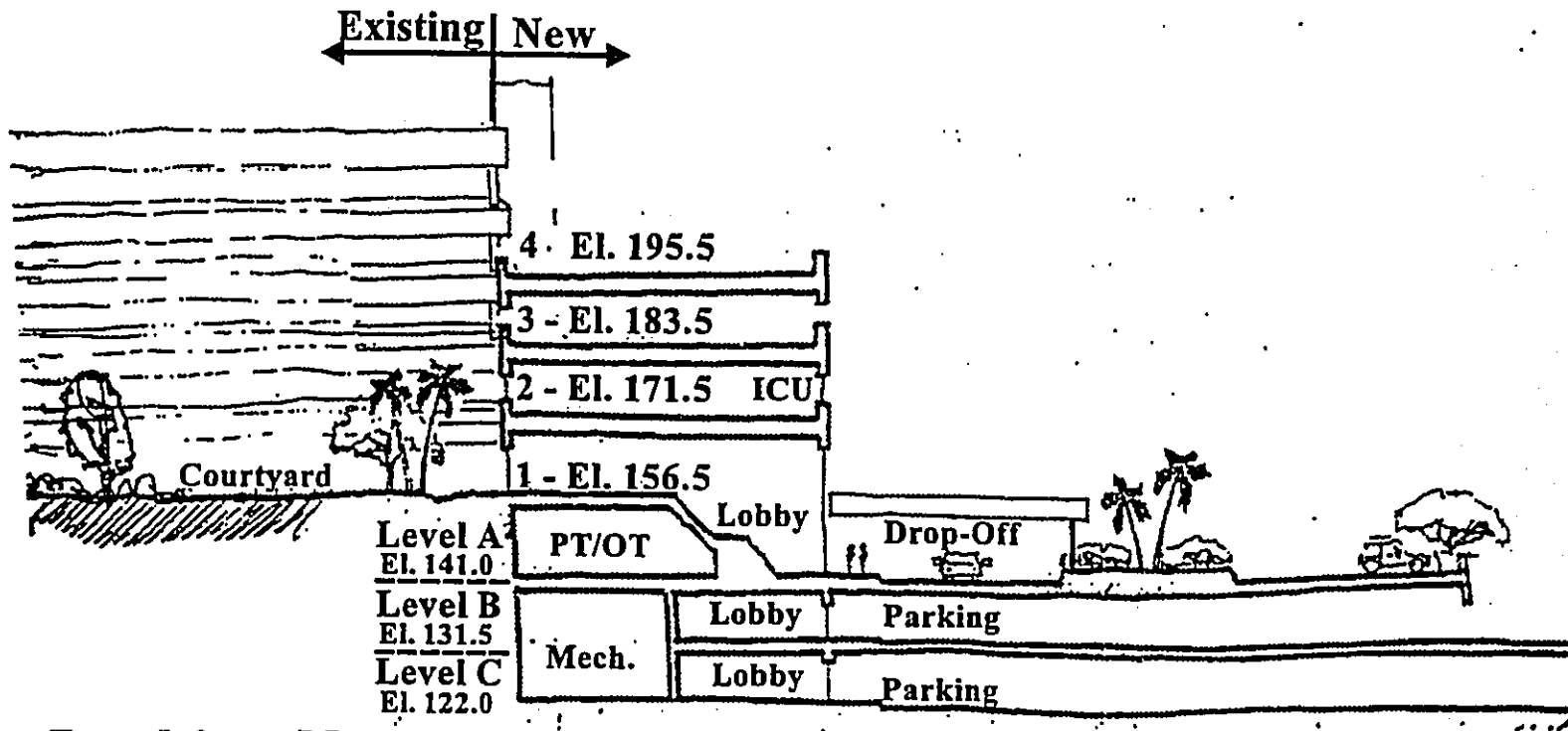


Section Looking West



Section Looking North

Source: Wimberly Allison Tong and Goo

Figure 4 Maui Memorial Medical Center Expansion Improvements
Conceptual Building Sections

Prepared for: Hawaii Health Systems Corporation

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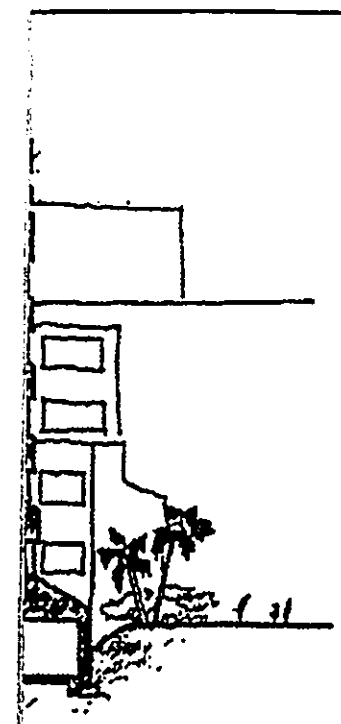

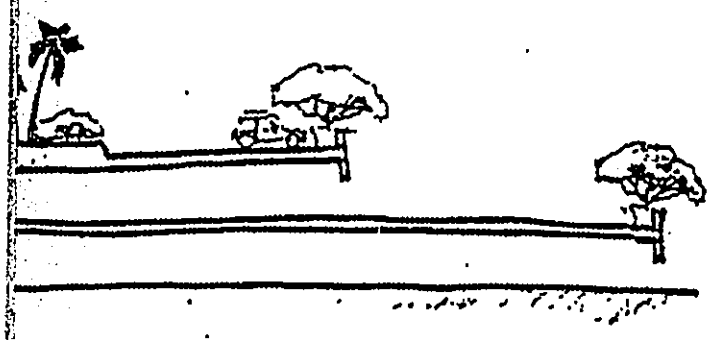

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MUNEKIYO, ARAKAWA & HIRAGA, INC.

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Refer to Figure 4. A summary of the notable improvements proposed for each level follows.

Level C provides new space for mechanical/electrical equipment, a shell space for a future Disaster Relief Center, a shell space for the Morgue (when the existing Morgue is built out and needs to relocate), and a lobby with two (2) elevators that provide access from the 90 stalls on this level of the parking structure to the main lobby on Level 1. Tenant improvements to the shell spaces for the Morgue and Disaster Relief Center (including the shell space on the floor above) will enable the interim use of these spaces by the Biomed Department.

Level B provides additional shell space for mechanical/electrical equipment and the Disaster Relief Center, as well as a lobby with two (2) elevators that access the main lobby from the 90 stalls provided by the new parking structure on this level.

Level A is the drop-off and pick-up floor for the medical center. This level features a double height lower lobby that connects to a main lobby on Level 1 above with stairs and two (2) elevators. Level A also provides a shell space below the new Surgi-Center on the floor above, as well as shell spaces and tenant improvements for the new Physical Therapy and Occupational Therapy (PT/OT) Departments.

Level 1 provides for a new out-patient Surgi-Center that has two (2) dedicated service elevators connecting to surgery on Level 3. The new main lobby and waiting area on Level 1 connects to a new courtyard and the lower lobby below.

An Admitting Department is provided on this level, as well as auxiliary spaces for possible gift or snack shops. Two (2) elevators on this level will connect from Level A on the floor below up to Level 2 above. The spaces of the building addition will be vertically linked by a new elevator core.

Level 2 provides for a new 16-bed Intensive Care Unit (ICU). The ICU will be directly linked to surgery on Level 3 by the dedicated service elevators from the Surgi-Center on the floor below.

Level 3 provides a corridor connection from the dedicated service elevators to the existing Operating Rooms. In addition to expanding this level to provide for surgery support functions, a partially shaded rooftop terrace for use by MMMC staff, patients,

and visitors is provided.

3. ***Renovations to the Existing Building***

The medical center's existing main building will be repainted and its finishes upgraded. Refer to Figure 4. A summary of proposed renovations to the remaining floors follows:

Level A improvements involve minor alterations to provide for the connection between the main building and the new building addition. The canopy to the psychiatric facility will be replaced due to construction.

Level 1 improvements include a new Out-patient Pharmacy and modifications to the corridor in the east wing that presently serves the library.

Level 2 improvements include a renovated Observation Unit with 12 beds in the ICU's current location in the east wing and interior corridor modifications.

To facilitate loading and unloading, the existing ambulance turnaround area will be enhanced by providing canopy, access, and pavement improvements.

Level 3 improvements include provision of a hallway into the Surgery Unit that accesses the dedicated service elevators that connect to the new ICU and Surgi-Center on the floors below.

Level 4 improvements provide for renovated exit stairs in the east wing to connect to the floors below. The space in the west wing occupied by the Surgi-Center is made available for other uses.

Level 5 improvements provide for renovating the exit stairs in the east wing to connect to the floors below.

4. ***Helistop***

Another expansion component is a helistop with a paved touchdown and lift-off area. To develop the helistop, the existing Medic One (paramedic) facility will be demolished and its

operations relocated. The proposed helistop will be designed in accordance with Federal Aviation Administration (FAA) standards and will serve helicopters operated by a licensed air ambulance service. Average annual daily operations are expected to involve one (1) flight per day consisting of one (1) take off and one approach. The air ambulance service will be able to provide high speed, point-to-point transportation particularly in serving outlying areas such as Hana, Lanai, Lahaina, and Kapalua. Air ambulance helicopters provide an effective means of transporting injured persons from the scene of an accident to a medical center, and in transferring patients in critical need of specialized services to another medical center having that capability.

The estimated construction cost for the improvements is approximately $30.4 million. Construction of the proposed improvements will commence upon the receipt of all necessary regulatory permits and approvals.

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 site is bordered by Mahalani Street to the east and south, the Maui Kidney Dialysis Center and the Hale Mana'o Lana Hou housing project to the west, and the Cameron Center, the Wailuku Health Center, the Maui Economic Opportunity (MEO) Family Center (currently under construction), the Maui Lani Project District, and the Ka Lima O Maui Plant Nursery to the north. Also along Mahalani Street, to the northeast of the site, are Kaiser Permanente's Wailuku Clinic and the offices of Maui Publishing Company.

Beyond Mahalani Street to the east of the subject property lie a Department of Land and Natural Resources (DLNR) annex and undeveloped lands, while further east lies a residential area of Kahului. To the south, beyond Mahalani Street, are Hospice Maui

and undeveloped lands, while farther south lie a Kahului residential area and a portion of the Maui Lani Project District, which is currently being developed. Beyond the Maui Kidney Dialysis Center to the west, lie the Maui Lani Project District and the Hui Malama Learning Center.

Further north of the project site, beyond the Cameron Center, Wailuku Health Center, MEO Family Center, and the Ka Lima O Maui Plant Nursery are the Maui Police Department (MPD) headquarters, Kaahumanu Avenue, and the War Memorial Complex. Baldwin High School is located to the north of the subject property and west of the War Memorial Complex.

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***

Approximately 14 acres of the 16.457-acre site has already been developed. The remaining 2.5 acres at the rear of the site along the northwesterly boundary remains undeveloped. This undeveloped area lies within a natural gully area that is between 20 to 30 feet below the level of the developed areas.

The elevations of the site range between 106 feet (above mean sea level) to about 176 feet. This elevation difference across the site results in an average ground slope of about 8.5 percent. The 8.5 percent slope corresponds to the slope of the driveway ramps along the perimeter of the main parking area.

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***

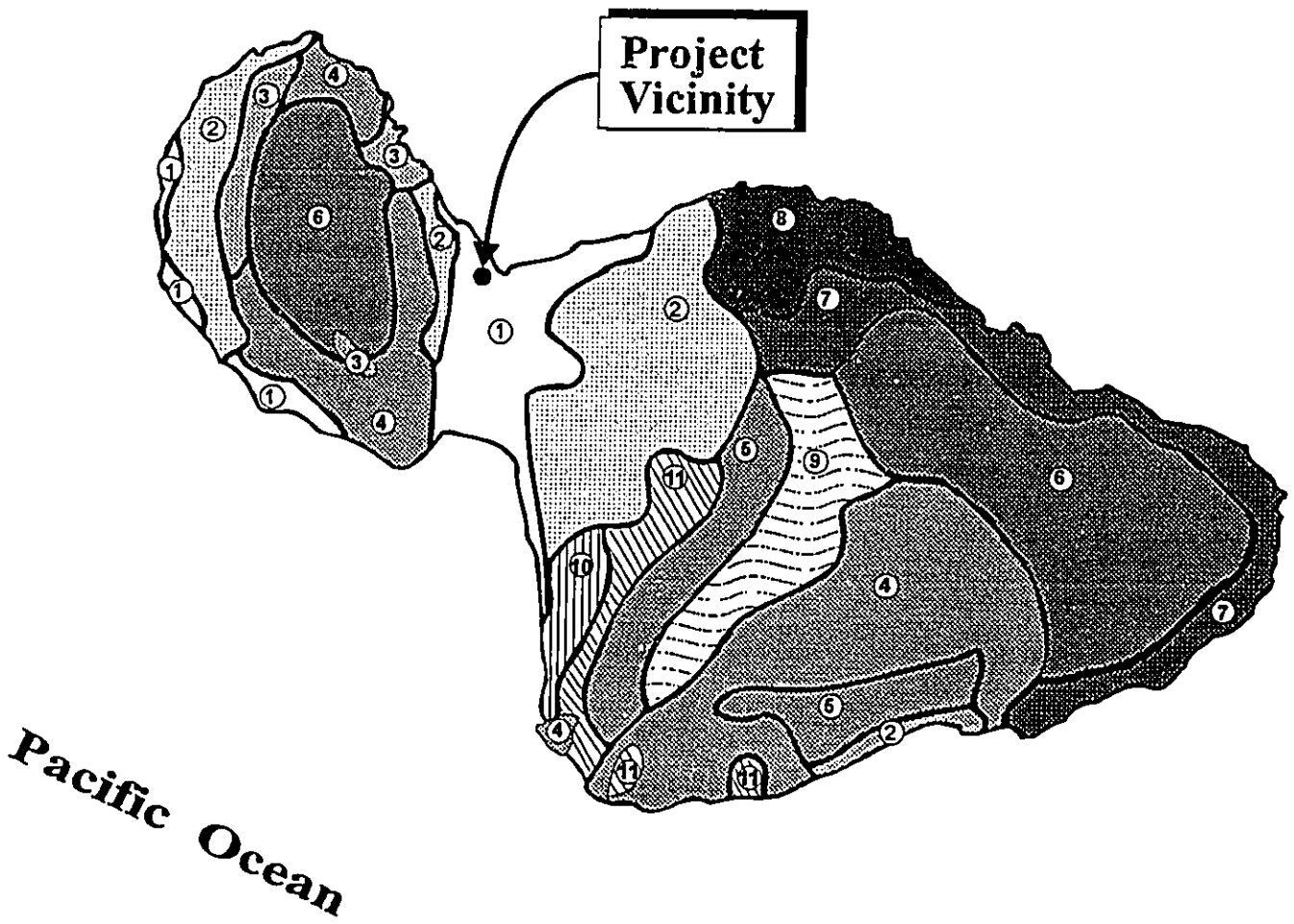
The project area is situated within lands that are designated Zone "C" by the Flood Insurance Rate Map. See Figure 7. Zone "C" is an area of minimal flooding.

5. ***Flora and Fauna***

Fauna and avifauna that are found in the vicinity of the project area

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 Maui Memorial Medical Center Expansion Improvements
Soil Association Map

MUNEKIYO, ARAKAWA & HIRAGA, INC.

Prepared for: Hawaii Health Systems Corporation

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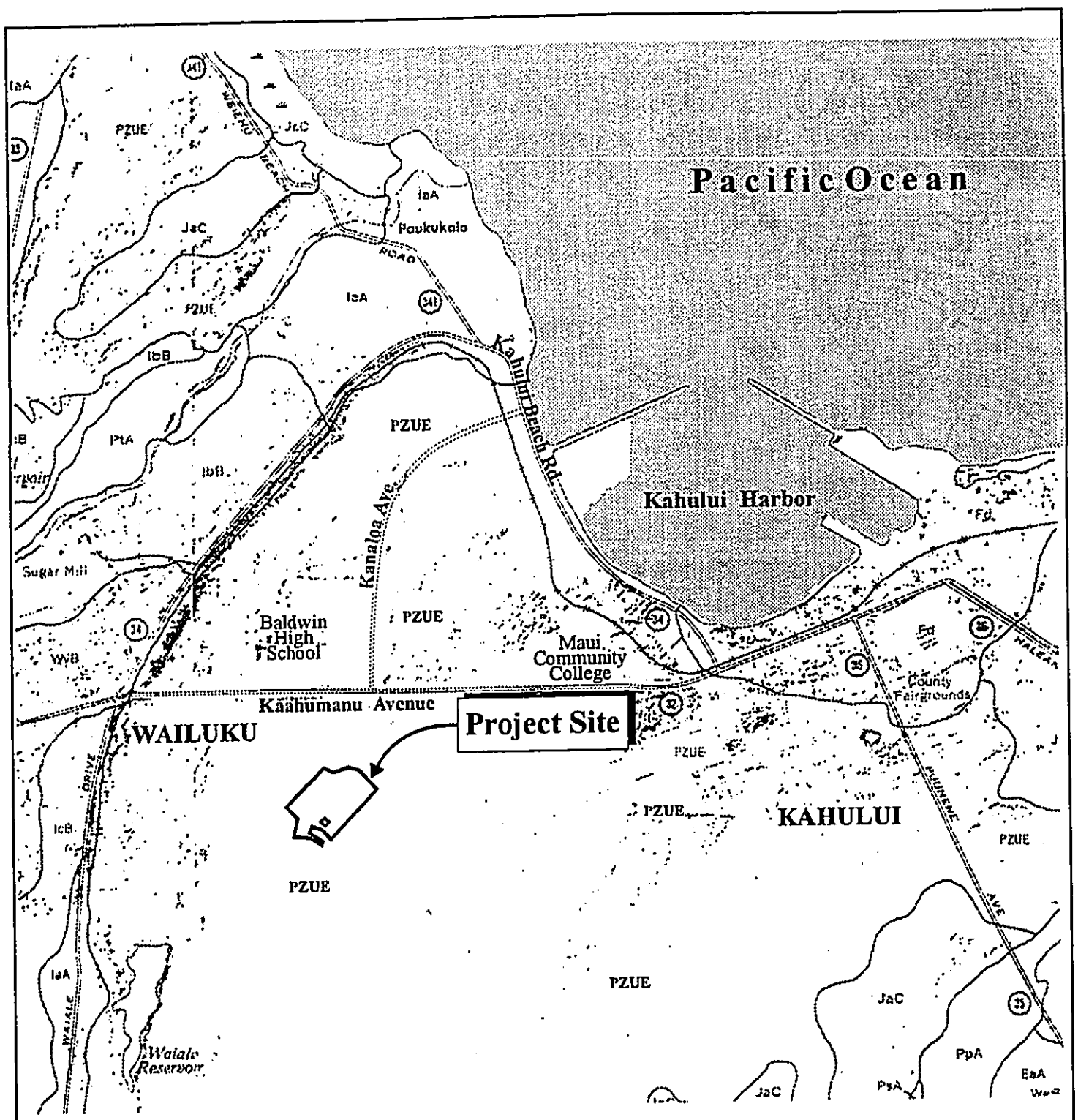

Base Map Source: USDA Soil Conservation Service

Figure 6 Maui Memorial Medical Center Expansion Improvements

Soils Classifications Map

MUNEKIYO, ARAKAWA & HIRAGA, INC.

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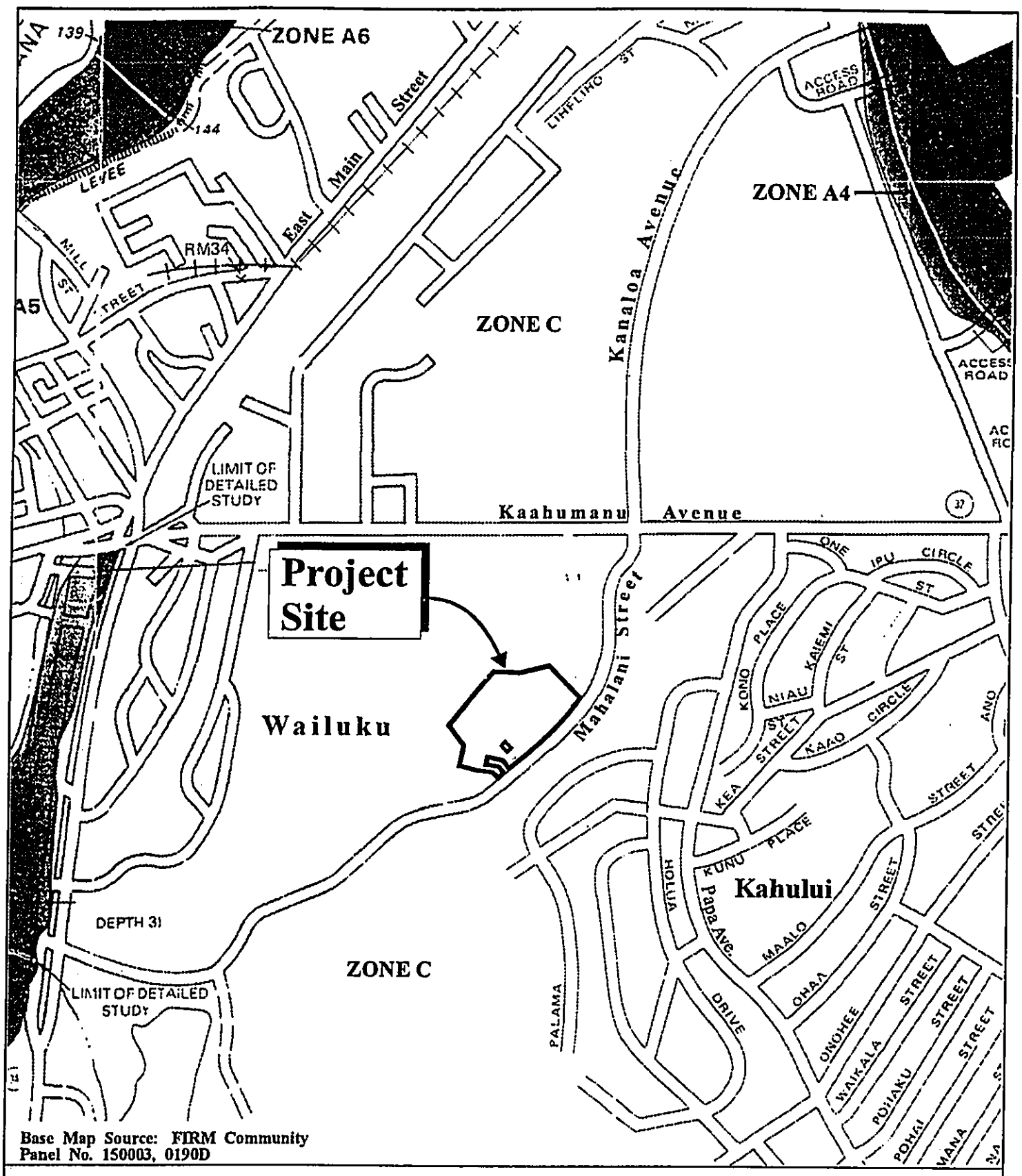
Prepared for: Hawaii Health Systems Corporation



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

Figure 7 Maui Memorial Medical Center Expansion Improvements

Flood Insurance Rate Map

MUNEKIYO, ARAKAWA & HIRAGA, INC.

0 500 1000 2000 Feet

Prepared for: Hawaii Health Systems Corporation

are typical of Wailuku's urban setting. The medical center site is predominantly landscaped and irrigated, while vegetation on the undeveloped portion of the site primarily consists of kiawe, koa haole, and various grasses and weeds. 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 project site is located in a field of lithified sand dunes. These dunes rest on alluvial fans near the shore between Kahului and Waihee and extend inland across most of the western edge of the isthmus between East and West Maui.

The majority of the project site was previously disturbed during the construction of the existing medical center improvements. The undeveloped portions of the site contain lithified sand dunes that are presently overgrown with kiawe and various grasses.

7. ***Air Quality***

Air quality in the Wailuku-Kahului region is considered good as point sources, including Maui Electric Company's (MECO's) power plant, Hawaiian Commercial and Sugar Company's (HC&S') sugar mill and non-point sources such as automobile emissions, do not generate problematic 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. An intermittent noise source is the recreational activity from the War Memorial complex. In addition, wind as well as noise from occasional distant aircraft flying by contribute to noise conditions in the area.

9. *Scenic and Open Space Resources*

Scenic resources to the west of the project site 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 estimated 1997 resident population of 118,864 reflecting a 67.8 percent increase over the 1980 population of 70,847 (Maui County Data Book, 1998). Growth in the County is expected to continue, with resident population projections to the years 2000 and 2010 estimated to be 124,562 and 140,060, 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 46,026 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 HC&S and Wailuku Agribusiness Company, 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 site is in close proximity to County facilities such as Keopuolani 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 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 4.0 miles southeast of the Kahului Airport. The Central Maui Landfill also accepts commercial waste from private collection companies.

4. ***Health Care***

Licensed for 194 beds, MMMC provides acute, general, and emergency care services to residents and visitors to the island of Maui. 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 MMMC is presently provided by several existing driveways along Mahalani Street.

Roadways in the immediate vicinity of the proposed project include Kaahumanu Avenue, Mahalani Street, Kanaloa Avenue, and Waiale Drive. 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. 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 is a two-lane County collector road which begins at a signalized intersection with Kaahumanu Avenue and currently terminates just south of the Hale Mana o Lana Hou housing facility, the Hui Malama Learning Center and Hospice Maui. In addition to MMMC, it provides access from Kaahumanu Avenue to MPD headquarters, Kaiser's Wailuku Clinic, the Maui Publishing Company offices, the DLNR Annex, the Wailuku Health Center, the Hui Malama Learning Center, the Maui Kidney Dialysis Center, and the Hale Mana'o Lana Hou housing project, as well as the Cameron Center, the MEO Family Center, and the Ka Lima O Maui Plant Nursery. 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 improved and extended to intersect with Waiale Drive. 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.

Waiale Drive is a two-way, two-lane collector roadway in Wailuku. Waiale Drive has been recently extended to the newly constructed Kuikahi Drive Extension which intersects Honoapiilani Highway, south of Wailuku. Although this extension has not yet been opened, access between Honoapiilani Highway and Waiale Drive is provided via Kealani Makai Parkway, Kamole Street, and Olomea Street.

2. ***Water***

Domestic water for the Wailuku-Kahului region is provided by the

Department of Water Supply's (DWS's) Central Maui System. Water for the Central Maui 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. As of February 1, 1999, the annual average groundwater withdrawals from this aquifer were 17.69 MGD. In addition, these wells are augmented by a tunnel source in Iao Valley that tap high-level perched or dike water.

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 project site. A 12-inch line then transports water to the vicinity of the project site on Mahalani Street.

3. ***Wastewater***

There is an 8-inch gravity sewer line located along the westerly boundary of the MEO Family Center site. This line presently serves MMMC and the Wailuku Health Center. An 8-inch gravity sewer line from Wailuku Health Center also runs along the south boundary of this 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, extends across Kaahumanu Avenue and connects to the 12-inch gravity line on

Kanaloa Avenue. This line also handles wastewater generated by MPD headquarters, Maui Publishing Company, and Kaiser Permanente's Wailuku Clinic.

Domestic wastewater generated in the Wailuku-Kahului region is conveyed to the County's Wailuku-Kahului Wastewater Treatment Plant 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 6.6 MGD (telephone conversation with Dave Taylor, Wastewater Reclamation Division, February 1999).

4. ***Drainage***

A Preliminary Drainage Report for the proposed project was prepared in April 1999 by Ronald M. Fukumoto Engineering, Inc. See Appendix A.

Mahalani Street and Maui Lani Parkway form the upper limits of the project's overall drainage area. The overall drainage area encompasses about 25.4 acres and includes four (4) sub-areas. This amount consists of 16.5 acres of onsite area and 8.9 acres of offsite area.

Existing drainage improvements include inlets, manholes, drainlines, swales, and drainage chutes.

Runoff produced on the westerly side of the drainage area enters the natural gully area at the rear of the site. Flows within the gully area continue downstream and enter the MEO site. The MEO drainage system connects to an existing drainage system that

conveys the flows under Kaahumanu Avenue and Kanaloa Avenue, and discharges into a retention basin within the Keopuolani Park.

Runoff produced on the easterly portion of the drainage area also enters the MEO drainage system. A drainage system on this side of the site collects runoff from roof areas, parking, and landscaped areas. This catch basin also connects to the existing drainage system that conveys flows under Kaahumanu Avenue and Kanaloa Avenue, and discharges into the Keopuolani Park retention basin.

According to previous drainage reports, the existing retention basin within the park has a capacity of 220 acre-feet. The 100-year, 24-hour storm volume that drains into the basin is 115 acre-feet.

5. ***Electrical, Telephone, and CATV Systems***

Electrical, telephone and cable television (CATV) services in the vicinity are provided by Maui Electric Company (MECO), GTE Hawaiian Tel, and TCI of Hawaii, respectively.

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.

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

2. Topography

Site work for the proposed improvements involving the lands within the northern and northwestern extent of the subject property which are currently occupied by kiawe, koa haole, and grass vegetation 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 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 MMMC site is landscaped and irrigated, while plant life within its northern and northwestern extent consists primarily of kiawe,

koa haole, and grass vegetation. There are no wetlands located on the 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 majority of the existing MMMC site was previously disturbed during the construction of the medical center's present facilities.

In March 1999, an Archaeological Inventory Survey for the proposed project was conducted by Scientific Consultant Services, Inc. The survey encompassed about 2.5 acres of mostly undeveloped land along the subject property's northern boundary (Survey Area No. 1) as well as the medical center's east parking lot (Survey Area No. 2). See Appendix B.

Within Survey Area No. 1, five (5) stratigraphic trenches were excavated down to the firmly lithified dune layer in areas that were found to be clear of modern alterations and disturbances. This sub-surface testing was designed to identify any possible cultural deposits as well as expose the depositional history of the project area. All five (5) trenches did not yield any cultural deposits or evidence of human burials and no further sub-surface testing was conducted. Other alterations and disturbances found in Survey Area No. 1 include trash dumps and drainageways as well as evidence of grading and bulldozing.

Survey Area No. 2 was assessed during field work as having been subject to bulldozing, grading, and paving for the construction of the existing east parking lot. Accordingly, the likelihood of finding an intact cultural deposit in this setting was deemed minimal.

The survey found no extant archaeological sites, features, human burials, or sub-surface deposits and recommended no further archaeological work for the project area. The survey also notes that models of traditional settlement patterns and land use indicate that the project area was not intensively utilized.

Because of the potential for encountering human burials in sand dunes, as evidenced by the multiple burial finds in the nearby Maui Lani Project District, the State Historic Preservation Division (SHPD) recommended that archaeological monitoring be conducted during land altering construction activities. This monitoring will be carried out according to the procedures of the SHPD which calls for the preparation of a monitoring plan which is subject to SHPD review and approval prior to the commencement of ground disturbing activities.

In correspondence dated May 28, 1999, the SHPD accepted the archaeological inventory survey for the proposed project. See Appendix B-1.

Should any human remains or significant cultural materials be found during construction of the project, work shall cease at once in the immediate area of the find and the find protected from further damage. The SHPD will then be appropriately and immediately notified and applicable mitigation measures implemented to ensure compliance with Chapter 6E, HRS.

5. ***Air Quality***

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 extent practicable.

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

6. ***Noise***

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.

In addition, an Environmental Noise Assessment Study was prepared by Darby & Associates in March 1999 for the proposed helistop. See Appendix C. As previously indicated, the proposed helistop will be utilized by emergency medical helicopters to transport patients to and from the medical center.

The study notes that existing noise sensitive areas include schools and residential areas located to the east and north of the medical center, as well as the Hui Malama Learning Center which is located approximately 1,000 feet from the proposed helistop. In addition, the study indicates that noise sensitive areas are presently exposed to daytime ambient noise levels ranging from 50 to 65 dBA, with the dominant noise sources being wind, traffic, and occasional distant aircraft flying by.

Existing ambient Day-Night Average Sound levels (Ldn) at these locations were calculated to vary from 56.4 to 71.4 dBA. For the projected average annual daily operations of one (1) flight per day, an Ldn of 50 dBA will not be exceeded at any of the noise sensitive areas in the vicinity of the helistop.

The study reveals that based on the projected average annual daily operations of one (1) flight per day, the calculated helicopter-generated Ldn noise levels at noise sensitive areas will comply with guidelines established by the U.S. Environmental Protection Agency (EPA) and the Hawaii State Helicopter System Plan, as well as other applicable regulatory noise standards. In addition, the

study notes that even if the number of average annual daily operations were to increase from one (1) to three (3) flights per day, surrounding noise sensitive areas would not be impacted.

The study notes that an Ldn of 60 dBA will be experienced at the MMMC staff housing and the medical center buildings and should not result in adverse effects to the medical center. When possible, approaching and departing helicopters should avoid overflying the medical center buildings and try to maintain a maximum distance from the staff housing.

7. ***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, open space areas and aesthetically designed structures 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.

8. ***Use of Chemicals and Fertilizers***

Use of herbicides will generally be limited to the initial plant establishment period on the 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.

From a long-term perspective, the proposed expansion project will benefit the economy through the contribution of wages and salaries, as well as the purchase of goods and services from local service providers and business/commercial establishments.

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. The proposed improvements will enhance the patient care services provided by MMMC and are anticipated to have a beneficial effect on the community.

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) for the proposed project was prepared by the Traffic Management Consultant in May 1999. See Appendix D.

Access to MMMC is presently provided by three (3) primary driveways off Mahalani Street (a fourth driveway provides only service access). Under the proposed project, the main driveway will be relocated further north on Mahalani Street to align with the new lobby entry and the upper level of the new parking structure. The east driveway would provide access to the lower levels of the parking garage, as well as the on-grade parking areas on the eastern portion of the site. The west driveway would continue to provide access to the west side of the site, including the proposed 70-stall, surface parking expansion.

The County of Maui will be widening Mahalani Street from Kaahumanu Avenue to MMMC's new main driveway to provide four (4) lanes, with two (2) through lanes in each direction. The

segment of Mahalani Street, from the medical center's new main driveway to the vicinity of the Hui Malama Learning Center, will also be widened to provide a three (3) lane section consisting of two (2) through lanes and a middle lane for left turns. Mahalani Street will then transition from three (3) to two (2) lanes at the westbound approach to the Maui Lani Parkway. A bike lane and concrete curbs, gutters, and sidewalks will be installed along the Wailuku side of Mahalani Street. Striped parallel parking stalls and a striped shoulder will be provided on the Kahului side of the street except for the roadway segment from the DLNR Annex to Kaahumanu Avenue where only a striped shoulder will be provided. In addition, an 18-stall, offstreet parking lot is planned to the southeast of MMMC's west driveway. These improvements are currently under design and are expected to be completed by the end of the year 2000.

The State Department of Transportation (DOT) will be improving the Mahalani Street approach to Kaahumanu Avenue by providing an exclusive left-turn lane, a through-only lane, and an exclusive right-turn lane. Two (2) southbound lanes are also being planned on Mahalani Street, including an exclusive left-turn lane into the Kaiser Permanente Clinic driveway. These planned improvements are currently in the design phase and are expected to be constructed by the end of the year 2000.

In addition to the preceding improvements, the following traffic improvements are in various stages of design and construction by the County of Maui, the State DOT, and the developer of the Maui Lani Project District.

1. The Kaahumanu Avenue/Mahalani Street/Kanaloa Avenue intersection would be improved to provide:

a. Double left-turn lanes on westbound Kaahumanu Avenue to Mahalani Street,
b. Exclusive left-turn, through, and right-turn lanes on northbound Mahalani Street,
c. Restriping of Kanaloa Avenue to provide an exclusive right-turn lane, a through-only lane, and an exclusive left-turn lane.

2. Mahalani Street would be improved to Maui Lani Parkway and open to traffic and the Parkway would be extended to the Mahalani Street Extension and open to traffic.

3. The Mahalani Street Extension would be constructed between Maui Lani Parkway and Waiale Drive. Separate left and right-turn lanes would be provided on the Mahalani Street Extension at Waiale Drive.

4. Kuikahi Drive would be opened to traffic between Waiale Drive and Honoapiilani Highway.

With or without the project, the traffic study recommends the following offsite traffic improvements:

1. Upgrade the traffic signal system at the Kaahumanu Avenue/Mahalani Street/Kanaloa Avenue intersection to an eight-phase operation.

2. Widen northbound and southbound Waiale Drive to respectively provide an exclusive right-turn lane and exclusive left-turn lane at the Mahalani Street Extension.

3. Widen the south leg of Waiale Drive at the Mahalani Street Extension to provide a median shelter lane.

The traffic study indicates that the proposed MMMC expansion is expected to increase traffic volumes by a total of 45 vehicles per hour (vph) during the AM peak hour (33 vph entering, 12 vph exiting) and 46 vph during the PM peak hour (11 vph entering, 35 vph exiting). The medical center's driveways are expected to operate at satisfactory Levels of Service within the time frame of the study (the year 2002).

In conclusion, the traffic study notes that the proposed expansion improvements are not expected to have a significant impact on traffic operations in the study area.

2. ***Water***

Domestic water and fireflow requirements, as well as connection to the County's domestic water system, will be coordinated with the Department of Water Supply (DWS) as part of the project's building permit application process.

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

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***

An allocation of capacity as well as any necessary wastewater contribution calculations will be coordinated with the DPWWM as part of the project's building permit application process.

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***

Proposed drainage improvements include inlets, manholes, and drainlines. Refer to Appendix A.

Improvements at the northwesterly parking lot consist of a culvert to carry runoff under the proposed fill, and inlets, manholes, and drainlines to intercept parking lot runoff. Improvements at the new building and new parking garage also consist of inlets, manholes, and drainlines. These improvements are required to reroute the existing drainage system around the new buildings. The Preliminary Drainage Plan contained in Appendix A also shows drainage improvements along Mahalani Street. The County of Maui will construct these improvements as part of their Mahalani Street widening project.

Drainage improvements that involve transmission of storm flows will conform to the "Rules for the Design of Storm Drainage Facilities in the County of Maui".

Based on the findings of the Preliminary Drainage Report, there will be no adverse effects on the adjacent or downstream properties due to this project. This conclusion is based on providing adequate outlets for discharging flows or by keeping post-development peak discharge rates at or below pre-development levels.

As shown on the Preliminary Grading Plan included in Appendix A, the grading area includes approximately 4.4 acres of land. To control soil erosion during construction, the following measures will be implemented:

General erosion control measures include:

- Installation of site-specific erosion control measures before clearing area.
- Maintenance of erosion control measures during construction.
- Control of wind erosion by sprinkling with water wagons, sprinklers, or other suitable means.
- Stabilization of areas as soon as possible and prevention of sediments from entering newly constructed drainage inlets.

Site-specific erosion control measures include:

- Installation of drain inlet filters at existing inlets within MEO site and at existing parking areas.
- Installation of silt fences at the downstream end of cleared areas.
- Installation of a "good neighbor screen" at the staff cottages parcel and the Lokahi Pacific parcel.

Implementation of these best management practices will minimize the loss of soil during construction.

5. ***Electrical, Telephone and CATV Systems***

Electrical, telephone, and cable system requirements will continue to be provided by MECO, GTE Hawaiian Tel, and TCI of Hawaii, respectively.

Electrical, telephone and CATV duct lines, pullboxes and manholes will be installed to extend these facilities underground from their

respective overhead distribution systems on Mahalani Street. In addition, MECO will be consulted to determine that the electrical easements that serve the medical center are properly documented and delineated.

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 proposed improvements will benefit the socio-economic fabric of the community by fulfilling the public's need for patient care services. In addition, the proposed project would support additional employment opportunities, either directly or indirectly, and contribute to the local economy through its contribution of wages, salaries, and benefits. The proposed action is not anticipated to adversely impact infrastructure and public service systems and facilities.

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 implementation of planned improvements to MMMC'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 relate 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. 226-20	**Objectives and policies for socio-cultural advancement - health.**
Objective (a)(1)	Fulfillment of basic individual health needs of the general public.
Policy (b)(5)	Provide programs, services, and

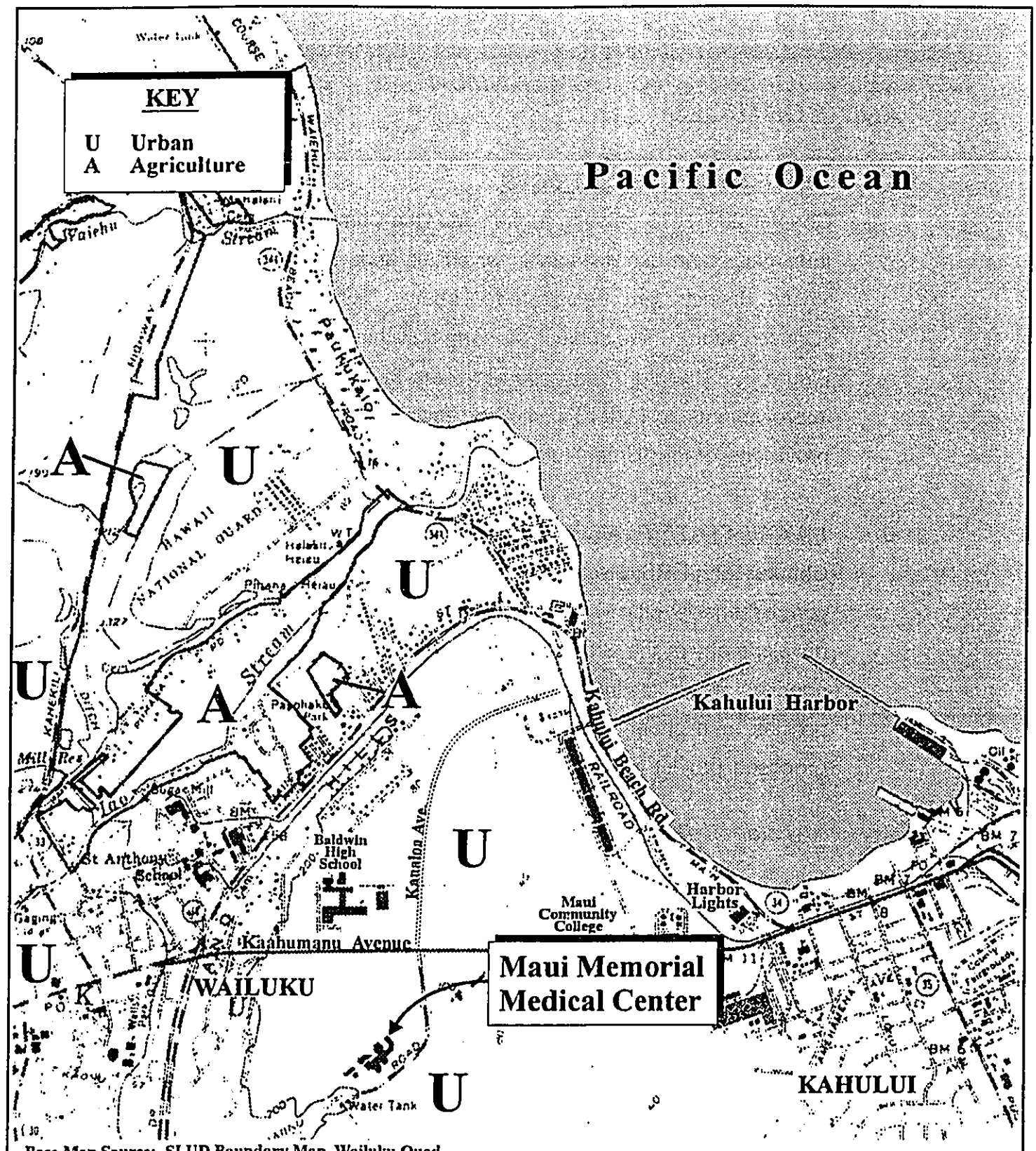


Figure 8 Maui Memorial Medical Center Expansion Improvements

State Land Use District Designations

MUNEKIYO, ARAKAWA & HIRAGA, INC.

Prepared for: Hawaii Health Systems Corporation

1000 0 2000 4000 Feet

activities that ensure environmentally healthful and sanitary conditions.

* * *

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

Policies:

* Seek improvement in the maintenance and operation of public facilities.

* Encourage the expansion and improvement of our hospitals and our public and private medical facilities.

* 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.

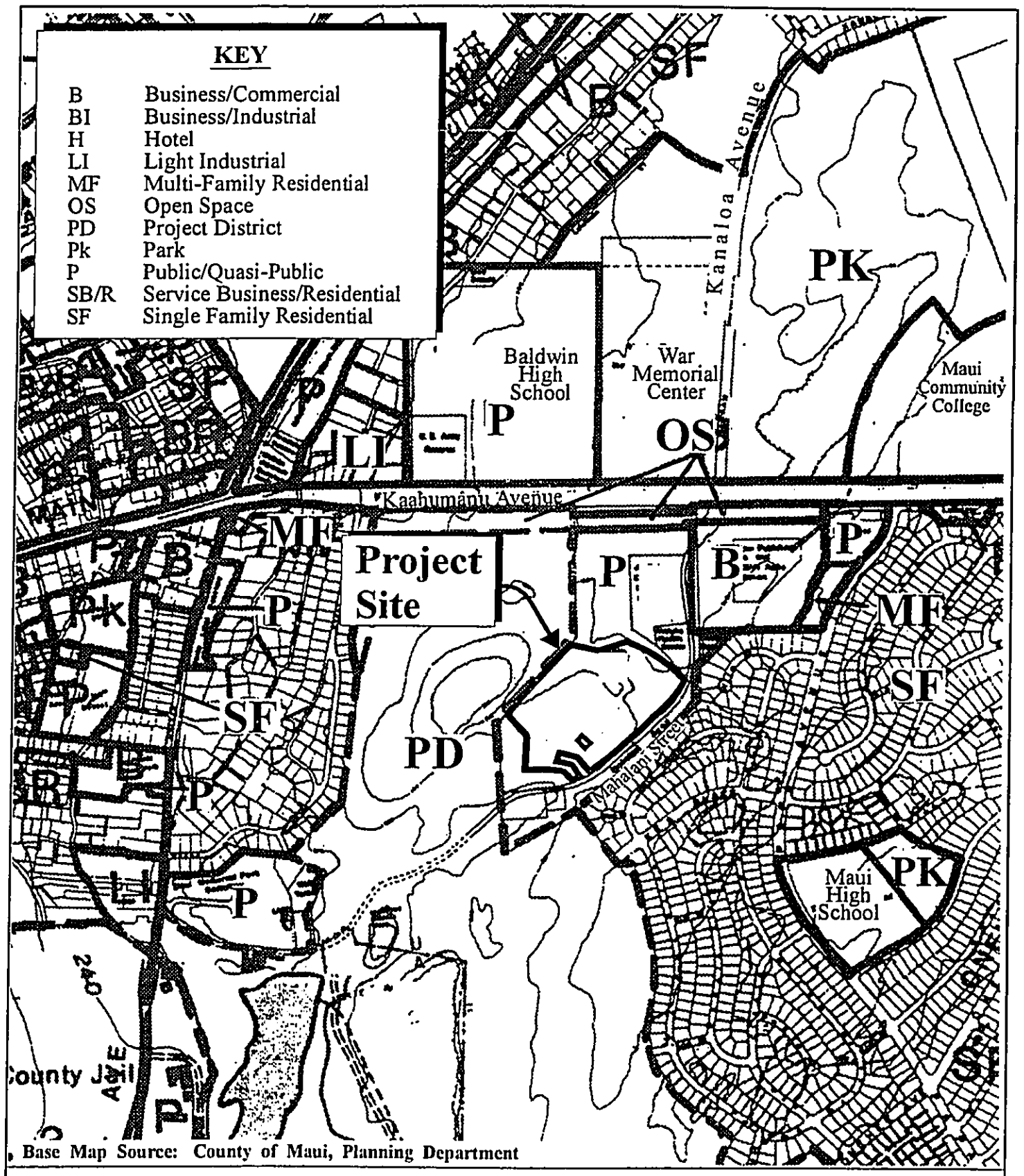
D. *WAILUKU-KAHULUI COMMUNITY PLAN*

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 expansion improvements are consistent with the Wailuku-Kahului Community Plan.

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, Lanai, Kahoolawe, Paia-Haiku, Kihei-Makena, Makawao-Pukalani-Kula, and West Maui Community Plans have



Base Map Source: County of Maui, Planning Department

Figure 9

Maui Memorial Medical Center Expansion Improvements

Wailuku-Kahului Community Plan Designations

MUNEKIYO, ARAKAWA & HIRAGA, INC.

500 0 1000 2000 Feet

Prepared for: Hawaii Health Systems Corporation

been completed. The Maui County Council is currently reviewing the Wailuku-Kahului Community Plan. Pending review at the County Council is the Molokai Community Plan.

E. COUNTY ZONING

The subject property is located in the "R-3, Residential District" as designated by Maui County zoning. Within this zoning district, the MMMC facility is permitted as buildings or premises used by the Federal, State, or County governments for public purposes.

It should be noted, however, that a height variance for the proposed project will be required. The height limit for the "R-3, Residential District" is 30 feet. The proposed building addition would exceed the height limit by approximately 33 to 35 feet.

Accordingly, the applicant intends to submit the required height variance application to the Maui County Board of Variances and Appeals for review and approval.

F. COASTAL ZONE MANAGEMENT OBJECTIVES AND POLICIES

The Hawaii Coastal Zone Management Program (HCZMP), as formalized in Chapter 205A, HRS, establishes objectives and policies for the preservation, protection, and restoration of natural resources of Hawaii's coastal zone.

As set forth in Chapter 205A, HRS, this section addresses the project's relationship to applicable coastal zone management considerations.

1. Recreational Resources

Objective: Provide coastal recreational resources accessible to the public.

Policies:

a. Improve coordination and funding of coastal recreational planning and management; and

b. Provide adequate, accessible and diverse recreational opportunities in the coastal zone management area by:

(1) Protecting coastal resources uniquely suited for recreation activities that cannot be provided in other areas;

(2) Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;

(3) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

(4) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

(5) Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

(6) Adopting water quality standards and regulating point and non-point sources of pollution to protect and where feasible, restore the recreational value of coastal waters;

(7) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and

(8) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of

discretionary approvals or permits by the land use commission, board of land and natural resources, county planning commissions, and crediting such dedication against the requirements of section 46-6.

Response: The proposed project is not anticipated to affect existing coastal recreational resources. The project is designed to provide patient care facilities for the daily operations of the medical center. Accordingly, the project itself is not a direct generator of new demand for regional recreational resources.

2. ***Historical/Cultural Resources***

Objective: Protect, preserve and where desirable, restore those natural and man-made historic and prehistoric resources in the coastal zone management areas that are significant in Hawaiian and American history and culture.

Policies:

a. Identify and analyze significant archaeological resources;

b. Maximize information retention through preservation of remains and artifacts or salvage operations; and

c. Support State goals for protection, restoration, interpretation and display of historic resources.

Response: The archaeological inventory survey for the proposed project found no archaeological sites, features, human burials, or sub-surface deposits and recommended no further archaeological work for the project area. Should human remains be inadvertently discovered during earth moving activities, work shall cease at once in the immediate area of the find, and the find shall be protected from further damage. The State Historic Preservation Division shall be immediately notified and procedures for the treatment of inadvertently discovered human remains shall be implemented

pursuant to Chapter 6E, HRS.

3. ***Scenic and Open Space Resources***

Objective: Protect, preserve and where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

a. Identify valued scenic resources in the coastal zone management area;

b. Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural land forms and existing public views to and along the shoreline;

c. Preserve, maintain and, where desirable, improve and restore shoreline open space and scenic resources; and

d. Encourage those developments which are not coastal dependent to locate in inland areas.

Response: The proposed project will be developed and landscaped to ensure visual compatibility with the surrounding land uses. The proposed improvements are not contrary to the objectives and policies for scenic and open space resources.

4. ***Coastal Ecosystems***

Objective: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

a. Improve the technical basis for natural resource management;

b. Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

c. Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions,

channelization, and similar land and water uses, recognizing competing water needs; and

d. Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate State water quality standards.

Response: The proposed improvements are not expected to adversely impact coastal ecosystems. Drainage improvements shall be designed to ensure that there are no adverse effects to adjacent or downstream properties. Applicable erosion control measures will also be implemented during the construction of the project.

5. *Economic Uses*

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

a. Concentrate coastal dependent development in appropriate areas;

b. Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor facilities and energy-generating facilities, are located, designed, and constructed to minimize adverse social, visual and environmental impacts in the coastal zone management area; and

c. Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

(1) Use of presently designated locations is not feasible,

(2) Adverse environmental effects are minimized; and

(3) The development is important to the State's economy.

Response: The proposed project is designed to accommodate the daily operational needs of the medical center and will support MMMC's ability to serve the community in an efficient manner.

6. ***Coastal Hazards***

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

Policies:

a. Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

b. Control development in areas subject to storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

c. Ensure that developments comply with requirements of the Federal Flood Insurance Program;

d. Prevent coastal flooding from inland projects; and

e. Develop a coastal point and nonpoint source pollution control program.

Response: The project site is located within Zone C, which is an area of minimal flooding. No significant adverse drainage impacts to downstream properties are anticipated from the proposed project.

7. ***Managing Development***

Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policies:

a. Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

b. Facilitate timely processing of application for development permits and resolve overlapping of conflicting permit requirements; and

c. Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life-cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Response: This Environmental Assessment has been prepared for public review in compliance with Chapter 343, Hawaii Revised Statutes, and Chapter 200 of Title 11, Administrative Rules, Environmental Impact Statement Rules.

In addition, applicable State and County requirements will be adhered to in the design and construction of the proposed project.

8. ***Public Participation***

Objective: Stimulate public awareness, education, and participation in coastal management.

Policies:

a. Maintain a public advisory body to identify coastal management problems and to provide policy advice and assistance to the coastal zone management program;

b. Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities; and

c. Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Response: The proposed project involves improvements to the medical center site and facilities. Public awareness and participation for this project is facilitated through the Chapter 343,

HRS environmental review process. The proposed project is not contrary to the objective of public awareness, education and participation.

9. ***Beach Protection***

Objective: Protect beaches for public use and recreation.

Policies:

a. Locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion;

b. Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

c. Minimize the construction of public erosion-protection structures seaward of the shoreline.

Response: The proposed project is located approximately 1.0 mile from the shoreline and is not anticipated to impact shoreline activities.

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.

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 MMMC's operations on its existing site and does not consider the development of the proposed improvements.

The availability of appropriate sites for accommodating the implementation of MMMC's proposed improvements is best accomplished through the development of the existing site. The development of the proposed improvements is vital toward meeting the immediate and long-term needs of both the community, as well as that of the hospital.

In this regard, the proposed action will enable MMMC to provide patient care 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 MMMC, 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 needs of the community regarding patient care services would still need to be considered.

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 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 implementation of expansion improvements to MMMC's existing site and facilities. Since HHSC revenue bonds and 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 majority of the MMMC 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 land altering construction activities. Should any human remains or significant archaeological features or artifacts be found during construction of the project, the SHPD will be immediately notified and appropriate mitigation measures implemented.

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

The proposed improvements 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.

* * *

(7) Energy.

(A) Encourage the efficient use of energy resources.

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

The proposed 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.

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, and Kaiser Permanente's Wailuku 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 the anticipated social and community service need for patient care services over the long term.

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. In addition, based on the projected average annual daily operations of one (1) flight per day, no significant adverse effects to the medical center and to surrounding noise sensitive areas are expected due to emergency helicopter operations.

Water quality is not expected to be affected.

11. <u>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</u>

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. <u>The Proposed Project Will Not Substantially Affect Scenic Vistas and Viewplanes Identified in County or State Plans or Studies</u>

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

13. <u>The Proposed Project Will Not Require Substantial Energy Consumption</u>

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.

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. Robert P. Smith, Pacific Islands Manager
Ecological Services
U. S. Fish and Wildlife Service
P.O. Box 50167
Honolulu, HI 96850

4. Gary Gill, Deputy Director
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

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

6. Timothy Johns, 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. Colin Kippen, Deputy Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, HI 96813

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

11. John Min, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, HI 96793

12. Tom Phillips, 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. Clayton Ishikawa, Chief
Department of Fire Control
County of Maui
200 Dairy Road
Kahului, HI 96732

EARLY CONSULTATION COMMENT LETTERS

MAR 2 4 1999

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

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

MAR 2 3 1999

Ref: PS:EH

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

Dear Mr. Tadaki:

Subject: Maui Memorial Medical Center
TMKs: 3-8-46:13 & 29

We have reviewed the subject project and have the following comments to offer on the matter.

Currently, the Land Division is processing the transfer of the fee simple interest in parcel 13 of TMK: 3-8-46 to the Hawaii Health Systems Corporation (HHSC) to allow it greater control over its own asserts pursuant to Act 262, SLH 1996. Therefore, we have no objection to the proposed improvements to the hospital's grounds.

Also, it is our latest discussion with HHSC the Land Division's understanding was that a portion of the County of Maui parcel (TMK: 3-8-46:29) had already been transferred to HHSC's land inventory.

Engineering Branch, Land Division:

For your information, the proposed project site, according FEMA Community Panel Map No. 150003 0190 D, is located in Zone C. Zone C is an area of minimal flooding.

Thank you for the opportunity to comment on this matter. Should you have any questions, please contact Ed Henry at 1-(808) 587-0380.

Very truly yours,

Dean Uchida,
Administrator

c.c. Gary Martin, LD
Engineering Branch

MAR 1 9 1999

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

March 17, 1999

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

SUBJECT: Maui Memorial Medical Center TMK: 3-8-46:013 and 29

Dear Mr. Tadaki,

Thank you for the opportunity to provide comments in preparation of the environmental assessment (EA).

Water Source

The EA should include the sources and expected potable and non-potable water usage. As of December 1998, water usage from DWS sources for Maui Memorial Hospital as a whole has averaged approximately 149,200 gallons per day over the last 12 months.

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 March 11, 1999 were 17.357 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 bring new sources on-line and to mitigate withdrawals. Two wells in North Waihee were brought on-line in July 1997. No moratorium is currently in effect. However, more source water is still needed. 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.

Water System

Enclosed is 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. DWS-approved fire

flow calculation methods are contained in "Fire Flow" - Hawaii Insurance Bureau, 1991.

Water Conservation

It is required by County Code that water conservation practices be incorporated into project design. As much of the water demand as possible should be delivered from non-potable sources (reclaimed or brackish). 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. 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 16.20A.680 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 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: Native plants adapted to the area, conserve water and further protect the watershed from degradation due to invasive alien species. The project site is located in "Maui County Planting Plan" - Plant Zones 3 and 4. Please refer to the attached documents, "XERISCAPE: Water Conservation Through Creative Landscaping", "Maui County Planting Plan", and "Hawaiian Alien Plant Studies."

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.

Water Protection

The project overlies the Iao and Kahului aquifers. The Department of Water Supply strives to protect the integrity of surface water and groundwater resources by encouraging applicants to adopt best management practices (BMPs) relevant to potentially polluting activities. We list a few BMP references here. Additional information can be obtained from the State Department of Health.

"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 call our Water Resources and Planning Division anytime at (808) 243-7199.

Sincerely,

David Craddick
Director
emb

cc: engineering division

attachments:

"The Costly Drip"
"Maui County Planting Plan"
"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"
"A Checklist for Water Conservation Ideas for Commercial Buildings"

C:\WPdocs\Permcomm\Mauimcmedcenter.wpd

MAR 1 5 1999

POLICE DEPARTMENT
COUNTY OF MAUI

JAMES "KIMO" APANA
MAYOR

OUR REFERENCE
RTH:fs
YOUR REFERENCE

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

THOMAS M. PHILLIPS
CHIEF OF POLICE

CHARLES H.P. HALL
DEPUTY CHIEF OF POLICE

March 11, 1999

MEMORANDUM

TO: MR. JOHN E. MIN
DIRECTOR, PLANNING DEPARTMENT

FROM: THOMAS PHILLIPS, CHIEF OF POLICE

SUBJECT: MAUI MEMORIAL MEDICAL CENTER
TMK 3-8-46: 13 AND 29

Applicant: Mr. Glenn Tadaki
Munekiyo, Arakawa & Hiraga, Inc.

_____ No recommendation or special condition is necessary or desired.

__X__ Refer to attachment.

for Assistant Chief Robert Tam Ho
for: THOMAS PHILLIPS
Chief of Police

cc: Mr. Glenn Tadaki

A-1

AC 3/10/99

TO : SIDNEY KIKUCHI, CAPTAIN WAILUKU PATROL

VIA : CHANNELS

FROM : RYAN RODRIGUES, COMMUNITY POLICE OFC.- KAHULUI

SUBJECT : MAUI MEMORIAL MEDICAL CENTER TMK 3-8-46: 13 AND 29

Sir, this communication is in regards to the above mentioned subject matter.

I have had a chance to review the Maui Memorial Medical Centers project summary attached to this memo.

The creation of new on site parking stalls and an additional three level parking structure, would improve the parking problem on Mahalani Street fronting the Hospital.

My concern is with the intersection at Kaahumanu Avenue and Mahalani street. The concern here is that Mahalani Street will not be able to carry the load of an increase in traffic flow off of Kaahumanu Avenue onto Mahalani Street.

During the course of the day and during peak traffic hours, entering Mahalani Street off of Kaahumanu Avenue is becoming a hazard. This is primarily due to only one lane being available for vehicles to travel on. As motorist stop and attempt to turn left into Kaiser's parkinglot, traffic starts to back up into the intersection of Kaahumanu Avenue. This is creating a hazard.

I feel that the Maui Memorial Medical Center improvements can only benefit our community, however improvements on Mahalani Street need to be made. Attached to this memo are photos of Mahalani Street at present, aswell as a sketch on how this road way can be improved.

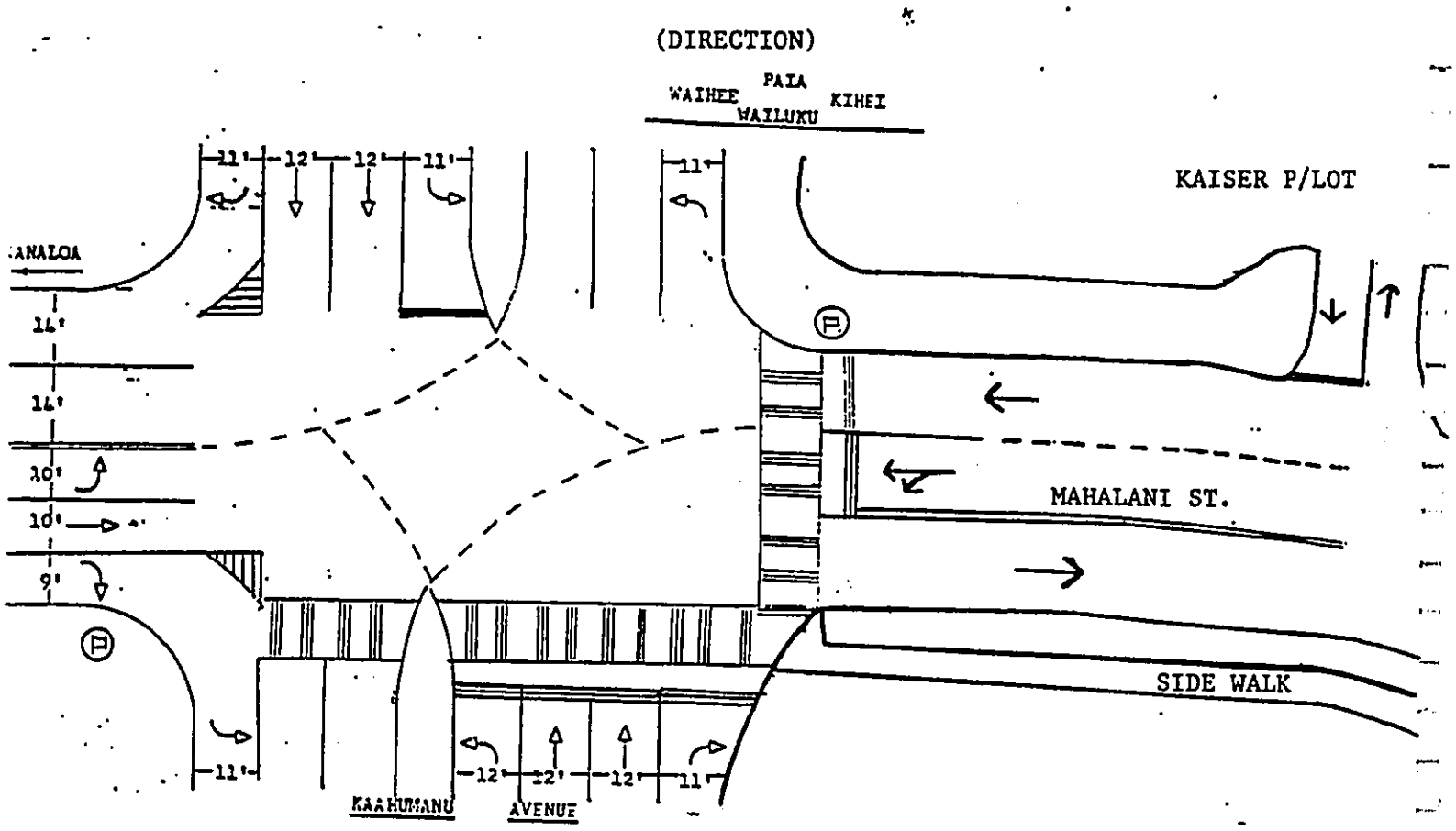
Submitted for your information .

RYAN RODRIGUES E#0312
3/08/99 1300 HOURS

Concur. The Mahalani St. plan for extension/improvements is in the works and will address Ofc. Rodrigues' comments/concerns.
Federal Aid Project No. STP-0900(41)
JJ Jungard 8467
3/08/99 1445 Hrs.

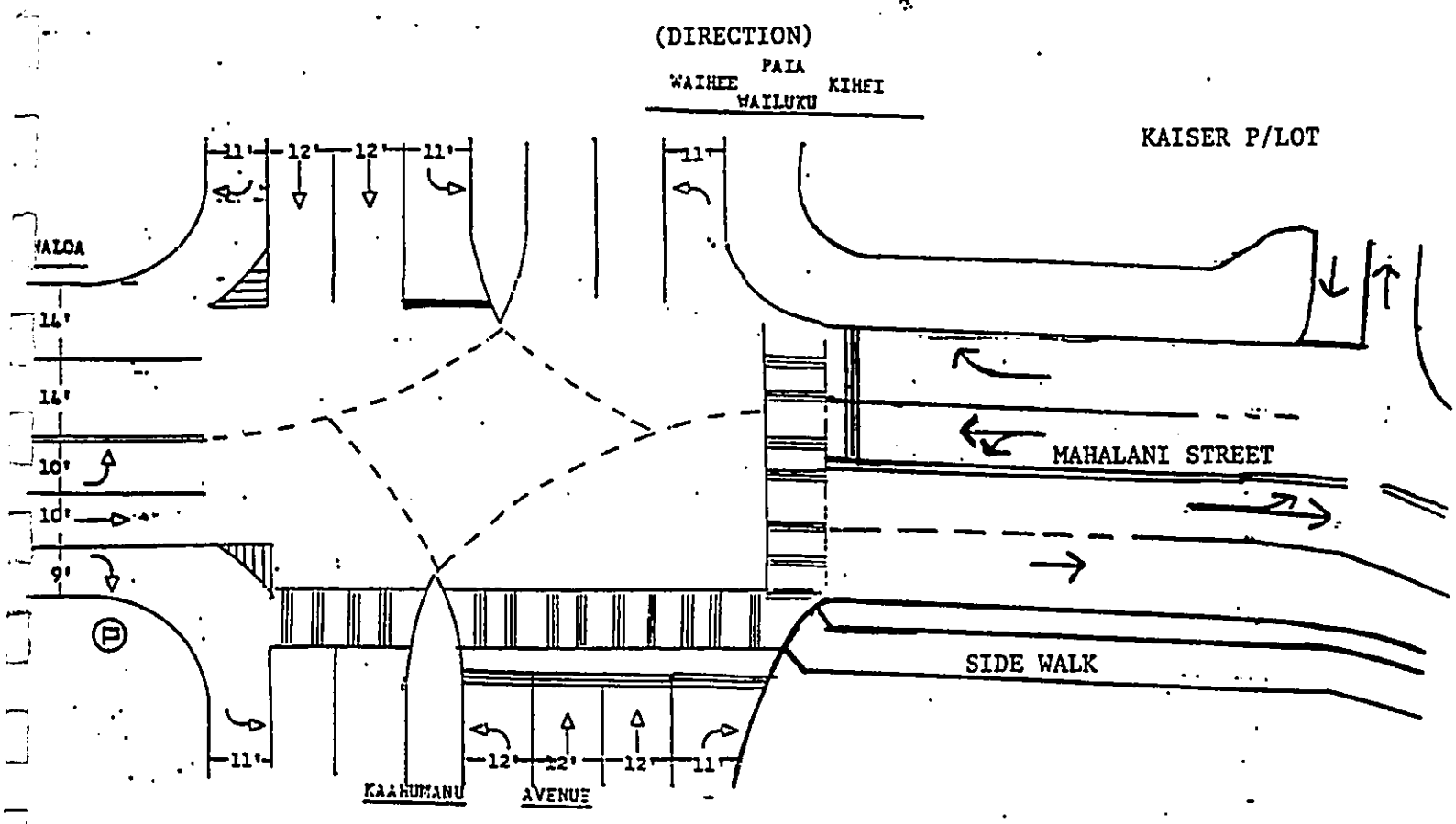
noted!
03/08/99

SKETCH OF MAHALANI STREET AT KAAHUMANU AVENUE
AS IT STANDS TODAY



NOTE: Sketch not to scale

SKETCH OF MAHALANI STREET AT KAAHUMANU AVENUE WITH SUGGESTED IMPROVEMENTS



NOTE : Highlighted area indicates area of improvement

NOTE: Sketch not to scale

MAR 1 5 1999

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

REPLY TO
ATTENTION OF

March 9, 1999

Operations Branch

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

Dear Mr. Tadaki:

This letter responds to your request for a review of the Maui Memorial Medical Center improvements, dated February 22, 1999. Based on the information you provided and a site visit by a member of my staff, I have determined that a DA permit will not be required for this project.

If you have any questions concerning this determination, please contact William Lennan of my staff at 438-9258, extension 13, and reference File No. 990000204.

Sincerely,

George P. Young, P.E.
Chief, Operations Branch

JAMES "KIMO" APANA
Mayor

JOHN E. MIN
Director

CLAYTON I. YOSHIDA
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

March 8 , 1999

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

Dear Mr. Tadaki:

SUBJECT: Maui Memorial Medical Center (MMMC) - Preliminary Comments on Draft Environmental Assessment, Tax Map Key: 3-8-46:13 and 29, Kahului, Island of Maui, Hawaii

The Maui Planning Department (Department) received your letter of February 22, 1999, requesting comments on the above-referenced subject property. Hawaii Health Systems Corporation (HHSC), a State agency and public corporation, is proposing to implement Phase 1 of its master planned improvements to MMMC. Construction will commence upon the receipt of all applicable regulatory approvals.

The land use designation in the Wailuku-Kahului Community Plan for the subject property is Public/Quasi-Public and the zoning is R-3 Residential. The Phase 1 improvements will include new medical center spaces and renovation of certain existing spaces, including the existing east wing of the medical center. New improvements include a helistop, surface parking with 70 stalls on the northwest side of the site, and a three-level medical center addition on the east side of the site. At the first level, the addition will form a courtyard with the south and east wings of the existing hospital. The estimated cost of construction is $25.0 million.

The Department notes that the R-3 Residential zoning permits *hospitals* as a Special Use Permit, *"provided that written consent of 75 percent of the property owners within five hundred feet from the property to be used for such purpose has been obtained."* Special uses on the island of Maui are approved by the Maui Planning Commission. The Department advises that the applicants seek a Change in Zoning to be consistent with the Community Plan.

Should you have any further questions, please call Ms. Julie Higa, Staff Planner, of this office at 243-7814.

Very truly yours,

JOHN E. MIN
Director of Planning

JEM:JMH:osy
cc: Clayton I. Yoshida, AICP, Deputy Director of Planning
Julie M. Higa, Staff Planner
Project File
General File
S:\ALL\JULIE\HOSPITAL\PRELIM.EA

BENJAMIN J. CAYETANO
GOVERNOR

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

March 3, 1999

MAR 0 5 1999

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

IN REPLY REFER TO:

HWY-M 2.093-099

MEMORANDUM

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

FROM: **Paul M. Chung**
State Highways

SUBJECT: Maui Memorial Medical Center
ME 99-07

This memorandum is in response to your request for preliminary comments for the proposed Environmental Assessment for the referenced project. Based on your transmittal, it is difficult to provide an accurate review. Please submit a Traffic Impact Analysis Report for our review and comment. If there arre any questions, please contact me at 873-3535.

/pmc

JAMES "KIMO" APANA
Mayor

CHARLES JENCKS
Director

DAVID C. GOODE
Deputy Director

Telephone: (808) 243-7845
Fax: (808) 243-7955

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

Wastewater Reclamation Division

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

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

March 1, 1999

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

Dear Mr. Tadaki:

SUBJECT: MAUI MEMORIAL MEDICAL CENTER

Thank you for the opportunity to comment on the subject project as part of the Chapter 343 process. I find the description provided weak in its review of the project elements and would recommend a map to clarify what is planned for the overall project.

Please call if you have any questions.

Sincerely,

CHARLES JENCKS
Director of Public Works
and Waste Management

CJ:mt

DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

MAR 0 2 1999

JAMES "KIMO" APANA
Mayor

ALICE L. LEE
Director

PRISCILLA P. MIKELL
Deputy Director

200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • PHONE (808) 243-7805 • FAX (808) 243-7165

February 26, 1999

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

Dear Mr. Tadaki:

Subject: Maui Memorial Medical Center
TMK 3-8-46:13 & 29

We have reviewed the project summary that was attached to your February 22, 1999 letter and are pleased to inform you that we fully support the construction of Phase I Master Planned Improvements to the subject project.

Thank you for the opportunity to comment.

Very truly yours.

ALICE L. LEE
Director of Housing and
Human Concerns

ETO:hs

xc: Housing Administrator

MAR 0 1 1999

BENJAMIN J. CAYETANO
GOVERNOR

ERLE S. ANDERSON, Ph.D.
Director of Health

ALFRED M. ARENSDORF, M.D.
DISTRICT HEALTH OFFICER

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

February 25, 1999

Glenn Tadaki
Planner
Munekiyo, Arakawa & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai'i 96793

Dear Mr. Tadaki:

Subject: Maui Memorial Medical Center
TMK: (2) 3-8-46: 13 and 29

Thank you for the opportunity to comment on the proposed master planned improvements to the Maui Memorial Medical Center. We have no comments to offer at this time.

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

Sincerely,

HERBERT S. MATSUBAYASHI
District Environmental Health Program Chief

EARLY CONSULTATION RESPONSE LETTERS

MUNEKIYO, ARAKAWA & HIRAGA, INC.

May 7, 1999

John E. Min, Director
County of Maui
Planning Department
250 South High Street
Wailuku, Hawaii 96793

SUBJECT: Maui Memorial Medical Center - Expansion Improvements
TMK 3-8-46: 13 and por. 29

Dear Mr. Min:

Thank you for your March 8, 1999 letter providing comments on the proposed project. On behalf of Hawaii Health Systems Corporation, we would like to note the following.

Pursuant to our letter of March 23, 1999 and follow-up discussions with the Planning Department's Zoning Administration and Enforcement Division in early April 1999, it was confirmed that the proposed expansion improvements are permitted within the R-3, Residential district by Maui County zoning on the basis of the medical center's use as buildings and premises utilized by the Federal, State, or County governments for public purposes.

Thank you for expressing your interest in the proposed project. Please feel free to contact me should you have any questions or require additional information.

Sincerely,

Glenn Tadaki, Planner

GT:to
cc: Gerald Matsui, Maui Memorial Medical Center
Bob Tsushima, SSFM Engineers, Inc.
mmmc/mastplan/planning.ltr

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

MUNEKIYO, ARAKAWA & HIRAGA, INC.

May 7, 1999

Thomas Phillips, Chief
County of Maui
Police Department
55 Mahalani Street
Wailuku, Hawaii 96793

SUBJECT: Maui Memorial Medical Center - Expansion Improvements
TMK 3-8-46: 13 and por. 29

Dear Mr. Phillips:

Thank you for your March 11, 1999 letter transmitting comments on the proposed project.

On behalf of Hawaii Health Systems Corporation, we would like to note that the traffic study prepared for the project notes that the State Department of Transportation will be improving the Mahalani Street approach to Kaahumanu Avenue by providing an exclusive left-turn lane, a through-only lane, and an exclusive right-turn lane. In addition, two (2) southbound lanes are being planned on Mahalani Street, including an exclusive left-turn lane into the Kaiser Permanente Clinic driveway which will address the problem of traffic backing up into the Kaahumanu Avenue intersection.

Thank you for expressing your interest in the proposed project. Please feel free to contact me should you have any questions or require additional information.

Sincerely,

Glenn Tadaki, Planner

GT:to
cc: Gerald Matsui, Maui Memorial Medical Center
Bob Tsushima, SSFM Engineers, Inc.
mmmc/mastplan/mpdltr.001

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

Federal Agencies	*Date of Letter*	*Date of Response*
Natural Resources Conservation Service	6/1/99	NRR
U.S. Fish and Wildlife Service	6/23/99	7/2/99
U.S. Department of the Army, Corps of Engineers	6/3/99	NRR
State Agencies	***Date of Letter***	***Date of Response***
Department of Health - Maui	6/1/99	NRR
Department of Health - Honolulu	6/24/98	7/8/99
Department of Land and Natural Resources - Honolulu	7/7/99	7/8/99
Office of Hawaiian Affairs	6/30/99	7/8/99
County Agencies	***Date of Letter***	***Date of Response***
Department of Planning	6/22/99	7/2/99
Department of Water Supply	6/24/99	NRR
Department of Fire Control	5/27/99	NRR
Department of Police	6/14/99	NRR
Department of Housing and Human Concerns	5/26/99	NRR
Individuals	***Date of Letter***	***Date of Response***
Gordon Muraoka	6/18/99	7/8/99
NRR - No Response Required		

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

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

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

JUL - 7 1999

Ref: PS:EH

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

Dear Mr. Tadaki:

Subject: Draft Environmental Assessment (DEA) for Maui Memorial Medical Center Expansion Improvements

We have reviewed the subject DEA and offer the attached comments from the Land Division Maui District Land Office and the Engineering Branch for your consideration.

Thank you for the opportunity to comment on the proposed project.

Should you have any questions or require further assistance, please contact staff planner Ed Henry at 587-0380.

Very truly yours,

TIMOTHY E. JOHNS
Chairperson

Attachments

c.c. MDLO
Engineering Branch

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division - Maui District Branch
54 South High Street, Rm. 101, Wailuku, Hawaii 96793

June 22, 1999

MEMORANDUM

TO: Mr. Dean Y. Uchida, Administrator
Land Division

FROM: Louis Wada, Land Agent

SUBJECT: Request for Comments, DEA for Maui Memorial Medical Center Expansion Improvements, TMK: (2) 3-8-46: 13 and Por. 29, Kalua, Wailuku, Maui

Following are our comments/recommendations on the above described project:

We suggest that the Maui Memorial Medical Center consult with Maui Electric Company, Ltd., (MECO), to ascertain that all electric transmission easements serving the subject lands are properly documented and delineated.

Recently one of the abutting landowners, J. Walter Cameron Center, experienced an unexpected "last minute" situation in having to acquire an easement from the State of Hawaii.

Thank you for providing us the opportunity to comment on the subject project.

c: Mr. W. Kennison

ENGINEERING BRANCH

COMMENTS

Please have DOH coordinate with DLNR the required water demands for the proposed Maui Medical Center Expansion Improvements. DOH should also provide the calculations to determine the estimated potable and irrigation water use for the proposed improvements.

The water demands for the proposed improvements will be included in the update to the State Water Projects Plan being prepared by Fukunaga and Associates for the Department of Land and Natural Resources.

Please include the FEMA Community Map Number when indicating the flood zone that the proposed project is located.

We confirm that the proposed project site is located in Zone C. This is an area of minimal flooding.

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

June 30, 1999

Glenn Tadaki, Planner
Munekiyo, Arakawa & Hiraga, Inc.
305 High Street, Suite 212
Hilo, Hawai'i 96720

EIS 99282

RE: Draft Environmental Assessment – Maui Memorial Medical Center Expansion Improvements, TMK: 3-8-46:13 and por. 29.

Dear Sir:

We have reviewed a copy of the draft Environmental Assessment (DEA) for the proposed Maui Memorial Medical Center expansion. The Hawaii Health Systems Corporation, which is a state agency is proposing to improve the Maui Memorial Medical Center by adding more bed space, more parking and increased out-patient services.

The land area has been previously disturbed through the initial construction of the hospital. No known archaeological resources or endangered flora and fauna exist on the property. However, the hospital is built in a sand dune area which increases the possibility that burials could be found during construction. Therefore, we urge that a cultural monitor be present during construction activities. The DEA states that should any human remains or cultural material be found during construction the State Historic Preservation Division will be notified immediately. We also recommend immediate notification to the Chairperson of the Maui Island Burial Council should human remains be found.

If you have any questions concerning our comments, please contact Lynn Lee, EIS Planner at 594-1936.

Sincerely,

Colin Kippen
Deputy Administrator

C. Sebastian Aloot
Land and Natural Resources Division Officer

cc: Board of Trustees

JUL 01 1999

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

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

In reply, please refer to:
File:

June 24, 1999

99-109/epo

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

Dear Mr. Tadaki:

Subject: Draft Environmental Assessment (DEA)
Maui Memorial Medical Center Expansion & Improvements
Wailuku, Maui
TMK: 3-8-46: 13 & por. 29

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

Solid Waste

The Department of Health notes that the applicant will be developing a solid waste management plan in cooperation with Maui County's Solid Waste Division. We encourage the applicant to maximize waste minimization and diversion opportunities in developing this plan.

Also, Hawaii Revised Statutes require state agencies undertaking roadway paving projects to purchase materials with a minimum of ten percent (10%) crushed recycled glass aggregate in all basecourse (treated and untreated) and subbase, when the glass is available at a price no greater than that of the equivalent aggregate. Additionally, non-structural backfill shall utilize one hundred percent crushed glass when available at a cost equal to or lower than the equivalent aggregate.

Please contact the Mr. Lane Otsu of the Office of Solid Waste Management at 586-4240 with any questions concerning these comments.

Noise Concerns

1. Activities associated with the construction phase of the project must comply with the Department of Health's Administrative Rules, Chapter 11-46, "Community Noise Control."

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

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

   c. The contractor must comply with the requirements pertaining to construction activities as specified in the rules and the conditions issued with the permit as stated in Section 11-46-7(d)(4).

2. Heavy vehicles travelling to and from the project site must comply with the provisions of the Administrative Rules, Chapter 11-42, "Vehicular Noise Control for Oahu."

3. Through facility design, sound levels emanating from stationary equipment such as air conditioning systems, exhaust fans, refrigeration compressors or generators must be attenuated to comply with the provisions of the Department of Health's Administrative Rules, Chapter 11-46, "Community Noise Control."

Should there be any questions on this matter, please call Mr. Jerry Haruno, Environmental Health Program Manager of the Noise, Radiation and Indoor Air Quality Branch at 586-4701.

Control of Fugitive Dust

Construction activities must comply with provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, Fugitive Dust.

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

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

b. Providing an adequate water source at the site prior to start up of construction activities;

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

d. Controlling of dust from shoulders and access roads;

e. Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and

f. Controlling of dust from debris being hauled away from project site.

If you have any questions regarding these issues on fugitive dust, please contact the Clean Air Branch at 586-4200.

Asbestos

The Federal Register, 40 CFR Part 61, National Emission Standard for Hazardous Air Pollutants, Asbestos NESHAP Revision; Final rule, November 20, 1990, requires inspection of all affected areas to determine whether asbestos is present prior to any demolition activities.

Under the NESHAP regulation, the project would be required to file with the Noise, Radiation and Indoor Air Quality Branch of the Department of Health an Asbestos Demolition/Renovation notification ten working days prior to demolition of each building or the disturbance of regulated asbestos-containing materials. All regulated quantities and types of asbestos-containing materials would be subject to emission control, proper collection, containerizing, and disposal at a permitted landfill.

Questions concerning asbestos requirements should be directed to Mr. Robert H. Lopes at 586-5800. Should there be additional

concerns, please contact Mr. Jerry Haruno, Environmental Health Program Manager of the Noise, Radiation and Indoor Air Quality Branch at 586-4701.

Sincerely,

Virginia P Nesseler
for

GARY GILL
Deputy Director for
Environmental Health

c: OSWM
NR&IAQB
CAB

JUN 2 9 1999

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 270-7816 • Fax (808) 270-7833

1949 - 1999 Celebrating 50 Years of Service

June 24, 1999

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

SUBJECT: Maui Memorial Medical Center TMK: 3-8-46:013 and 29

Dear Mr. Tadaki,

Thank you for the opportunity to provide comments in preparation of the environmental assessment (EA). Please find attached a copy of our original comments, dated March 17, 1999. We have no further comments at this time.

If you have any other questions or need additional information, please call our Water Resources and Planning Division anytime at (808) 270-7199.

Sincerely,

David Craddick
Director
emb

By Water All Things Find Life

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

March 17, 1999

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

SUBJECT: Maui Memorial Medical Center TMK: 3-8-46:013 and 29

Dear Mr. Tadaki,

Thank you for the opportunity to provide comments in preparation of the environmental assessment (EA).

Water Source

The EA should include the sources and expected potable and non-potable water usage. As of December 1998, water usage from DWS sources for Maui Memorial Hospital as a whole has averaged approximately 149,200 gallons per day over the last 12 months.

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 March 11, 1999 were 17.357 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 bring new sources on-line and to mitigate withdrawals. Two wells in North Waihee were brought on-line in July 1997. No moratorium is currently in effect. However, more source water is still needed. 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.

Water System

Enclosed is 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. DWS-approved fire

flow calculation methods are contained in "Fire Flow" - Hawaii Insurance Bureau, 1991.

Water Conservation

It is required by County Code that water conservation practices be incorporated into project design. As much of the water demand as possible should be delivered from non-potable sources (reclaimed or brackish). 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. 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 16.20A.680 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 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: Native plants adapted to the area, conserve water and further protect the watershed from degradation due to invasive alien species. The project site is located in "Maui County Planting Plan" - Plant Zones 3 and 4. Please refer to the attached documents, "XERISCAPE: Water Conservation Through Creative Landscaping", "Maui County Planting Plan", and "Hawaiian Alien Plant Studies."

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.

Water Protection

The project overlies the Iao and Kahului aquifers. The Department of Water Supply strives to protect the integrity of surface water and groundwater resources by encouraging applicants to adopt best management practices (BMPs) relevant to potentially polluting activities. We list a few BMP references here. Additional information can be obtained from the State Department of Health.

"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 call our Water Resources and Planning Division anytime at (808) 243-7199.

Sincerely,

David Craddick
Director
emb

cc: engineering division

JUN 2 7 1999

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
300 Ala Moana Blvd., Room 3-122
P.O. Box 50088
Honolulu, Hawaii 96850

In reply refer to: DH

JUN 23 1999

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

Re: Draft Environmental Assessment for Maui Memorial Medical Center Expansion Improvements, Wailuku, Maui, Hawaii

Dear Mr. Tadaki:

The U.S. Fish and Wildlife Service (Service) has reviewed the Draft Environmental Assessment for the Maui Memorial Medical Center Expansion Improvements, Wailuku, Maui (DEA). The sponsor of the proposed project is the State of Hawaii Health Systems Corporation. The proposed project involves construction of a new three-level parking structure, expansion of an existing surface parking area, a helistop, and a new multilevel building. The Service offers the following comments for your consideration.

We have reviewed the information provided in the DEA and in our own files. To the best of our knowledge, no Federal endangered, threatened, or candidate species, significant wetlands, or other Federal trust resources occur at the proposed project site. However, the dark-rumped petrel (*Pterodroma phaeopygia sandwichensis)* is a federally endangered species that is expected to occur seasonally in the vicinity of the proposed project site. Circumstantial observations and experimental evidence have shown that artificial lighting can disorient seabirds when flying between inland nesting areas and offshore feeding grounds. This disorientation is caused by excessively bright outdoor lighting and can result in seabird collisions with man-made structures such as light poles and wires. Injured seabirds that "fall-out" due to such collisions are highly vulnerable to predation by dogs, cats, and mongooses.

The Final Environmental Assessment (FEA) should note the potential impacts to seabirds from the proposed project and propose measures that will reduce or eliminate these negative impacts (e.g., special outdoor lighting, light shielding, light poles limited to 25 feet or less in height). Potential solutions to problems associated with seabird "fall-out" are available in a pamphlet published by the Division of Forestry and Wildlife, State Department of Land and Natural Resources (DOFAW). We recommend that you contact the Maui DOFAW office

(871-2929) regarding this matter. The final project design should include adequate measures to reduce or eliminate lighting impacts to seabirds and these measures should be adequately described in the FEA..

We hope these comments are of use to you in your preparation of the FEA and we look forward to receiving a copy of that document when it is completed. If you have any questions regarding these comments, please contact Fish and Wildlife Biologist Dave Hopper by phone at (808) 541-3441 or by facsimile at (808) 541-3470.

Sincerely,

Robert P. Smith
Pacific Islands Manager

cc: DLNR, Hawaii
DOFAW, Maui
HHSC, Maui

JUN 2 3 1999

JAMES "KIMO" APANA
Mayor

JOHN E. MIN
Director

CLAYTON I. YOSHIDA
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

June 22, 1999

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

Dear Mr. Tadaki:

RE: Draft Environmental Assessment (EA) Report - Maui Memorial Medical Center (MMMC) Expansion Improvements, Tax Map Key Numbers: 3-8-46:13 and Portion 29

The Maui Planning Department (Department) has reviewed the subject Draft EA report. The Department supports the proposed improvements, however, we have the following concerns and comments:

1. Page 1, I.A - The expansion will take 1.2 acres from Parcel 29. The report should clarify what is currently located on Parcel 29 and the effect, if any, removing 1.2 acres will have on the existing use of the remaining Parcel 29.

2. Page 5, C, - "Proposed Action," states that the "priority objectives for the proposed improvements are to provide additional higher acuity beds, more parking and increased outpatient services while maintaining existing services without interruption." Pages 5 to 11 further identify four on-site actions proposed:

   A. Parking and Vehicular Access;
   B. New Building Addition;
   C. Renovations to the Existing Building; and
   D. Helistop.

   However, Chapter III, "Potential Impacts and Mitigation Measures," has little discussion on how the priority objectives of the proposed improvements will be developed while at the same

time existing services will be provided without interruption. Page 40, D, "Cumulative and Secondary Impacts" should be expanded to discuss development schedules. What provisions are being considered for providing parking for employees and visitors to the hospital and surrounding agencies when the new hospital developments are under construction in the existing parking lot and on Mahalani Street? Will construction on Mahalani Street and the hospital improvements be occurring simultaneously? Will the Mahalani Street improvements, the 18-stall parking lot and the 70-stall parking lot be improved first before construction begins at the existing hospital parking site for the new parking building and parking structure?

3. The existing trees and foliage on the property are more than 30 years old. Are there any plans to relocate or replant the trees?

4. The project is not located in the Special Management Area. Pages 46 to 53 relating to the Coastal Zone Management Objectives and policies are not necessary.

Should you have any further questions, please contact Ms. Julie Higa, Staff Planner, of this office at 270-7814.

Very truly yours,

JOHN E. MIN
Director of Planning

JEM:JH:cmb
c: Clayton Yoshida, AICP, Deputy Director of Planning
Julie Higa, Staff Planner
Project File
General File
S:\ALL\JULIE\HOSPITAL\DRAFTEA.LTR

June 18, 1999

Mr. Gerald Matsui
Administrative Assistant
Maui Memorial Medical Center
221 Mahalani Street
Wailuku, Maui, Hawaii 96793

Dear Mr. Matsui:

This letter is in response to our telephone conversation on June 3, 1999, regarding the draft environmental assessment for Maui Memorial Medical Center Expansion Improvement (May 1999). Based on the information provided in the document, the acoustical consultants doing the noise assessment study for the helistop (heliport) indicated that the noise levels will exceed the ambient noise levels for daytime (55 dBA) and nighttime (45 dBA) in Class A zoning districts as stated in Title 11 Administrative Rules, Department of Health, Chapter 46, Community Noise Control.

I understand that HAR Chapter 46 does not apply to emergency vehicles, but should be used as maximum baseline sound levels in residential areas. In the report prepared by Darby & Associates it states in Section 3.2 that the USEPA has established a goal to reduce exterior environmental noise levels to 65 dBA and a future goal of 55 dBA. Noise level measurements reported in this study at location #4 (Hilu Place) calculated ambient day-night levels at 71.8 dBA. This level is higher than the Hawaii State Helicopter System Plan (HSHSP) recommendation that noise levels be more than 5 dB below the existing ambient level.

This report does not address the impact on the affected community who will be directly subjected to excessive noise levels attributed to the helicopter flights. Mercy Air, the former medical carrier, did not consider the impact of the noise disturbance it created in the surrounding community. The noise levels were likened to a battle zone, where flights occurred at all hours of the day and night with no regards to altitude or to distances to residence in the immediate area. These area include the Kahului 7th and 8th increment area and the Sand Hills/Pu'uone areas.

I feel that the experience with Mercy Air and their business as usual attitude resulted in flared tempers and distrust with this type of medical service. I believe that the people of Maui need this emergency transport system but it must be well planned and presented to the community prior to being constructed. Also, it must be planned to be flexible as well as dynamic in its service to the community.

Some question that I have still remain unanswered, such as where the helicopter will be stationed: what type of helicopter will be used: and the number of flights per day expected: and that it be used for "emergency" uses exclusively.

The Environmental Assessment does not address safety as an issue for the community or the Maui Memorial Medical Center staff if there should a helicopter mishap or accident occur.

Thank you for your time and assistance. Should you require any additional information or have any questions, please call me at 877-0867.

Sincerely,

Gordon Muraoka

Gordon Muraoka
345 Palama Drive
Kahului, Hawaii 96732-1420

JUN 17 1999

POLICE DEPARTMENT
COUNTY OF MAUI

JAMES "KIMO" APANA
MAYOR

OUR REFERENCE
YOUR REFERENCE

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

THOMAS M. PHILLIPS
CHIEF OF POLICE

CHARLES H.P. HALL
DEPUTY CHIEF OF POLICE

June 14, 1999

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

Dear Mr. Tadaki:

SUBJECT: Maui Memorial Medical Center Expansion Improvements
TMKs: 3-8-46:13 and por. 29

Thank you for your letter dated May 24, 1999 giving us the opportunity to comment on the Draft Environmental Assessment for the above subject.

We have reviewed the Draft Environmental Assessment and have no comments at this time.

Very truly yours,

Assistant Chief Robert Tam Ho
for: THOMAS M. PHILLIPS
Chief of Police

Enclosure

xc: John E. Min, Planning Department

JUN 0 8 1999

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

REPLY TO
ATTENTION OF

June 3, 1999

Regulatory Branch

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

Dear Mr. Tadaki:

This letter responds to your request for a review of the Draft Environmental Assessment for the Maui Memorial Medical Center Expansion Improvements, dated May 24, 1999. The comments contained in my letter concerning this project dated March 9, 1999 and included in Chapter IX of the EA are still valid and there are no additional comments.

If you have any questions concerning this determination, please contact William Lennan of my staff at 438-9258, extension 13, and reference File No. 990000339.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

USDA

JUN 0 2 1999

United States
Department of
Agriculture

Natural
Resources
Conservation
Service

210 Imi Kala St.
Suite 209
Wailuku, HI 96793

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

DATE: June 1, 1999

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

Dear Mr. Tadaki,

SUBJECT: Maui Memorial Medical Center Expansion Improvements
TMK: 3-8-046: 13 and por. 29

We have reviewed the subject draft environmental assessment and have no comment to offer.

Thank you for the opportunity to comment.

Sincerely,

Neal S. Fujiwara
District Conservationist

JUN 0 3 1999

BENJAMIN J. CAYETANO
GOVERNOR

BRUCE S. ANDERSON, Ph.D.
Director of Health

ALFRED M. ARENSDORF, M.D.
DISTRICT HEALTH OFFICER

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

June 1, 1999

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

Dear Tadaki:

Subject: Maui Memorial Medical Center Expansion Improvements
TMKs: (2) 3-8-46: 13 por. 29

Thank you for the opportunity to comment on the proposed improvements. 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

c: Art Bauckham

JAMES "KIMO" APANA
MAYOR

CLAYTON T ISHIKAWA
CHIEF

FRANK E FERNANDEZ, JR.
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE CONTROL

200 DAIRY ROAD
KAHULUI, MAUI, HAWAII 96732
(808) 243-7561
FAX (808) 243-7919

May 27, 1999

Mr. Glenn Tadaki, Planner
Munekiyo, Arakawa & Hiraga, Inc.
305 High Street
Wailuku, HI 96793

RE: Maui Memorial Medical Center Expansion Improvements;
TMK: 3-8-46:13 and por. 29

Dear Mr. Tadaki,

Thank you for the opportunity to comment on the draft environmental assessment for the Maui Memorial Medical Center.

The Department of Fire Control has no comment at this time. However, the department wishes to reserve the right to comment when plans and specifications are submitted for review.

If you have any questions, direct them in writing to the Fire Prevention Bureau, 21 Kinipopo Street, Wailuku, HI 96793.

Sincerely,

LEONARD F NIEMCZYK
Captain, Fire Prevention Bureau

DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
HOUSING DIVISION
COUNTY OF MAUI

JUN 0 2 1999

JAMES "KIMO" APANA
Mayor

ALICE L. LEE
Director

PRISCILLA P. MIKEE
Deputy Director

200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • PHONE (808) 243-7751, (808) 243-7351 • FAX (808) 243-7829

May 26, 1999

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

Dear Mr. Tadaki:

Subject: Maui Memorial Medical Center
Expansion Improvements
TMK: 3-8-46: 13 and por. 29

We have reviewed the May 1999 Draft Environmental Assessment for the subject project and wish to inform you that we have no comments to offer.

Thank you for the opportunity to comment.

Very truly yours,

ALICE L. LEE
Director of Housing and
Human Concerns

ETO:ec
cc: Housing Administrator

DRAFT ENVIRONMENTAL RESPONSE LETTERS

MUNEKIYO, ARAKAWA & HIRAGA, INC.

July 8, 1999

Timothy E. Johns, Chairperson
Department of Land and
Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

SUBJECT: Maui Memorial Medical Center - Expansion Improvements
TMK 3-8-46: 13 and por. 29

Dear Mr. Johns:

Thank you for your July 7, 1999 letter transmitting comments on the subject project from your department's Maui District Land Office and Engineering Branch. On behalf of Hawaii Health Systems Corporation, we would like to note the following.

Electrical Easements

Maui Electric Company, Ltd. will be consulted to determine that the electric easements that serve the medical center are properly documented and delineated.

Water Demand

Estimated water usage calculations for the project will be provided in connection with the processing of building permit applications for the project.

Flood Zone

The FEMA Community Panel Number (150003 0190D) is noted in Figure 7 (Flood Insurance Rate Map) of the Draft Environmental Assessment.

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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.

Sincerely,

Glenn Tadaki, Planner

GT:to
cc: Gerald Matsui, Maui Memorial Medical Center
Bob Tsushima, SSFM Engineers, Inc.
Ron Fukumoto, Ronald Fukumoto Engineering, Inc.

mmmc/mastplan/dlnrltr.001

MUNEKIYO, ARAKAWA & HIRAGA, INC.

July 8, 1999

Colin Kippen, Deputy Administrator
Office of Hawaiian Affairs
State of Hawaii
711 Kapi'olani Boulevard, Suite 500
Honolulu, Hawai'i 96813

SUBJECT: Maui Memorial Medical Center - Expansion Improvements
TMK 3-8-46: 13 and por. 29

Dear Mr. Kippen:

Thank you for your June 30, 1999 letter commenting on the subject project. On behalf of Hawaii Health Systems Corporation, we would like to note that archaeological monitoring will be conducted during land altering construction activities for the project.

Thank you again for providing us with your comments.

Sincerely,

Glenn Tadaki, Planner

GT:to
cc: Gerald Matsui, Maui Memorial Medical Center
Bob Tsushima, SSFM Engineers, Inc.
mmmc/mastplan/ohaltr.001

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MUNEKIYO, ARAKAWA & HIRAGA, INC.

July 8, 1999

Gary Gill, Deputy Director
for Environmental Health
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

SUBJECT: Maui Memorial Medical Center - Expansion Improvements
TMK 3-8-46:13 and por. 29

Dear Mr. Gill:

Thank you for your June 24, 1999 letter providing comments on the proposed project. On behalf of the Hawaii Health Systems Corporation, we would like to note that the proposed project will conform with applicable Department of Health regulations pertaining to dust control, solid waste management, and noise from construction activities, as well as Federal requirements regarding asbestos inspection.

Thank you again for providing us with your comments.

Very truly yours,

Tadaki

Glenn Tadaki, Planner

GT:lfm
cc: Gerald Matsui, Maui Memorial Medical Center
Bob Tsushima, SSFM Engineers, Inc.
mmmcvmastplan\dohresp.ltr

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

MUNEKIYO, ARAKAWA & HIRAGA, INC.

July 8, 1999

Mr. Gordon Muraoka
345 Palama Drive
Kahului, Hawaii 96732-1420

SUBJECT: Maui Memorial Center Expansion Improvements
Draft Environmental Assessment

Dear Mr. Muraoka:

Thank you for your June 18, 1999 letter to Gerald Matsui providing comments on the subject's Draft Environmental Assessment (EA). On behalf of Hawaii Health Systems Corporation, we believe that the following responses have addressed your comments and questions regarding helicopter ambulance service operations.

Helicopter Noise

The "maximum permissible noise sound levels" of Title 11, Hawaii Administrative Rules, Department of Health, Chapter 46, Community Noise Control, were not used to assess the impact of the helicopter noise for the following reasons.

Chapter 46 applies to "...any stationary noise source; and any equipment related to agricultural, construction, and industrial activity which emits sound in excess of the maximum permissible sound levels specified in section 11-46-4, as measured at any point at or beyond the property line." The rules exempt, "...authorized emergency vehicle or vehicles responding to an emergency call or acting in an emergency."

We note that the ambient day-night sound level at location #4 (i.e., L_{dn} = 71.8 dBA, as presented in the table of Section 4.0 of the Environmental Noise Assessment Study report), was calculated from the daytime measurement, assuming the nighttime ambient to be lower than the daytime ambient sound levels. This calculated level, L_{dn} = 71.8 dBA, is for the existing acoustical environment without helicopter operations at the hospital.

With respect to the applicable state and federal rules, regulations and standards used to assess the noise impact of the helicopter operations on noise sensitive areas in the vicinity of the hospital, (i.e., those promulgated by the U.S. Environmental Protection Agency (EPA) and those of the Hawaii State Helicopter System Plan (HSHSP)), the

projected helicopter noise levels in L_{dn} are 50 dBA or less at all noise sensitive areas for the expected annual daily average of one (1) flight per day. Thus, the projected helicopter noise levels at all noise sensitive areas are below the EPA's future goal of 55 dBA and more than 5 dB less than the existing ambient day-night sound level, as recommended by the HSHSP for non-emergency helicopters. This is illustrated by the helicopter L_{dn} contours presented in Figure 4 of the Environmental Noise Assessment Study report.

The noise level projections developed by the project's acoustical consultant indicate that the noise associated with the proposed activity will fall within the allowable limits established by applicable regulatory noise level standards and guidelines.

Stationing of Helicopter

We anticipate that all helicopter fueling and servicing will occur at the airport. No determination has been made regarding the stationing of the helicopter during non-operational periods at this time.

Helicopter Type

The type of helicopter that will be used will be contingent upon the type utilized by the helicopter service that is selected to provide air ambulance services. These services use the Bell 222 helicopter as well as other types which possess similar operational characteristics.

Number of Flights

On an annual basis, our projections and historical data indicate that situations requiring emergency air ambulance service will occur on an average of one (1) flight per day.

Emergency Uses

The intent of the air ambulance service for the medical center is to respond only to medical emergencies where time can make a critical difference in the condition of a patient.

Helicopter Safety

Federal Aviation Administration (FAA) regulations and guidelines pertaining to helicopter operations and helistop design will be complied with.

We appreciate the time you took to review and provide comments on the Draft Environmental Assessment. Thank you again for surfacing your concerns at this early date.

Very truly yours,

Glenn Tadaki, Planner

GT:to
cc: Gerald Matsui, Maui Memorial Medical Center
Bob Tsushima, SSFM Engineers, Inc.
mmmc/mastplan/muraoka.ltr

MUNEKIYO, ARAKAWA & HIRAGA, INC.

July 2, 1999

Robert P. Smith, Pacific Islands Manager
U.S. Fish and Wildlife Service
Pacific islands Ecoregion
Box 50088
Honolulu, Hawaii 96850

SUBJECT: Maui Memorial Medical Center Expansion
Draft Environmental Assessment
TMK 3-8-46:13

Dear Mr. Smith:

Thank you for your June 23, 1999 letter commenting on the subject project. On behalf of Hawaii Health Systems Corporation, we would like to note that a copy of the State Division of Forestry and Wildlife pamphlet that you have cited regarding lighting has been provided to the project engineer for review. In this regard, project-related lighting will utilize appropriate design features to minimize impacts to migratory seabirds that may be traversing the area.

Thank you again for providing us with your comments.

Sincerely,

Glenn Tadaki, Planner

GT:to
Attachment
cc: Gerald Matsui, Maui Memorial Medical Center (w/attachment, via mail)
Bob Tsushima, SSFM Engineers (w/attachment, via mail)
mmmc/mastplan/usfwsltr.001

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

MUNEKIYO, ARAKAWA & HIRAGA, INC.

July 2, 1999

John E. Min, Director
County of Maui
Planning Department
250 South High Street
Wailuku, Hawaii 96793

SUBJECT: Maui Memorial Medical Center - Expansion Improvements
TMK 3-8-46: 13 and por. 29

Dear Mr. Min:

Thank you for your June 22, 1999 letter providing comments on the proposed project. On behalf of Hawaii Health Systems Corporation, we would like to note the following.

TMK 3-8-46: 29

The existing driveway, cottages, and parking lot for the medical center's employee housing units are situated on TMK 3-8-46: 29. These improvements will remain unaffected by the 1.2 acre portion of Parcel 29 that was recently transferred to HHSC.

Development Schedule

A detailed framework for construction phasing and the maintenance of existing services during the construction of the expansion improvements will be prepared in connection with the project's final design phase.

The construction of the medical center expansion improvements is anticipated to commence in the year 2001, after the County's Mahalani Street improvements are completed by the end of the year 2000. The medical center is working with agencies and property owners in the area to provide parking for their employees during the construction of the Mahalani Street improvements.

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Preliminarily, insofar as parking during construction of the medical center improvements is concerned, the construction of the 70-stall parking lot in the northwest corner of the site is expected to occur first, followed by the construction of the new 225-stall parking structure. As portions of the new parking structure are completed, the finished sections of the parking structure would be utilized to provide parking. In addition, parking would be provided by 75-80 temporary stalls in an area north of the Molokini I and II buildings, as well as by existing parking areas along the eastern boundary of the site and along the west side of the medical center.

Landscaping

The existing landscaping enhances the visual character of the project site and is a source of pride for the medical center. To the greatest extent practical and feasible, existing trees and plant materials will be preserved or relocated for re-use on the site.

Coastal Zone Management

The project site falls within the Coastal Zone Management (CZM) area as set forth by Chapter 205A, Hawaii Revised Statutes. The CZM area encompasses all lands of the State of Hawaii and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including U.S. territorial waters.

Thank you again for providing us with your comments.

Very truly yours,

Glenn Tadaki, Planner

GT:to
cc: Gerald Matsui, Maui Memorial Medical Center
Bob Tsushima, SSFM Engineers, Inc.
mmmc/mastplan/mintr.001

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. Height Variance
2. 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 1998.

Telephone conversation with County of Maui, Wastewater Reclamation Division employee, Dave Taylor, 1999.

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.

Munekiyo, Arakawa & Hiraga, Inc. Final Environmental Assessment - Cameron Center Expansion, March 1998.

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

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

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

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

WATG/NBBJ, Maui Memorial Medical Center Master Plan, February 1999.

Appendices

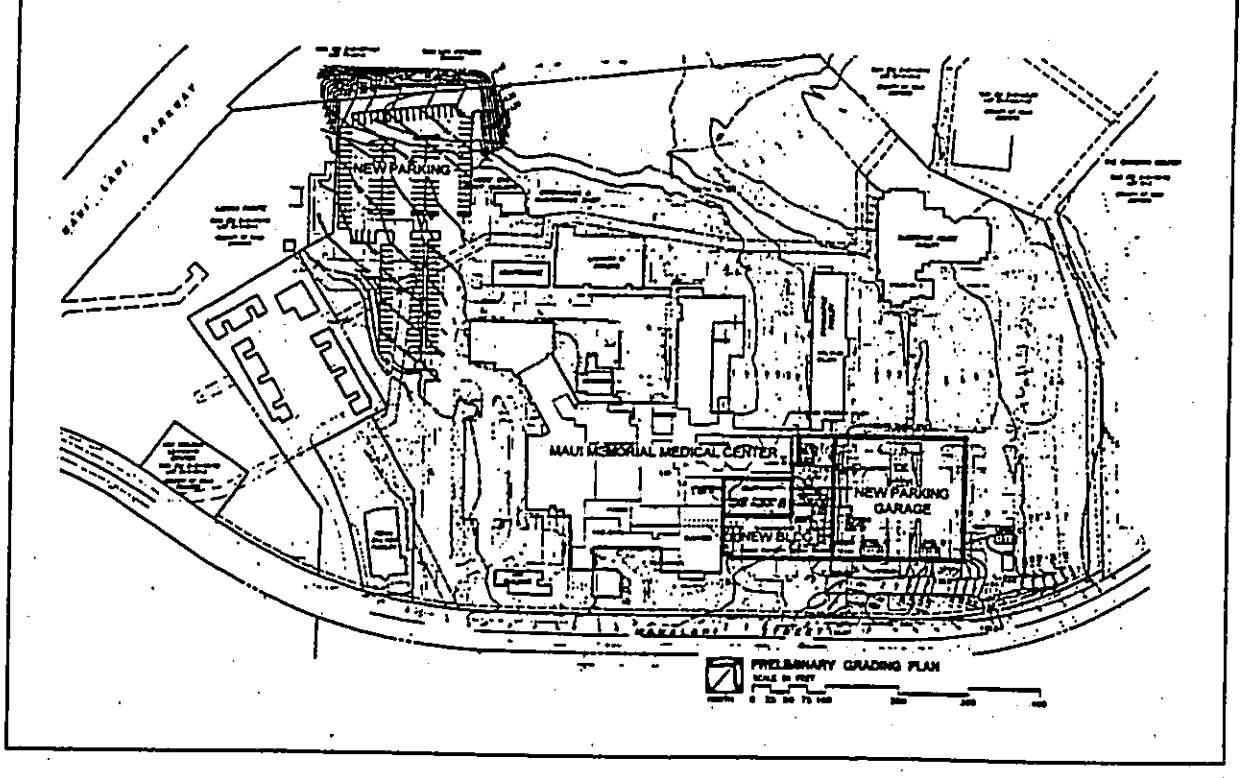
Appendix A

Preliminary Drainage Report

PRELIMINARY DRAINAGE REPORT
For Maui Memorial Medical Center

Wailuku, Maui, Hawaii
Tax Map Key (2) 3-8-46: 13 & 29

Maui Memorial
MEDICAL CENTER



Project:

Maui Memorial Medical Center
Expansion and Renovation
Wailuku, Maui, Hawaii

Date:

April 13, 1999

Owner:

Maui Memorial Medical Center
221 Mahalani Street
Wailuku, Hawaii 96793
Phone: (808) 244-9056
Fax: (808) 242-2443

Consultant: RFE

Ronald M. Fukumoto Engineering, Inc.
1721 Wili Pa Loop, Suite 203
Wailuku, Hawaii 96793
Phone: (808) 242-8611
Fax: (808) 244-7510
E-Mail: rfe@mauigateway.com

TABLE OF CONTENTS

I. PURPOSE

The purpose of this report is to present information on drainage and erosion control for the expansion and renovation of the Maui Memorial Medical Center (MMMC). MMMC is seeking a use and height variance for the redevelopment of its facilities. This report will be incorporated into the environmental assessment for the use and height variance application.

This report will include a general description of topography, soils, flood hazards, and site drainage. The report will also present the results of an analysis of pre-development and post-development runoff. The report will conclude with a description of measures to control soil loss during construction.

II. PROJECT DESCRIPTION

A. General Location

The project involves the expansion and renovation of the MMMC in Wailuku, Maui. The site lies on the northwesterly side of Mahalani Street about 1,800 feet from the Kaahumanu Avenue intersection and 1,200 feet from the Maui Lani Parkway intersection. (See Figure 1 - Location Map (USGS Map), page 7.)

The project is within a 16.457-acre parcel designated on the tax maps as Tax Map Key 3-8-46: 13 and 29. (See Figure 2 - Vicinity Map (Tax Map), page 8.) The County of Maui recently approved a subdivision application that involved consolidating the medical center parcel (TMK 3-8-46:13) with the staff cottages parcel (TMK 3-8-46:29) and adjusting the boundaries between the two original parcels. Adjoining developments include the Wailuku Health Center and Cameron Center on the northeasterly side of the site and the dialysis facility, staff cottages, and the Lokahi Pacific facility on the southwesterly side of the site. An undeveloped, triangular-shaped parcel owned by Maui Lani Partners adjoins the northwesterly side of the site.

B. Project Components

Improvements include construction of new buildings, renovation of existing facilities, construction of on-grade parking and site improvements, and installation of site utility lines. New buildings include a 4-story, L-shaped building addition and a 225-stall, 3-level parking garage. The building addition includes a new 2-story lobby, surgicenter, patient rooms, and other uses. On-grade parking improvements include a reconfigured northwest parking lot. The reconfigured lot will resolve the encroachment of the parking onto the Lokahi Pacific parcel and will add about 60 parking stalls to the area. Other site improvements consist of a new main entry driveway, and circulation driveways and ramps for the parking garage. Site utilities include fire protection water, wastewater, drainage, and electrical and communication lines. (See Figure 3 - Preliminary Grading Plan, page 9.)

III. DRAINAGE

A. Topography

The attached topographic map shows existing ground contours and improvements. (See Figure 4 - Topographic Map, page 10).

Approximately 14 acres of the 16.457-acre site has already been developed. The remaining 2.5 acres at the rear of the site along the northwesterly boundary remains undeveloped. This undeveloped area lies within a natural gully area that is between 20 to 30 feet below the level of the developed areas.

The elevations of the site range between 106 feet (above mean sea level) to about 176 feet. This elevation difference across the site results in an average ground slope of about 8.5 percent. The 8.5 percent slope corresponds to the slope of the driveway ramps along the perimeter of the main parking area.

On the westerly side of the site, surface runoff generally flows in a northerly direction towards the natural gully area. On the easterly side of the site, surface runoff generally flows in a northeasterly direction towards the adjoining Wailuku Health Center and Cameron Center parcels.

B. Soil

According the *Soil Survey*, the soils on the site consists of Puuone series soil. The Puuone series soil consists of excessively drained soils on low uplands on the island of Maui. The survey characterizes the soil as having a grayish-brown calcareous sand surface layer about 20 inches thick and underlain by grayish-brown cemented sand. Other characteristics include rapid permeability above the cemented layer, slow runoff, and moderate to severe wind erosion hazard.

C. Flood and Tsunami Hazard

The flood insurance rate map of the area shows there are no flood hazard areas on the site. The flood insurance rate map designates the site as Zone C, an area subject to minimal flooding.

C. Overall Drainage Area

Mahalani Street and Maui Lani Parkway form the upper limits of the project's overall drainage area. The overall drainage area encompasses about 25.4 acres. This amount consists of 16.5 acres of on-site area and 8.9 acres of off-site area. The attached Overall Drainage Area Map identifies these on-site and off-site areas. (See Figure 5 - Overall Drainage Area Map, page 11.)

As shown on the attached map, the overall drainage area includes four sub-areas. Area A and Area B correspond to the areas that drain into the recently constructed drainage system through the Maui Economic Opportunity (MEO) facility. Area A drains into existing Catch Basin #A-1. Area B drains into existing Catch Basin #B-1. Area C drains by surface flow into the Wailuku Health Center and Cameron Center sites. Area D drains by surface flow into the Mahalani Street right-of-way.

E. Existing Drainage Improvements

Existing drainage improvements include inlets, manholes, drainlines, swales, and drainage chutes. (See Figure 6 - Existing Drainage Plan, page 12).

Runoff produced on the westerly side of the drainage area enters the natural gully area at the rear of the site. At the upper limits of the drainage area, an outlet from the Lokahi Pacific project discharges runoff into this gully area. Other drainlines, swales, and chutes on the westerly side of the site also discharge runoff into the gully area. Flows within the gully area continue downstream and enter Catch Basin #B-1 within the MEO site. The MEO drainage system connects to an existing drainage system that conveys the flows under Kaahumanu Avenue and Kanaloa Avenue, and discharges into a retention basin within the Keopuolani Park. The MEO drainage system has been designed to receive 45 cfs of runoff at CB #B-1.

According to previous drainage reports, the existing retention basin within the park, designated as Sump 1D1, has a capacity of 220 acre-feet. The 100-year, 24-hour storm volume that drains into Sump 1D1 is 115 acre-feet. Therefore, Sump 1D1 has adequate capacity.

Runoff produced on the easterly portion of the drainage area also enters the MEO drainage system. A drainage system on this side of the site collects runoff from roof areas, parking, and landscaped areas. This runoff enters Catch Basin #A-1 within the MEO site. This catch basin also connects to the existing drainage system that conveys flows under Kaahumanu Avenue and Kanaloa Avenue, and discharges into the Keopuolani Park retention basin. The MEO drainage system has been designed to receive 33 cfs of runoff at CB #A-1.

F. Proposed Drainage Improvements

Proposed drainage improvements include inlets, manholes, and drainlines. (See Figure 7 - Preliminary Drainage Plan, page 13).

Improvements at the northwesterly parking lot consist of a culvert to carry runoff under the proposed fill, and inlets, manholes, and drainlines to intercept parking lot runoff. Improvements at the new building and new parking garage also consist of inlets, manholes, and drainlines. These improvements are required to reroute the existing drainage system around the new buildings. The Preliminary Drainage Plan also shows drainage

improvements along Mahalani Street. The County of Maui will construct these improvements as part of their Mahalani Street widening project.

Drainage improvements that involve transmission of storm flows will conform to the "Rules for the Design of Storm Drainage Facilities in the County of Maui." The "Rules" will be applied to the sizing and spacing of inlets and manholes, and sizing of drainlines, channels, and culverts.

Design flows at the outlets of each area were computed for existing and developed conditions to determine the adequacy of the outlets. The following tables summarize the preliminary drainage computations of each area for a 50-year storm. (See Appendix - Preliminary Drainage Computations, pages A-1 and A-2.)

TABLE 1 - EXISTING CONDITIONS

No.	T_c	C	i	a	Q
A	10 min.	0.66	5.15	5.1 acs.	17 cfs
B	22 min.	0.48	3.98	17.6 acs.	34 cfs
C	5 min.	0.56	6.40	1.7 acs.	6 cfs
D	5 min.	0.32	6.40	1.0 ac.	2 cfs
Total				25.4 acs.	59 cfs

TABLE 2 - DEVELOPED CONDITIONS

No.	T_c	C	i	a	Q
A	10 min.	0.79	5.15	5.5 acs.	22 cfs
B	20 min.	0.50	4.13	17.6 acs.	36 cfs
C	5 min.	0.52	6.40	1.5 acs.	5 cfs
D	5 min.	0.27	6.40	0.8 ac.	1 cfs
Total				25.4 acs.	64 cfs

TABLE 3 - CHANGE DUE TO DEVELOPMENT

No.	Developed	Existing	Change	Capacity	Remarks
A	22 cfs	17 cfs	+5 cfs	33 cfs	OK
B	36 cfs	34 cfs	+2 cfs	45 cfs	OK
C	5 cfs	6 cfs	-1 cfs	———	OK
D	1 cfs	2 cfs	-1 cfs	———	OK
Total	64 cfs	59 cfs	+5 cfs		

G. Conclusion

There will be no adverse effects on the adjacent or downstream properties due to this project. This conclusion is based on providing adequate outlets for discharging flows or by keeping post-development peak discharge rates at or below pre-development levels.

IV. EROSION CONTROL

As shown on the Preliminary Grading Plan, the grading area includes approximately 4.4 acres of land. To control soil erosion during construction, the following measures will be implemented.

General erosion control measures include:

- Installation of site-specific erosion control measures before clearing area.
- Maintenance of erosion control measures during construction.
- Control of wind erosion by sprinkling with water wagons, sprinklers, or other suitable means.
- Stabilization of areas as soon as possible and prevention of sediments from entering newly constructed drainage inlets.

Site-specific erosion control measures include:

- Installation of drain inlet filters at existing inlets within MEO site and at existing parking areas.
- Installation of silt fences at the downstream end of cleared areas.
- Installation of a "good neighbor screen" at the staff cottages parcel and the Lokahi Pacific parcel.

Implementation of these best management practices will minimize the loss of soil during construction.

V. REFERENCES

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10. Warren S. Unemori Engineering, Inc., *Drainage and Soil Erosion Control Report, Cameron Center Expansion Site, Wailuku, Maui, Hawaii TMK (2) 3-8-46:27*, June 1998.

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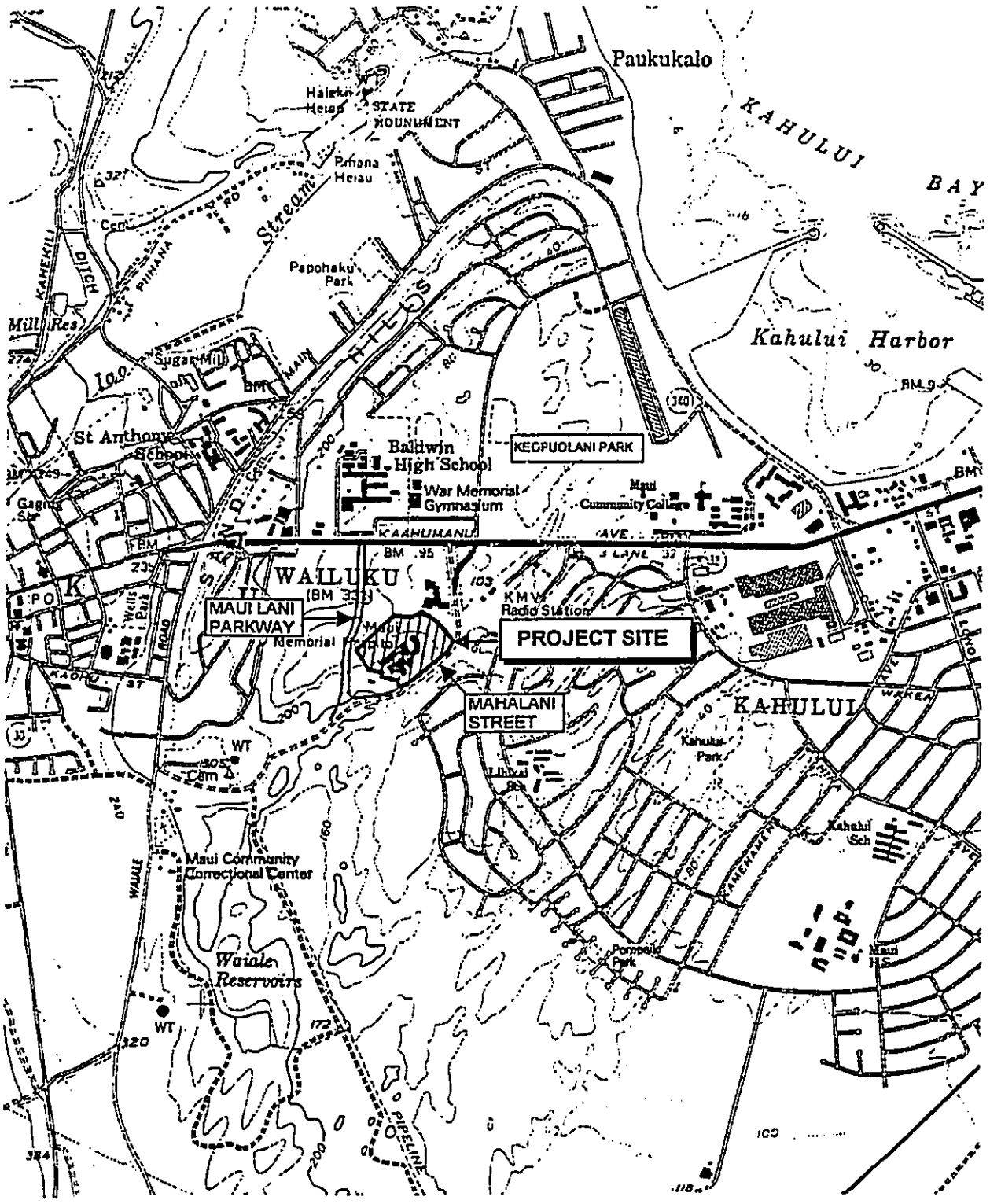


LOCATION MAP (USGS Map)

Figure 1

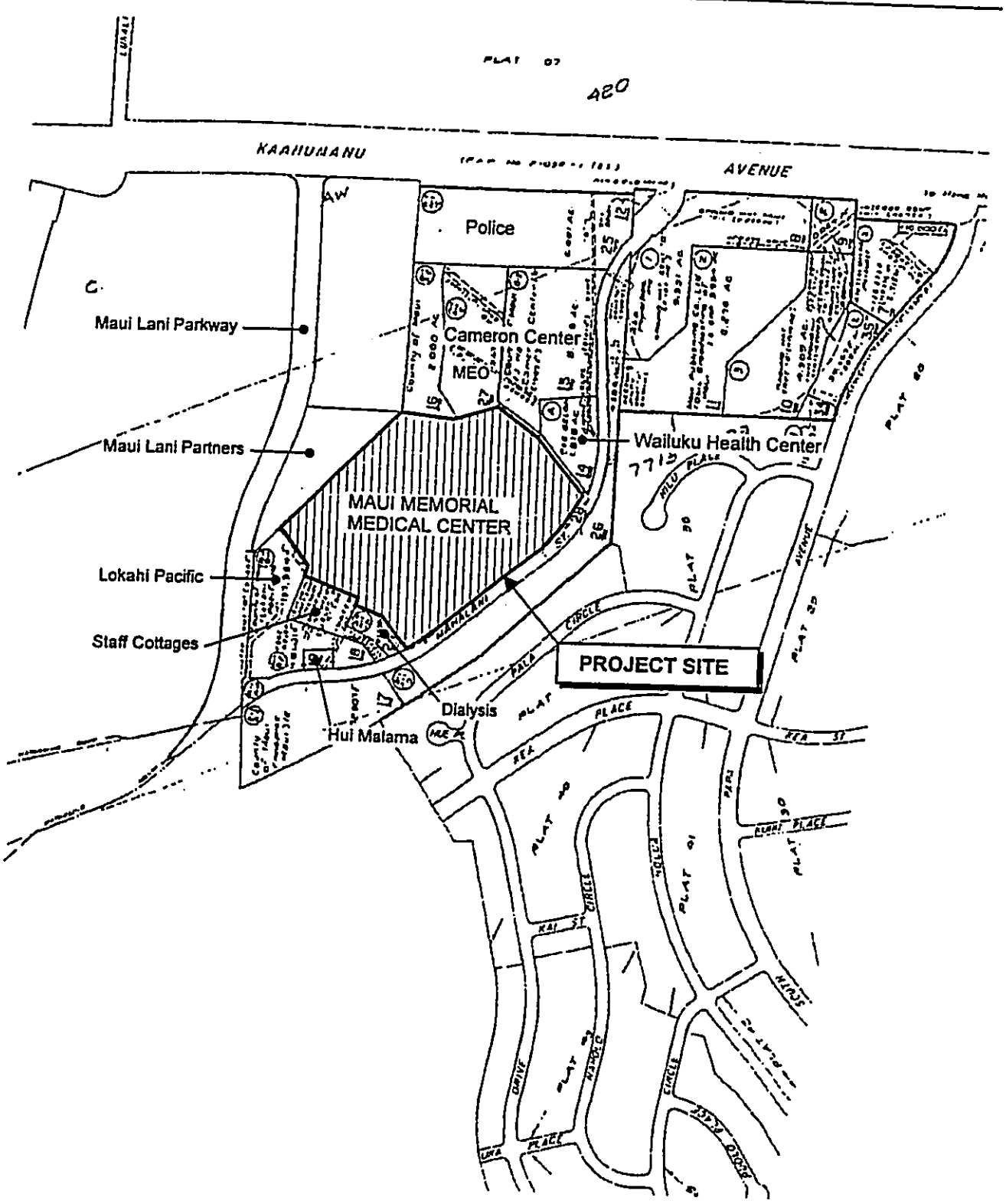
SCALE IN FEET

NORTH 0 1000 2000 4000 6000

SOURCE: USGS WAILUKU QUADRANGLE MAP

PREPARED FOR: MAUI MEMORIAL MEDICAL CENTER

PREPARED BY: RONALD M. FUKUMOTO ENGINEERING, INC.



VICINITY MAP (Tax Map)

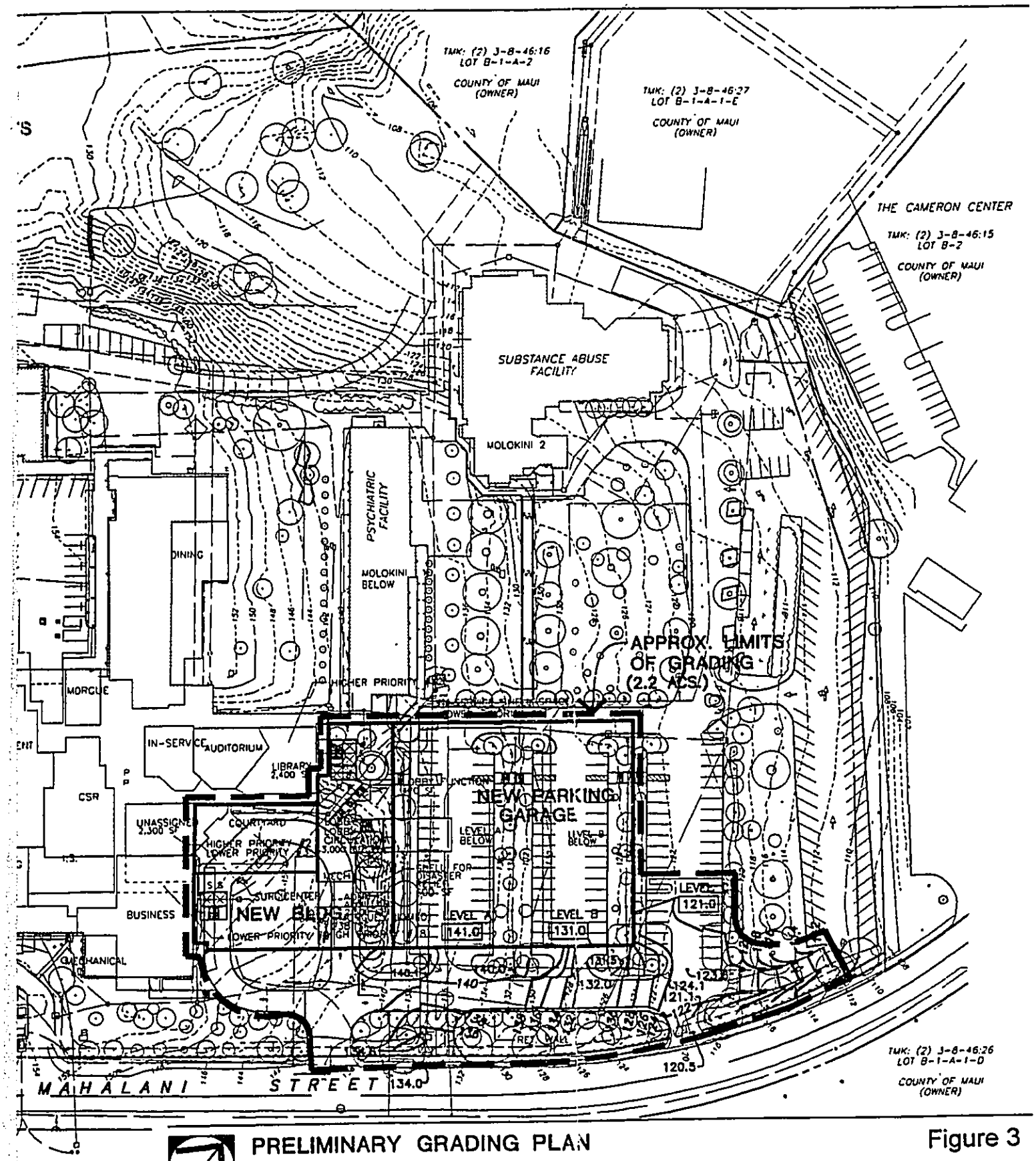
SCALE IN FEET

NORTH 0 300 600 1200 1800

Figure 2

SOURCE: PORTION OF TAX MAP KEY (2) 3-8-46

PREPARED FOR: MAUI MEMORIAL MEDICAL CENTER PREPARED BY: RONALD M. FUKUMOTO ENGINEERING, INC.

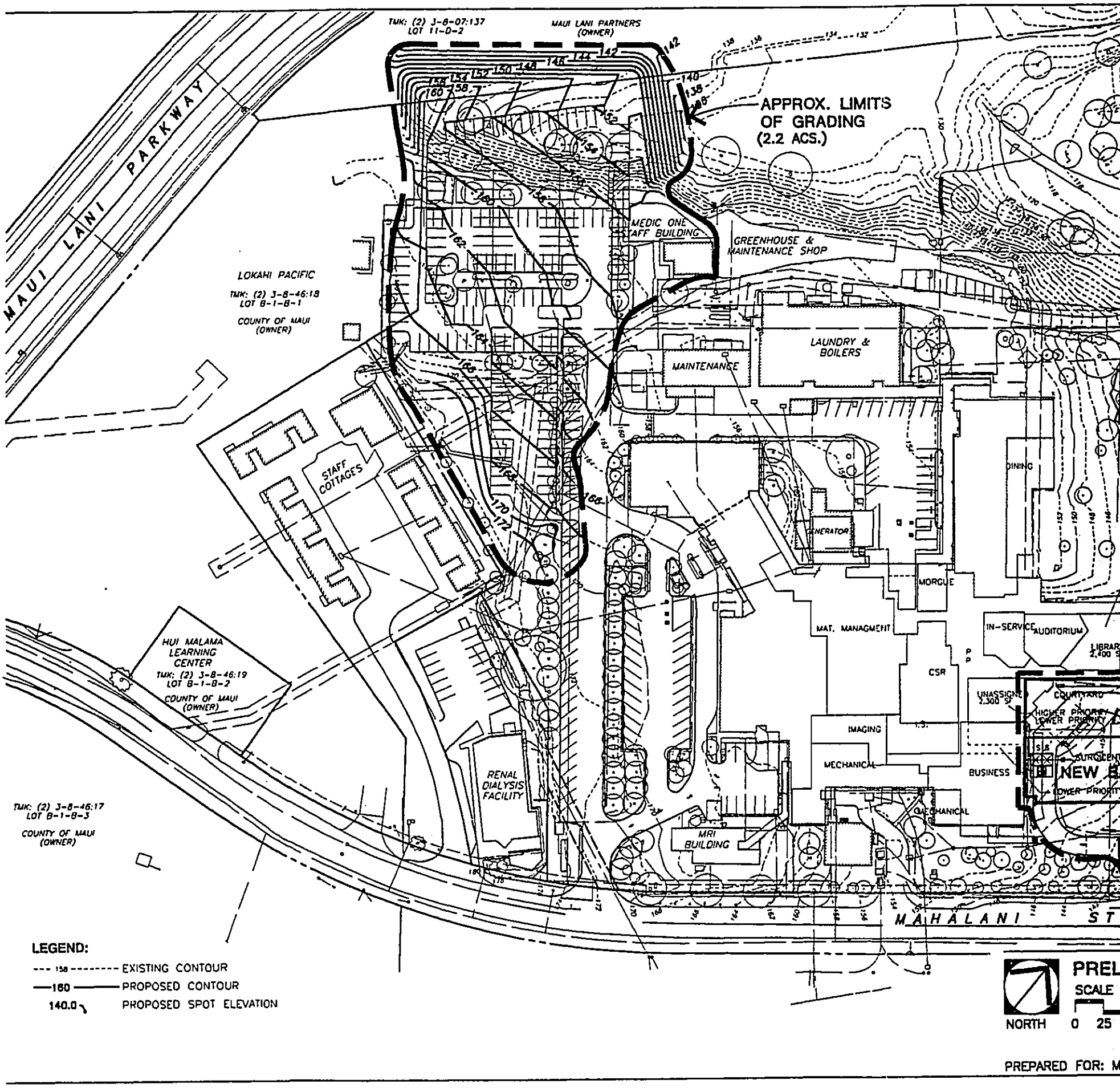


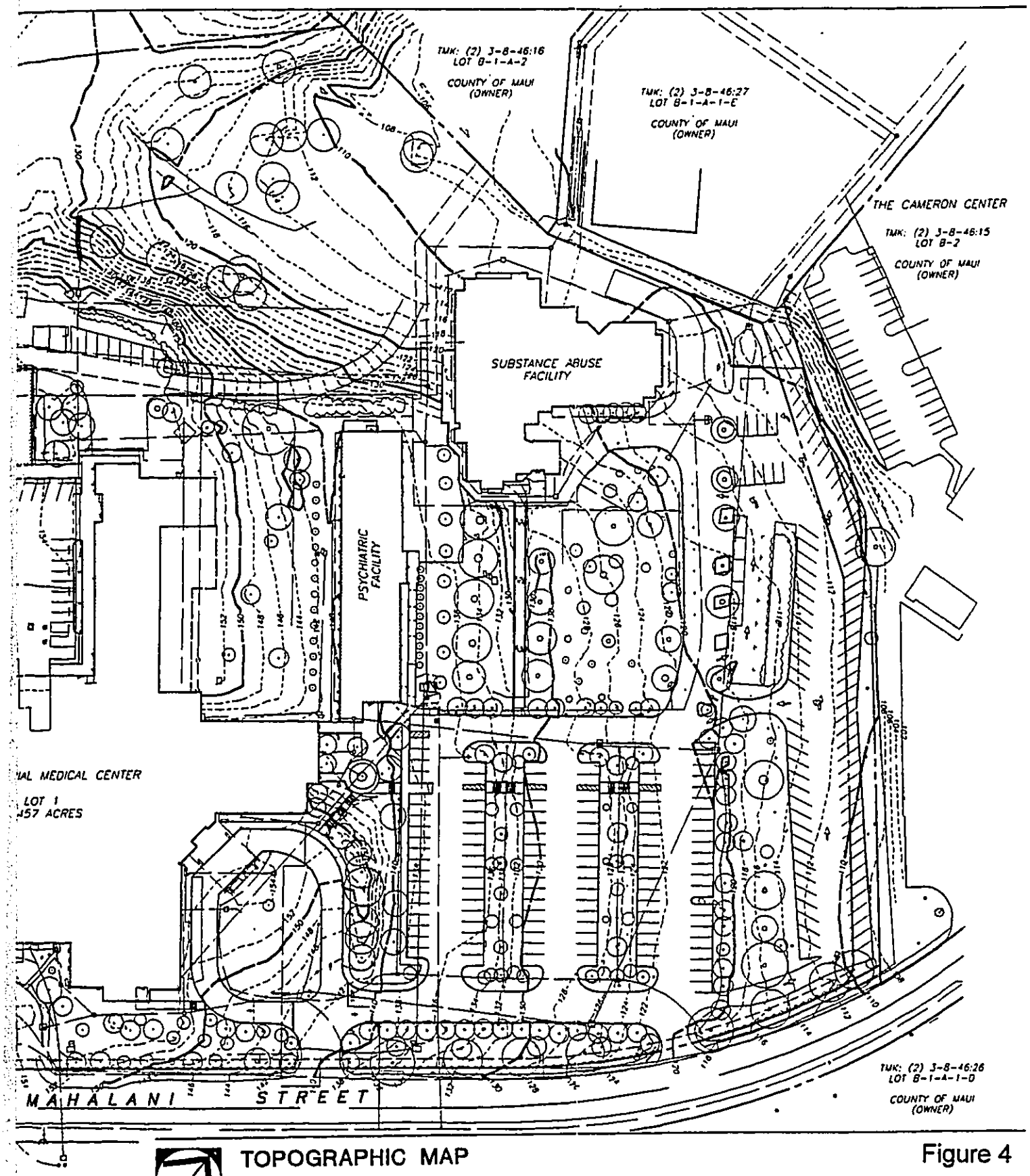
PRELIMINARY GRADING PLAN

Figure 3

PREPARED FOR: MAUI MEMORIAL MEDICAL CENTER

PREPARED BY: RONALD M. FUKUMOTO ENGINEERING, INC.


TMK: (2) 3-8-07:137
LOT 11-D-2
MAUI LANI PARTNERS
(OWNER)
APPROX. LIMITS
OF GRADING
(2.2 ACS.)
MAUI LANI PARKWAY
LOKAHI PACIFIC
TMK: (2) 3-8-46:18
LOT B-1-B-1
COUNTY OF MAUI
(OWNER)
MEDIC ONE
STAFF BUILDING
GREENHOUSE &
MAINTENANCE SHOP
LAUNDRY &
BOILERS
MAINTENANCE
STAFF
COTTAGES
GENERATOR
MORGUE
MAT. MANAGMENT
IN-SERVICE
AUDITORIUM
CSR
IMAGING
MECHANICAL
BUSINESS
MECHANICAL
HUI MALAMA
LEARNING
CENTER
TMK: (2) 3-8-46:19
LOT B-1-B-2
COUNTY OF MAUI
(OWNER)
RENAL
DIALYSIS
FACILITY
MRI
BUILDING
TMK: (2) 3-8-46:17
LOT B-1-B-3
COUNTY OF MAUI
(OWNER)
MAHALANI ST
LEGEND:
EXISTING CONTOUR
PROPOSED CONTOUR
PROPOSED SPOT ELEVATION
NORTH
SCALE
0 25
PREPARED FOR: M

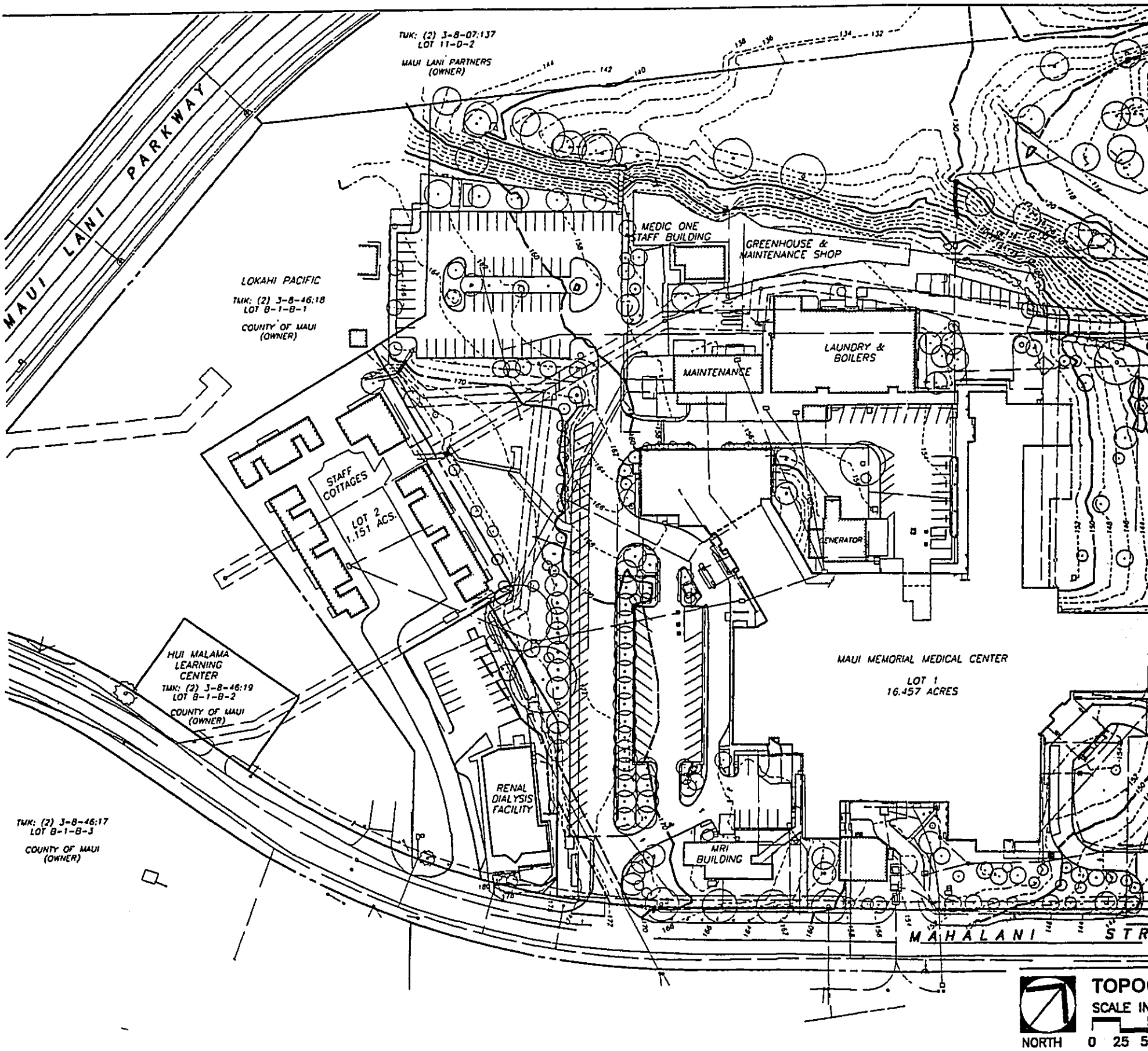


TOPOGRAPHIC MAP

SCALE IN FEET

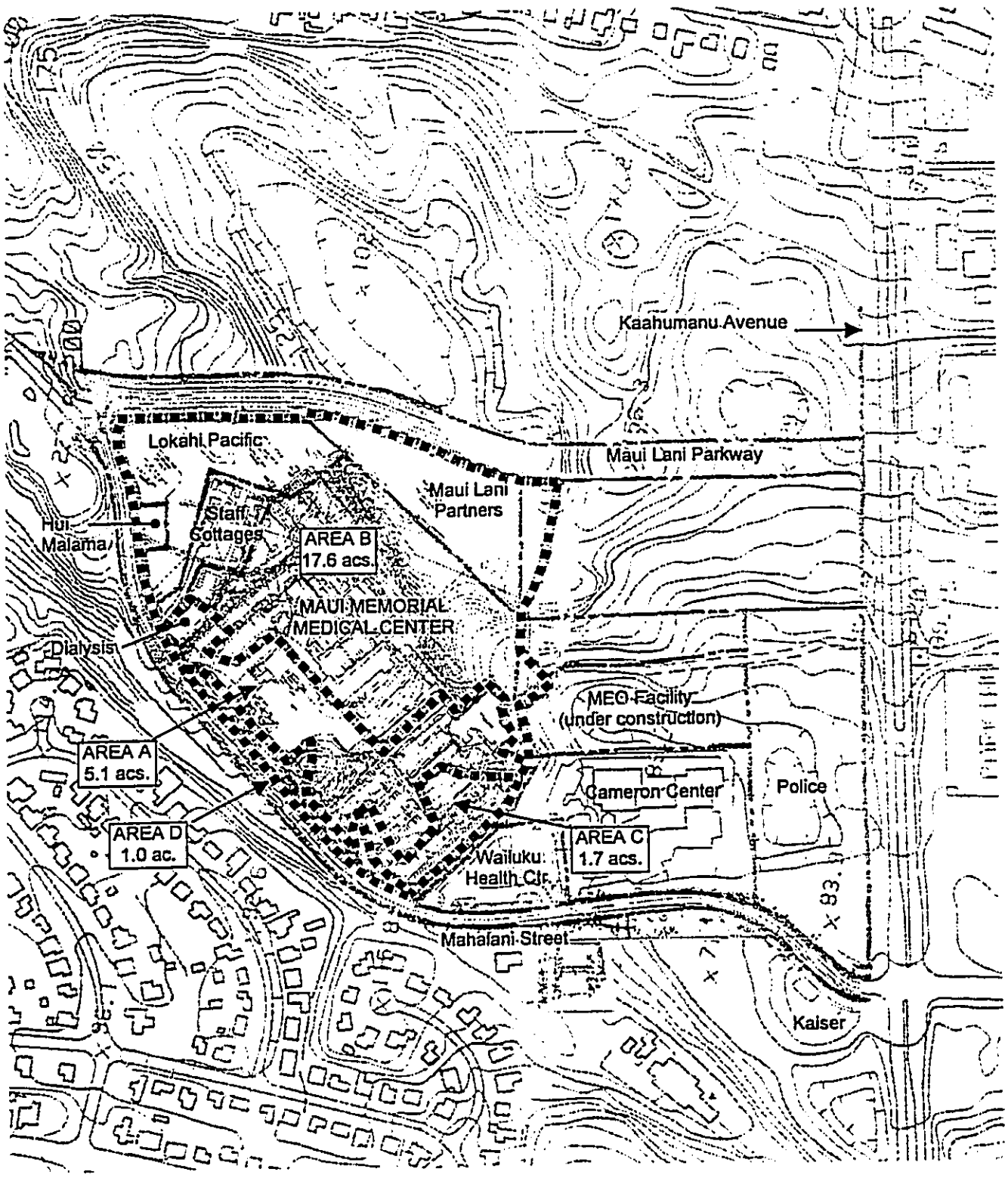
Figure 4

PREPARED FOR: MAUI MEMORIAL MEDICAL CENTER PREPARED BY: RONALD M. FUKUMOTO ENGINEERING, INC.



TOPO
SCALE IN

PREPARED FOR: MA

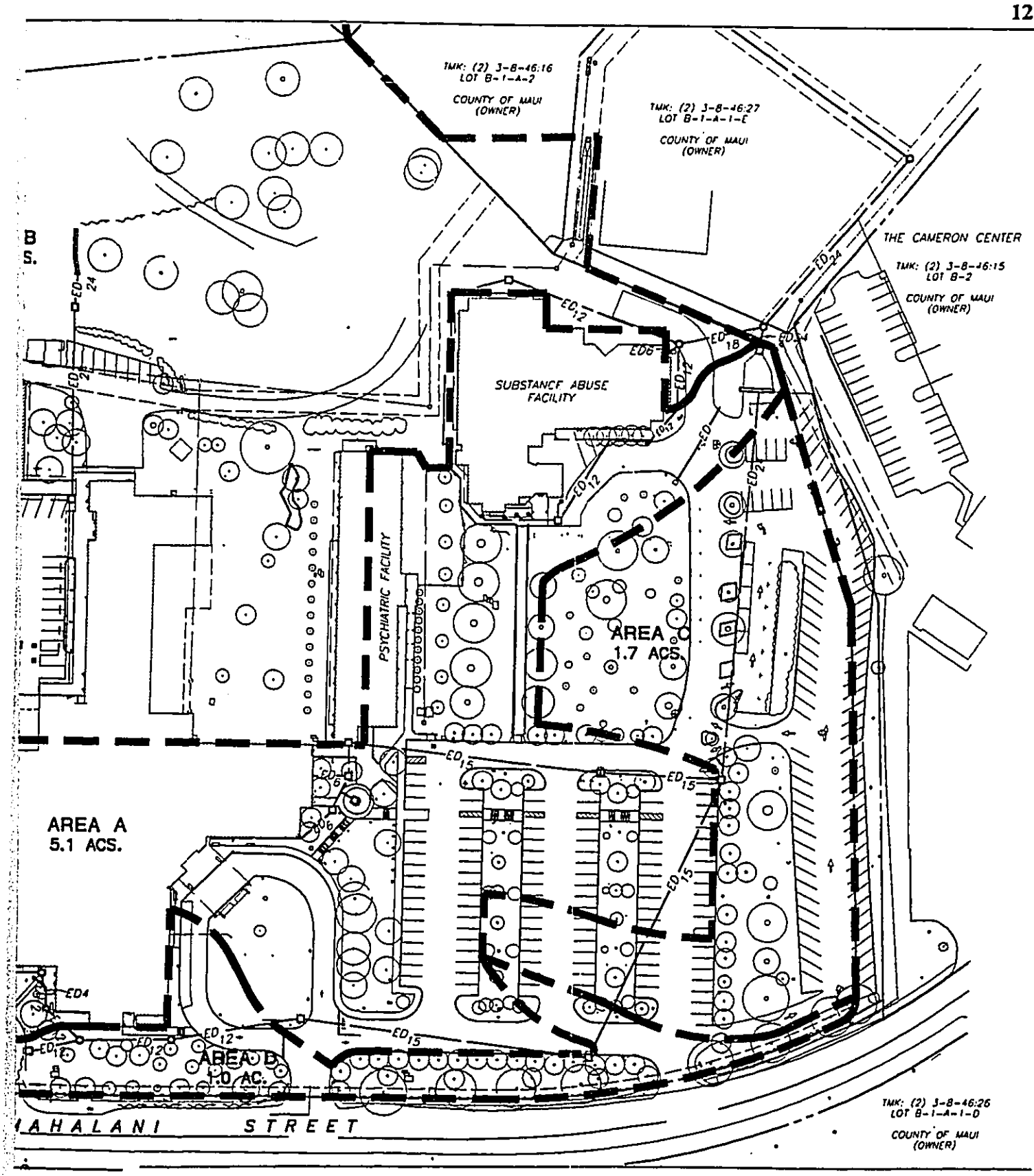


OVERALL DRAINAGE AREA MAP (Existing) Figure 5

SCALE IN FEET

NORTH 0 200 400 800 1200

PREPARED FOR: MAUI MEMORIAL MEDICAL CENTER PREPARED BY: RONALD M. FUKUMOTO ENGINEERING, INC.



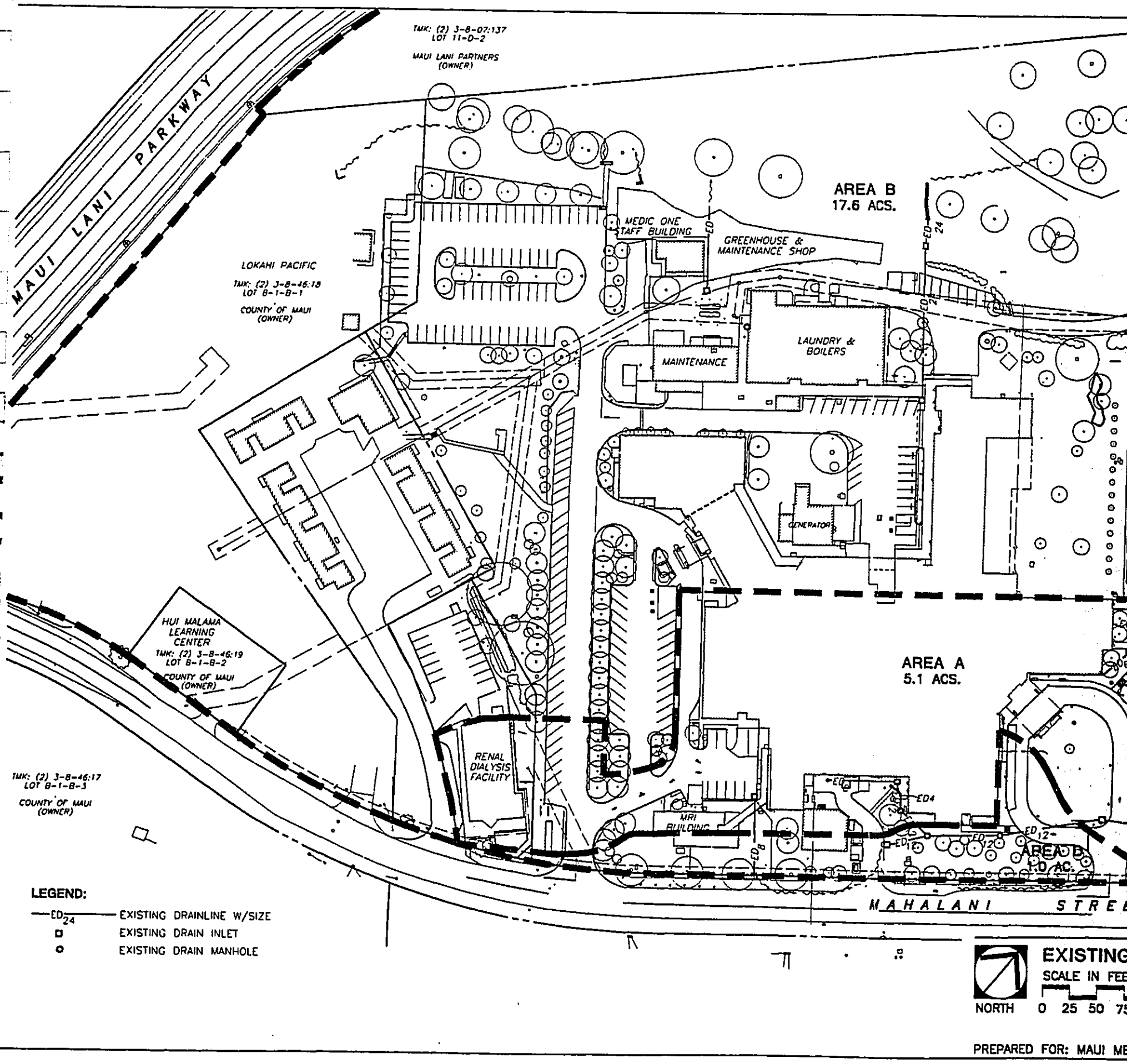
EXISTING DRAINAGE PLAN

SCALE IN FEET

NORTH 0 25 50 75 100 200 300 400

Figure 6

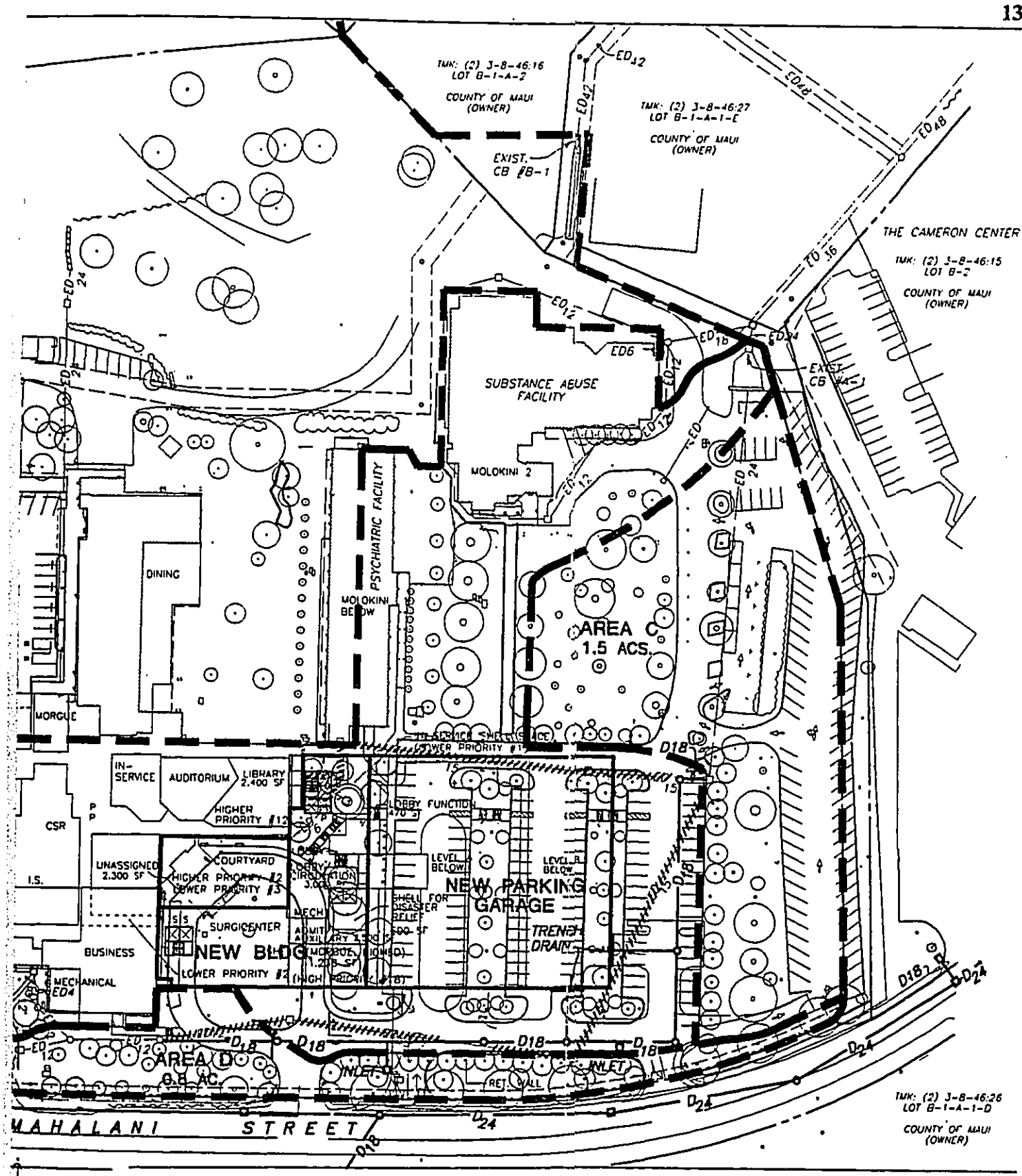
PREPARED FOR: MAUI MEMORIAL MEDICAL CENTER PREPARED BY: RONALD M. FUKUMOTO ENGINEERING, INC.



EXISTING

SCALE IN FEE

PREPARED FOR: MAUI ME



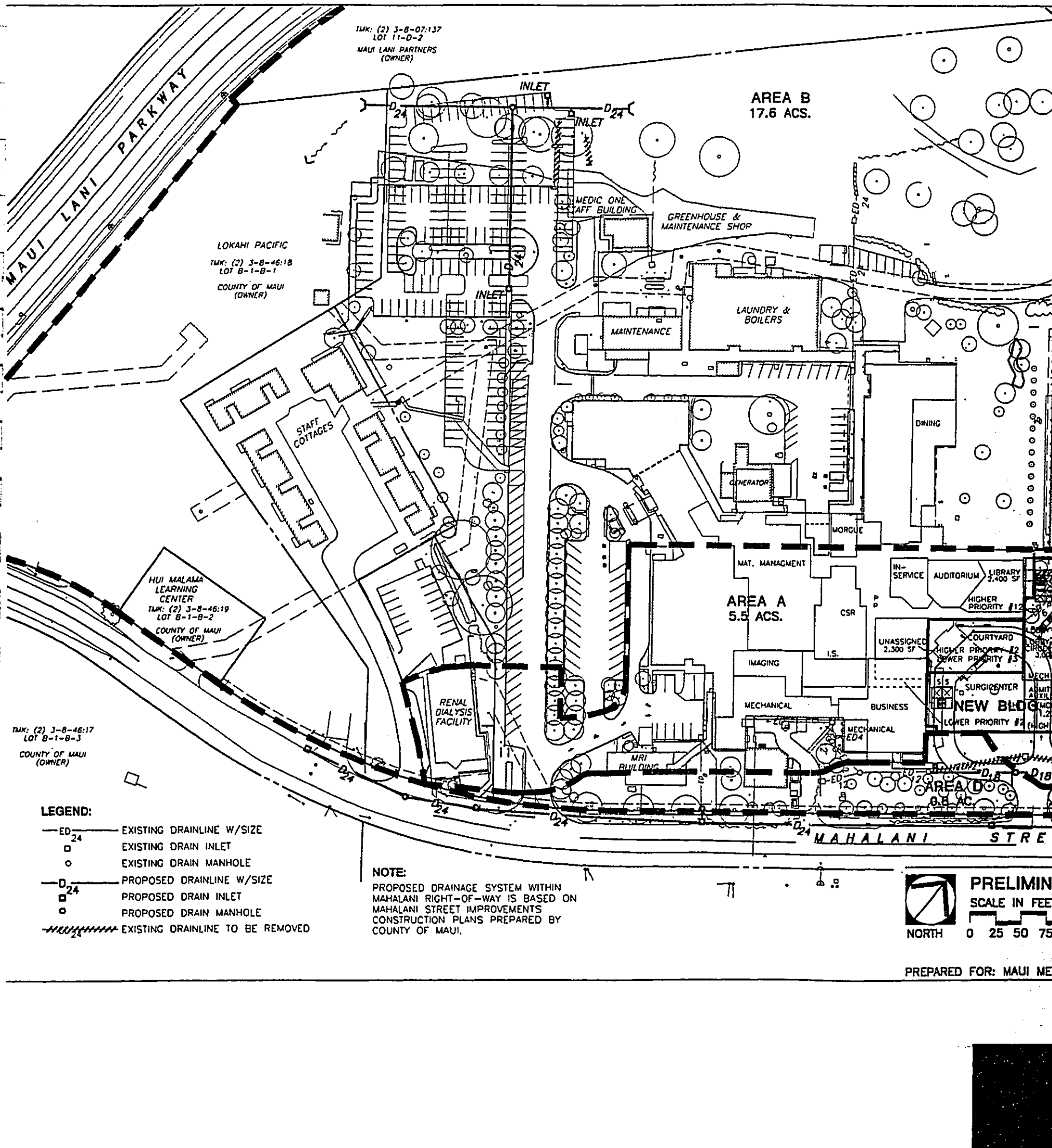
PRELIMINARY DRAINAGE PLAN

SCALE IN FEET

NORTH 0 25 50 75 100 200 300 400

Figure 7

PREPARED FOR: MAUI MEMORIAL MEDICAL CENTER PREPARED BY: RONALD M. FUKUMOTO ENGINEERING, INC.


MAUI LANI PARKWAY
TMK: (2) 3-8-07:137
LOT 11-D-2
MAUI LANI PARTNERS
(OWNER)
LOKAHI PACIFIC
TMK: (2) 3-8-46:18
LOT B-1-B-1
COUNTY OF MAUI
(OWNER)
HUI MALAMA
LEARNING
CENTER
TMK: (2) 3-8-46:19
LOT B-1-B-2
COUNTY OF MAUI
(OWNER)
TMK: (2) 3-8-46:17
LOT B-1-B-3
COUNTY OF MAUI
(OWNER)
INLET
AREA B
17.6 ACS.
MEDIC ONE
TAFF BUILDING
GREENHOUSE &
MAINTENANCE SHOP
LAUNDRY &
BOILERS
MAINTENANCE
STAFF
COTTAGES
DINING
GENERATOR
MORGUE
MAT. MANAGMENT
AREA A
5.5 ACS.
CSR
I.S.
IN-
SERVICE
AUDITORIUM
LIBRARY
2,400 SF
HIGHER
PRIORITY #2
UNASSIGNED
2,300 SF
COURTYARD
HIGHER PRIORITY #2
LOWER PRIORITY #3
IMAGING
SURGICENTER
MECHANICAL
BUSINESS
NEW BLDG
LOWER PRIORITY #2
MECHANICAL
ED4
RENAL
DIALYSIS
FACILITY
MRI
BUILDING
AREA D
0.5 AC
MAHALANI STRE
LEGEND:
EXISTING DRAINLINE W/SIZE
EXISTING DRAIN INLET
EXISTING DRAIN MANHOLE
PROPOSED DRAINLINE W/SIZE
PROPOSED DRAIN INLET
PROPOSED DRAIN MANHOLE
EXISTING DRAINLINE TO BE REMOVED
NOTE:
PROPOSED DRAINAGE SYSTEM WITHIN MAHALANI RIGHT-OF-WAY IS BASED ON MAHALANI STREET IMPROVEMENTS CONSTRUCTION PLANS PREPARED BY COUNTY OF MAUI.
NORTH
PRELIMIN
SCALE IN FEE
0 25 50 75
PREPARED FOR: MAUI ME

PRELIMINARY DRAINAGE COMPUTATIONS

A. RUNOFF COEFFICIENT
   1. For impervious surfaces C = 0.90
   2. For landscaped surfaces C = 0.18

B. RECURRENCE INTERVAL & RAINFALL
   1. Recurrence interval T_m = 50 years (for sump conditions at Cameron Center inlets.)
   2. One-hour rainfall I_{50} = 2.5 inches

C. TIME OF CONCENTRATION
   1. Existing Conditions
      a. Area A T_c = 10 minutes
      b. Area B T_c = 22 minutes
      c. Area C T_c = 5 minutes
      d. Area D T_c = 5 minutes
   2. Developed Conditions
      a. Area A T_c = 10 minutes
      b. Area B T_c = 20 minutes
      c. Area C T_c = 5 minutes
      d. Area D T_c = 5 minutes

D. EXISTING RUNOFF
   1. Area A
      a. C = [(3.4x0.90)+(1.7x0.18)]/5.1 = 0.66
      b. i = 2.5x2.06 = 5.15
      c. a = 5.1 acres
      d. Q = Cia = 0.66x5.15x5.1 = 17 cfs
   2. Area B
      a. C = [(7.4x0.90)+(10.2x0.18)]/17.6 = 0.48
      b. i = 2.5x1.59 = 3.98
      c. a = 17.6 acres
      d. Q = Cia = 0.48x3.98x17.6 = 34 cfs
   3. Area C
      a. C = [(0.9x0.90)+(0.8x0.18)]/1.7 = 0.56
      b. i = 2.5x2.56 = 6.40
      c. a = 1.7 acres
      d. Q = Cia = 0.56x6.40x1.7 = 6 cfs
   4. Area D
      a. C = [(0.2x0.90)+(0.8x0.18)]/1.0 = 0.32
      b. i = 2.5x2.56 = 6.40
      c. a = 1.0 acres
      d. Q = Cia = 0.32x6.40x1.0 = 2 cfs

E. DEVELOPED RUNOFF

1. Area A
   a. C = [(4.7x0.90)+(0.8x0.18)]/5.5 = 0.79
   b. i = 2.5x2.06 = 5.15
   c. a = 5.5 acres
   d. Q = Cia = 0.79x5.15x5.5 = 22 cfs
2. Area B
   a. C = [(7.9x0.90)+(9.7x0.18)]/17.6 = 0.50
   b. i = 2.5x1.65 = 4.13
   c. a = 17.6 acres
   d. Q = Cia = 0.50x4.13x17.6 = 36 cfs
3. Area C
   a. C = [(0.7x0.90)+(0.8x0.18)]/1.5 = 0.52
   b. i = 2.5x2.56 = 6.40
   c. a = 1.5 acres
   d. Q = Cia = 0.52x6.40x1.5 = 5 cfs
4. Area D
   a. C = [(0.1x0.90)+(0.7x0.18)]/0.8 = 0.27
   b. i = 2.5x2.56 = 6.40
   c. a = 0.8 acres
   d. Q = Cia = 0.27x6.40x0.8 = 1 cfs

F. INCREASE DUE TO DEVELOPMENT

1. Area A: 22 - 17 = 5 cfs
2. Area B: 36 - 34 = 2 cfs
3. Area C: 5 - 6 = (-)1 cfs (decrease due to development)
4. Area D: 1 - 2 = (-) 1 cfs (decrease due to development)

G. CAPACITIES OF EXISTING DRAINAGE SYSTEM

1. Area A drains into existing Cameron Center Catch Basin #A-1 that has been designed to accept 33 cfs. The design flow to this catch basin is 22 cfs, therefore the existing drainage system is adequate to receive flows from MMMC.
2. Area B drains into existing Cameron Center Catch Basin #B-1 that has been designed to accept 45 cfs. The design flow to this catch basin is 36 cfs, therefore the existing drainage system is adequate to receive flows from MMMC.
3. Area C drains by surface flow into Cameron Center's and Wailuku Health Center's parking areas. The surface flows to these areas will be decreased.
4. Area D drains by surface flow into Mahalani Street. The proposed drainage system for the County's Mahalani Street widening project will collect this surface flow.

Appendix B

Archaeological Inventory Survey

SCS Project Number 158-1

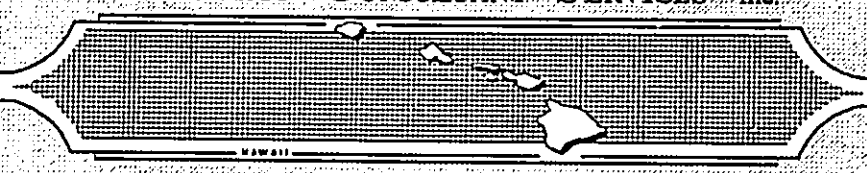
ARCHAEOLOGICAL INVENTORY SURVEY OF APPROXIMATELY 2.5 ACRES OF THE MAUI MEMORIAL MEDICAL CENTER LOCATION, WAILUKU, WAILUKU AHUPUA`A, ISLAND OF MAUI, HAWAI`I

Prepared by:
Mike T. Carson, M. A.,
David B. Chaffee, B. A.,
and
Robert L. Spear, Ph.D.

March 1999

Prepared for:
Munekiyo, Arakawa & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai`i 96793

SCIENTIFIC CONSULTANT SERVICES Inc.



711 Kapiolani Blvd. Suite 777 Honolulu, Hawai`i 96813

ABSTRACT

At the request of Mr. Milton Arakawa of Munekiyo, Arakawa & Hiraga, Inc., on behalf of Mr. Gerald Matsui of the Maui Memorial Medical Center, an archaeological inventory survey was conducted by Scientific Consultant Services, Inc. (SCS) on approximately 2.5 acres plus the parking lot on the grounds of the Maui Memorial Medical Center, located in Wailuku, Wailuku Ahupua`a, Island of Maui, Hawai`i (TMK: 3-8-46-13 and 3-8-46: 29).

A total of five stratigraphic trenches were excavated within the project area. The approximately 2.5 acres surveyed produced no cultural deposits in any of the trench excavations.

No further archaeological work is recommended for this parcel.

TABLE OF CONTENTS

LIST OF FIGURES

INTRODUCTION

At the request of Mr. Milton Arakawa of Munekiyo, Arakawa & Hiraga, Inc., on behalf of Mr. Grant Matsui of the Maui Memorial Medical Center, an archaeological Inventory Survey was conducted by Scientific Consultant Services, Inc. (SCS) on approximately 2.5 acres and the parking lot on the grounds of the Maui Memorial Medical Center, located in Wailuku, Wailuku Ahupua`a, Island of Maui, Hawai`i (TMK: 3-8-46-13 and 3-8-46: 29)(Figures 1, 2 and 3). The purpose of this work was to identify any possible archaeological sites, features, or deposits in the project area.

Survey and excavations were conducted in March 1999. Crew members included Project Director Leann McGerty and Field Archaeologist Mike Carson. The field work was conducted under the overall direction of Robert L. Spear, Ph.D.

PHYSICAL SETTING

The island of Maui was formed from two separate shield volcanoes, including Haleakala in East Maui and Pu`u Kukui in West Maui. The isthmus between is composed of alluvial fans of outwashed silts and gravels, overlain by coralline sands blown inland from the coast. The lower levels have become firmly lithified, forming a soft rock known as eolianite (Stearns 1966:10). Lithified sand dunes rest on alluvial fans near the shore between Kahului and Waihe`e, and they extend inland across most of the western edge of the isthmus. Some of these dunes near the north coast reach heights of 60 meters (Macdonald *et al.* 1986:388; Carlquist 1980:60).

The subject project area is situated in the field of lithified dunes in the *ahupua`a* of Wailuku, Wailuku District, Island of Maui. The lithified dunes "were formed by wind blowing sand inland from wide beaches exposed during a stand of the sea lower than the present sea level" (Macdonald *et al.* 1986: 388). The dunes are presently overgrown with recently introduced vegetation, including *kiawe* (*Prosopis pallida*) and various grasses (Figure 4).

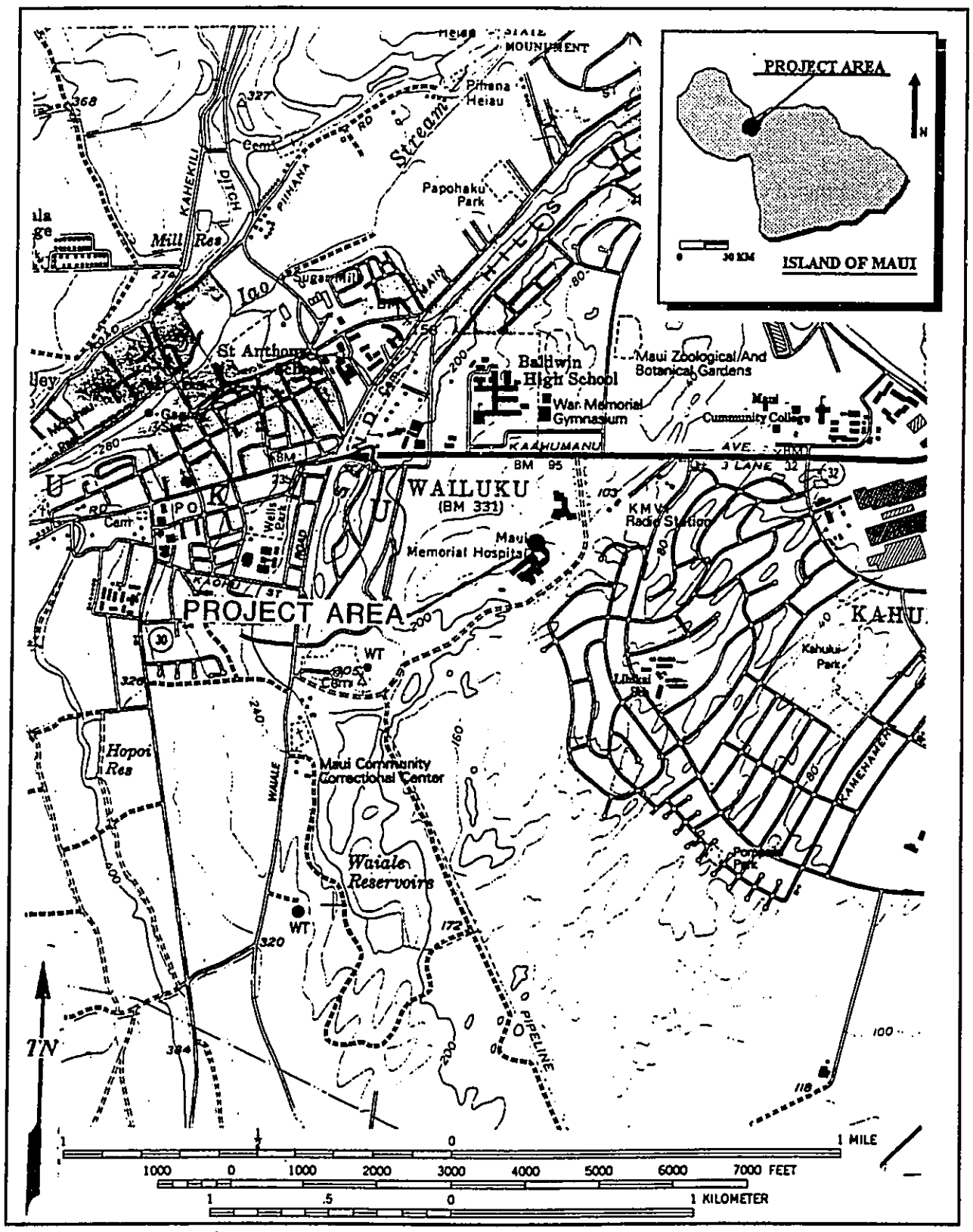


Figure 1: USGS Wailuku Quadrangle Showing Project Area

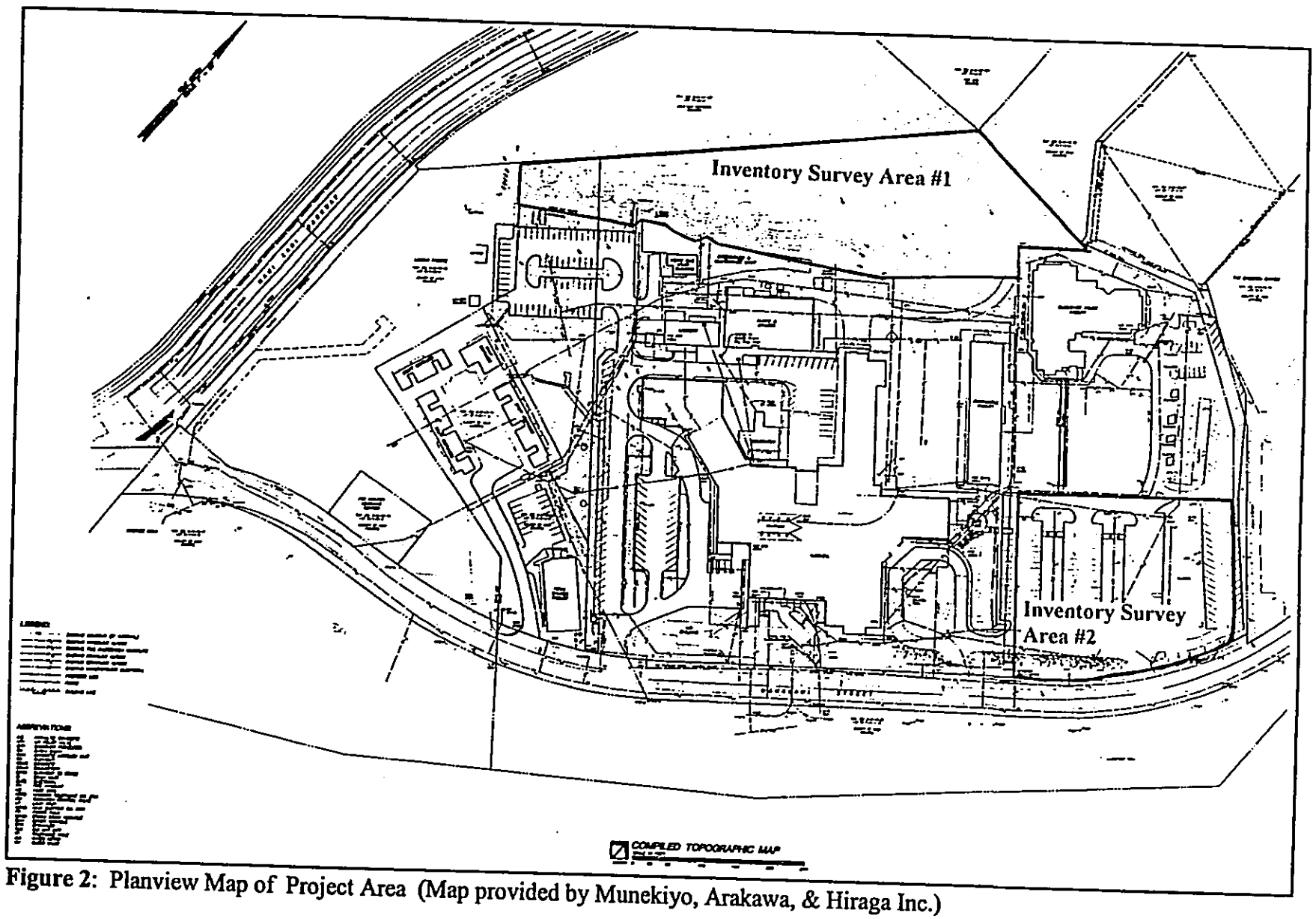


Figure 2: Planview Map of Project Area (Map provided by Munekiyo, Arakawa, & Hiraga Inc.)

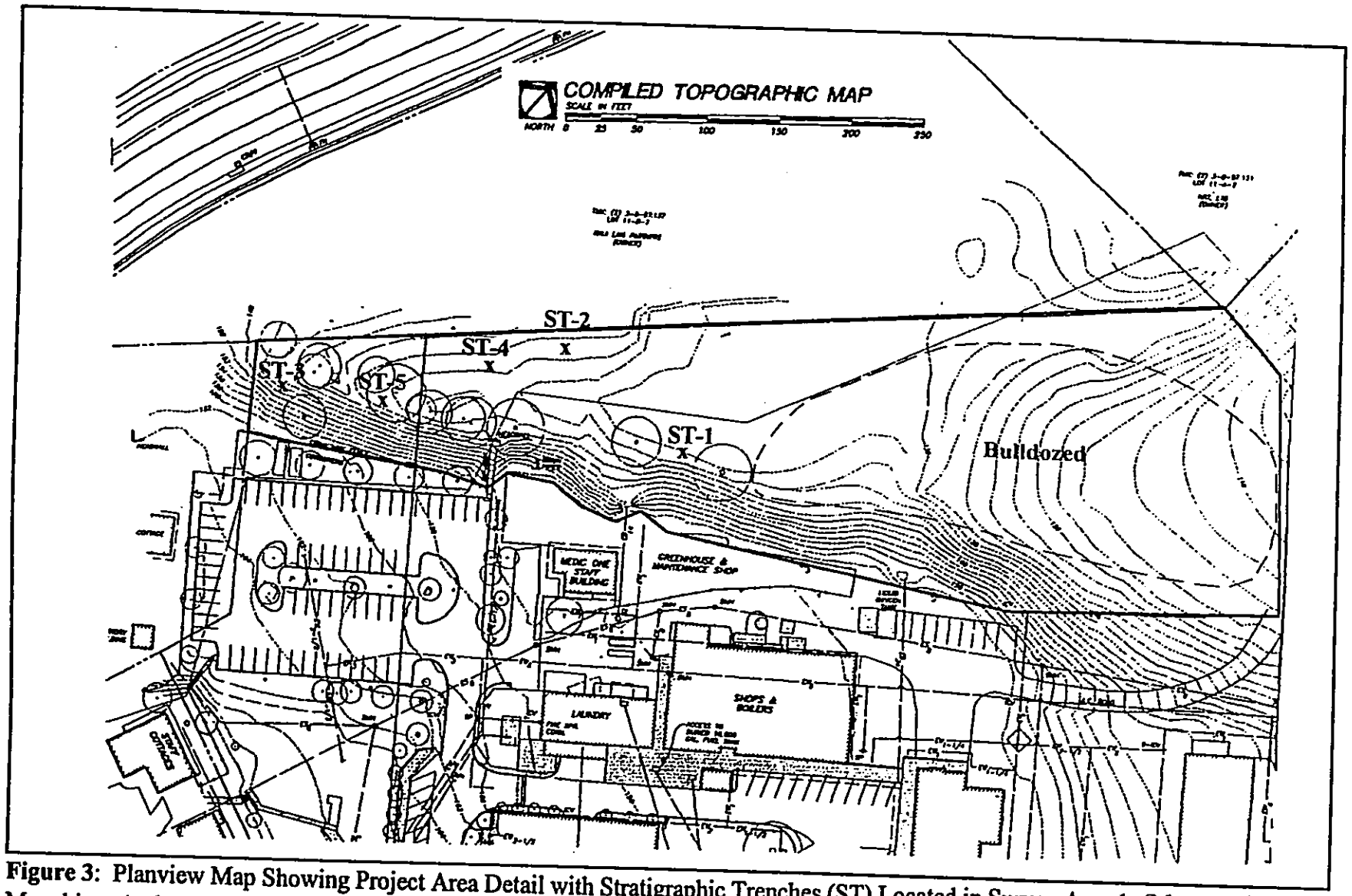


Figure 3: Planview Map Showing Project Area Detail with Stratigraphic Trenches (ST) Located in Survey Area 1. (Map provided by Munekiyo, Arakawa, & Hiraga Inc.)

Figure 4: Photograph of Vegetation in the Project Survey Area 1. View to Northeast.

The current project involved work at two locations on the subject property. One location is presently a paved parking lot that has been bulldozed and graded (Figure 5). The other location occupies a low-lying portion of the lithified dune field (Figure 6).

TRADITIONAL AND HISTORIC SETTING

In general, the prehistory of Maui prior to ca. AD 1200 is poorly known. A majority of research has been focused on larger, ceremonial structures (Walker 1931) and resources dating from the 16th century through proto-historic times. Assumptions based on general models from other islands in the Hawaiian archipelago suggest the windward portions of Maui were occupied from about AD 300 to 600, with a shift in emphasis to the drier, *kula* regions by AD 1000 to 1200 (Cordy 1974, Kirch 1985). In this modeling, the project area occupies a location that was not intensively utilized until perhaps very late in the culture historical sequence.

Populations initially settled in the coastal areas of Maui (particularly in the Lahaina and Wailuku areas) and continued to be maintained habitation centers through time (Kirch 1985; Kolb 1991). Kolb (1991:326) states that "the primacy of Lahaina and Wailuku as population

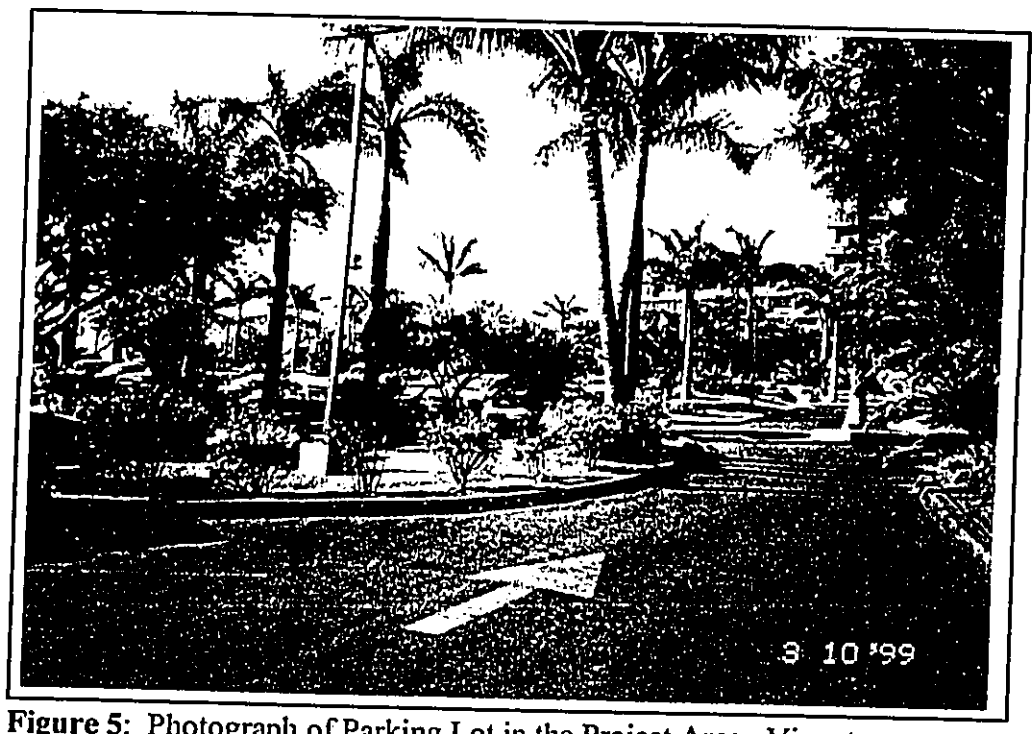


Figure 5: Photograph of Parking Lot in the Project Area. View to Southeast.

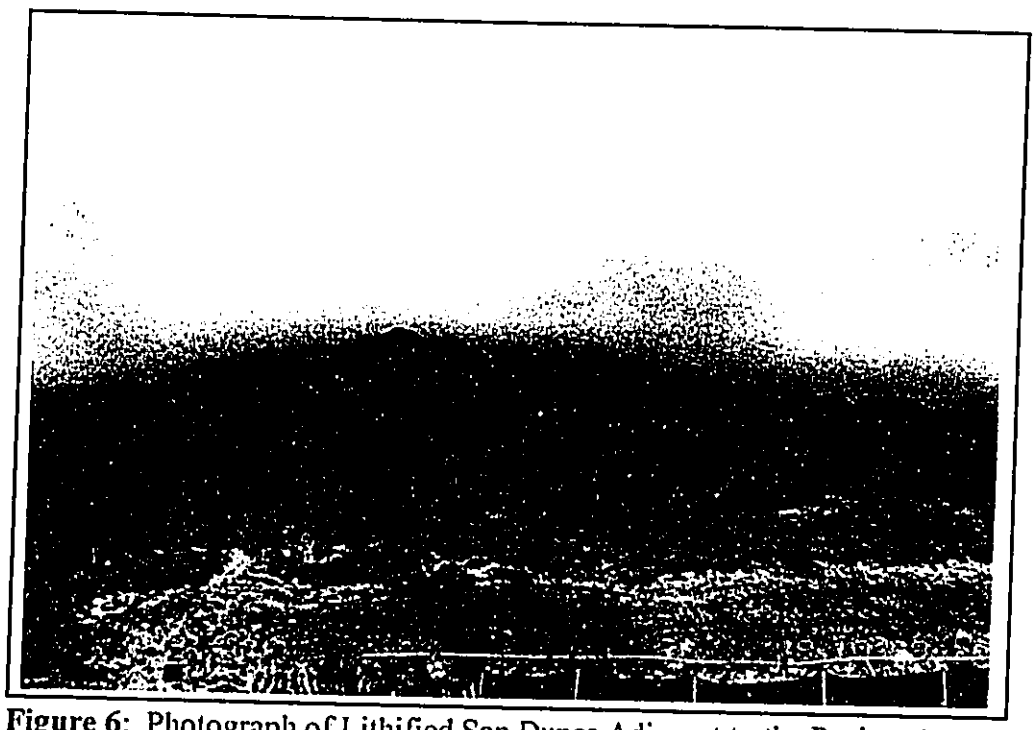


Figure 6: Photograph of Lithified San Dunes Adjacent to the Project Area. View to West.

centers corroborates historical information which documents Wailuku and Lahaina as being centers of Maui-chiefly power." Populations in these areas remained concentrated throughout prehistory and into protohistoric times, as evidenced by the large number of midden loci and documented *heiau* (Walker 1931; Kolb 1991).

The project area is situated about 1.75 kilometers inland from Kahului Bay in Wailuku Ahupua`a. Wailuku Ahupua`a includes the coastal area of Kahului Bay from Kapukaula to Paukukalo and the northern half of the isthmus between Haleakala and the West Maui Mountains. Although Wailuku was traditionally a very important population center on Maui, the location of the project area was probably not a part of this traditional settlement area. Instead, habitations were concentrated closer to the coast and also closer to permanent streams.

The coast about 1.75 kilometers from the current project area was most certainly an important habitation center that also included prominent religious complexes. Two *heiau* are located here. These *heiau* are Haleki`i and Pihana. Sterling (1998:72-93) notes intensive use of the Wailuku area through prehistory by the presence of *heiau*, burial sites, battle grounds, fishponds, salt pans, and agricultural sites. That the Wailuku area remained a population center beyond prehistoric times is corroborated by the findings of Moffat and Fitzpatrick (1995:19) who state that Maui's greatest population occurred within Wailuku District at Waihe`e and Waiehu. This general pattern of early and continuous occupation of coastal, windward areas is not uncommon for the Hawaiian Islands.

Prehistorically, population expansion out from coastal areas and into inland areas appears to have occurred from about the early 17th century, as seen in evidence for occupation of upcountry rockshelters and lava tubes (Dixon *et al.* 1997). The upland forest areas were similarly occupied at approximately the same time, around the middle 17th century through late 18th century. Households and *heiau* identified in upcountry regions yielded radiocarbon age determinations of construction and use from c. the late Expansion Period (early 1600s-1700s) through the Proto-Historic Period (1700s through Contact times) (see Kirch 1985, 1997). Upcountry regions were more intensively occupied later in prehistory, from the 16th century and continuing through post-Contact times. In this scenario, human occupation of the vicinity of the project area may have occurred around A.D. 1600 to 1700. However, the project area is not mentioned as a traditional occupation area.

Maui was ruled in conjunction with the islands of Lana`i and Kaho`olawe by the *mo`i* Kahekili when Europeans arrived in AD 1778. The districts of Hana and Kipahulu were controlled by chiefs of the island of Hawai`i since 1759, and wars between Kalaniopu`u of Hawai`i Island and Kahekili resulted in invasions of Maui-controlled territories from 1777 to 1779 (Fornander 1969). The subsequent death of Kalaniopu`u in 1782 and the fragmentation of the Hawaiian polity into three parts allowed Kahekili to extend Maui's territorial claims, resulting in the conquest of O`ahu in 1783.

Civil disorder on the Island of Hawai`i from Kamehameha's conflict with rival claimants resulted in a united island under one ruler. Inconclusive battles between Kamehameha and Kahekili occurred in the interim with combined forces from Maui, Kaua`i, and O`ahu participating in attacks on Kamehameha. Kalanikupule's role as ruler of Maui (1794) marked the end of an era. In the following year (1795), Kamehameha invaded Lahaina, Molokai, and O`ahu. Kalanikupule's defeat at the battle of Nu`unau established Kamehameha as absolute ruler of the Hawaiian Islands, with the exception of Kauai (Fornander 1969).

European involvement in Maui during the preceding events was confined to exploitation of the coast by Cook (1779), LaPerouse (1786), and Vancouver (1793). These expeditions reported on the contrasts in vegetation and climate between windward east Maui and leeward Maui (LaPerouse 1799; Vancouver 1798 in Kirch 1985).

By 1795, Maui was a part of the newly established Kingdom of Hawai`i. The political arrangement brought great changes to traditional demographics, religion, politics, and land use. On Maui, Lahaina became the focus of political life serving as the Kingdom's capital and residence of Kamehameha III from AD 1836 to 1844 (Kamakau 1992). Whaling, shipping, and the cultivation of imported crops, such as Irish potatoes, became mainstays of the local economy. Wailuku was considered to be one of the most fertile areas for agriculture and became an economically important district in the late prehistoric/protohistoric period.

Many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kauikeaouli (Kamehameha III) was forced to establish laws changing the traditional Hawaiian society to that of a market economy (Daws 1968:111; Kuykendall Vol. I, 1938:145 footnote 47, 152, 165-6, 170; Kame`eleihiwa 1992:169-70, 176). The foreigners advocated private ownership

instituted, native Hawaiians were able to claim *kuleana* they were occupying, either by cultivation or by residence. Government land was under control of the government, except that it was subject, as was all the land, to the rights of the native tenants. When native tenants proved that they had occupied a particular parcel, they would be issued a Land Commission Award (LCA) number and, finally, a Royal Patent number which conveyed no title but stated that the government's interest in the land was settled (Chinen 1971). The project area occupies a portion of LCA 7713: 23, awarded to Victoria Kamamalu, which is a portion of land extending from Kahului Harbor and inland (Waihona `Aina: 1999).

Land use in the district and *ahupua`a* in the mid-19th and early 20th century was largely devoted to the sugar industry. During the 1860s, the sugar business was growing with plantations and mills at Wailuku, Waihe`e, Waikapu, and Haiku. Wailuku Sugar Company was organized in 1862 by a syndicate that included C. Brewer & Company. By 1864, C. Brewer had gained controlling interest of Wailuku Sugar which then included Wailuku Plantation and Waihe`e Sugar Company. Waikapu Sugar Company was added in 1894 (Speakman 1978). No sugar cane plantation fields, houses, factories, or railroads affected the project area.

ARCHAEOLOGICAL SETTING

Several archaeological studies have been conducted within the general area of the present project. Studies in the general area of the project include Barrera's (1976) survey of approximately 1020 acres in the Sand Hills area (currently the Maui Lani area). No structural remains or cultural deposits were identified here. Two indigenous artifacts (a basalt flake and a possible basalt hammerstone) were located in disturbed areas beyond the project boundaries. During later sand mining, human bone was found in sand shipped from the area. Neller (1984) identified skeletal remains of three individuals at the sand mining site (now designated Site 50-50-04-2797).

Rotunno and Cleghorn (1990) from the Bishop Museum, conducted an inventory survey of the proposed Maui Lani Subdivision area in Sand Hills. This work identified two possible archaeological sites that were later found to be modern disturbances of the landscape.

Sinoto (1990) conducted a 70-acre surface survey at the Maui Lani sand borrow, where no cultural materials were identified. Archaeological monitoring of the sand borrowing areas continues to this date with no cultural remains yet discovered during monitoring.

Kennedy (1995) conducted surface and subsurface testing in the Pihana Ridge Sand Dune area. The testing identified no cultural material. During later sand mining activities, a number of burials were discovered in unsuspected soft pockets of sand near the surface of the dunes. Associated grave goods with one burial led to the determination that the remains were of a person of high rank.

Kennedy (1990) conducted subsurface testing at the site of the proposed Maui Community Arts and Cultural Center. The sand dunes at the site had previously been leveled. Kennedy's testing included 51 backhoe trenches. No cultural materials were identified.

Donham (1992) disinterred skeletal remains representing three individuals in the western marginal area of the Sand Hills. The burials were discovered in two areas of construction activities at the Maui Homeless Shelter (Site 2916). Area 1 contained a flexed adult burial. Area 2 contained scattered remains representing an adult female and a smaller adult. No burial pits or portable remains were observed at either of the burial areas.

Pantaleo and Sinoto (1996) conducted subsurface sampling at the proposed Maui Lani Development area in an attempt to explore the predictability of burials in the sand dune area. Although no conclusive patterns were evident, burials appeared to proliferate along the marginal boundaries of the Pu`uone feature including the area along the Sand Hills escarpment from Wai`ale Road to Lower Main Street.

In the context of previous archaeological investigation in the vicinity of the project area, the project area may be expected to contain no surficial architecture and no widespread sub-surface cultural deposits. However, the possibility of human burials in the sand and in lithified portions of the dunes cannot be overlooked.

METHODOLOGY

The current project involved investigation of two portions of the subject property. One location was the area of a present parking lot. The other area was approximately 2.5 acres of mostly undeveloped land. The parking lot was assessed during field work as having been previously bulldozed and graded, and the likelihood of finding an intact cultural deposit in this setting is minimal. The 2.50-acre area, though, required detailed surface and limited sub-surface testing.

Survey of the 2.50-acre parcel was conducted by two field archaeologists who walked over the land parcel in transects 3.00 m apart. No archaeological features were encountered on the surface.

Sub-surface testing involved excavation of five stratigraphic trenches in five locations in the 2.50-acre land parcel. This sub-surface testing was designed to expose the depositional history of the project area and to identify any possible cultural deposits. The five stratigraphic trenches were excavated with a shovel and trowel, and the excavated sediment was not screened. The excavation profiles were examined in detail for signs of past anthropogenic agency. Stratigraphic layers were described in terms of color, texture, and particle consolidation. The five stratigraphic trenches did not encounter any cultural deposits, so no further sub-surface testing was conducted.

INVESTIGATION RESULTS

Survey of the project area found evidence of modern land alterations and disturbances, but no archaeological features were found. The most obvious modern land alterations include bulldozing, grading, and paving of a parking lot area. Other alterations and disturbances include bulldozing, drainages, and trash dumps on portions of the 2.50-acre portion of the subject property.

In portions of the 2.50-acre parcel found to be clear of modern alterations and disturbances, five locations were selected for sub-surface testing. Sub-surface testing included

five stratigraphic trenches (designated ST-1 through ST-5). All of these stratigraphic trenches were dug down to the firmly lithified dune layer. In all cases, no cultural deposit was encountered.

Table 1 describes the measurement data of the five stratigraphy trenches. Appendix A shows a single wall profile for each of the five trenches and Appendix B gives soil descriptions for the trenches.

Table 1: Stratigraphy Trench (ST) Data

Number	Length (cm)	Width (cm)	Max. Depth (cm)	Layers
ST-1	90.0	70.0	180	5
ST-2	90.0	60.0	23.0	2
ST-3	90.0	70.0	70.0	3
ST-4	60.0	70.0	31.0	2
ST-5	80.0	60.0	65.0	4

CONCLUSIONS AND RECOMMENDATIONS

Archaeological Inventory Survey in the project area found no extant archaeological features, sites, or sub-surface deposits. Models of traditional settlement pattern and land use indicate that the project area was not intensively utilized. However, archaeological investigation on nearby land parcels (such as in Maui Lani) indicate the possibility of human burials in portions of the lithified dune fields. In the sub-surface testing conducted in the current investigation, no evidence of human burials was found in the project area. No further archaeological work is recommended for the project area. If human remains are found during future construction and land development activities, then all work must be halted until the State Historic Preservation Office is notified and appropriate action is taken.

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Waihona ʻAina Corporation

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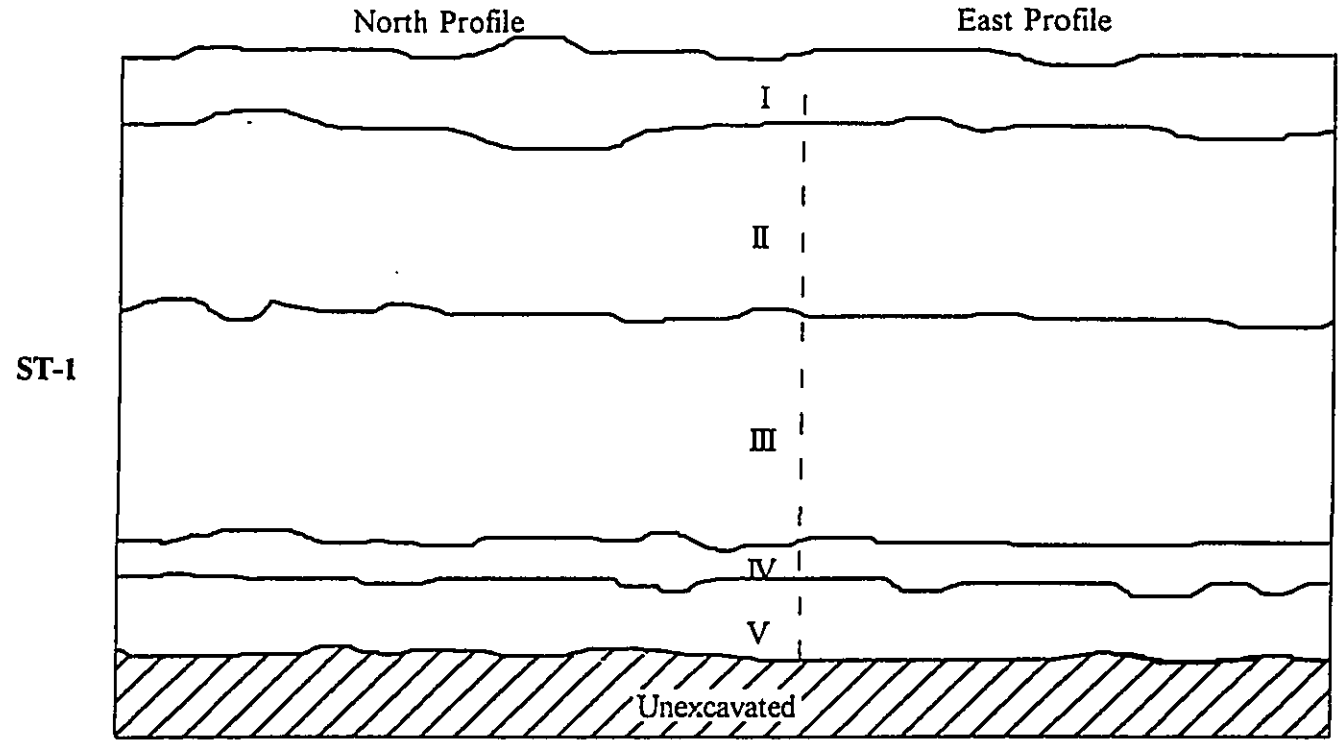
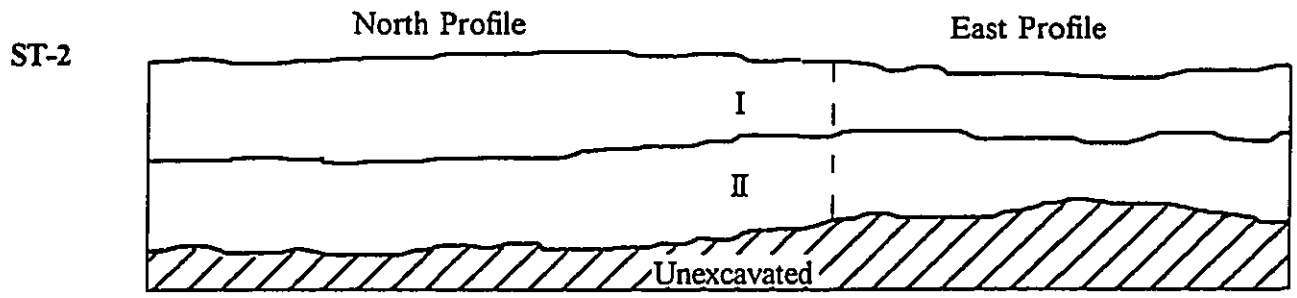
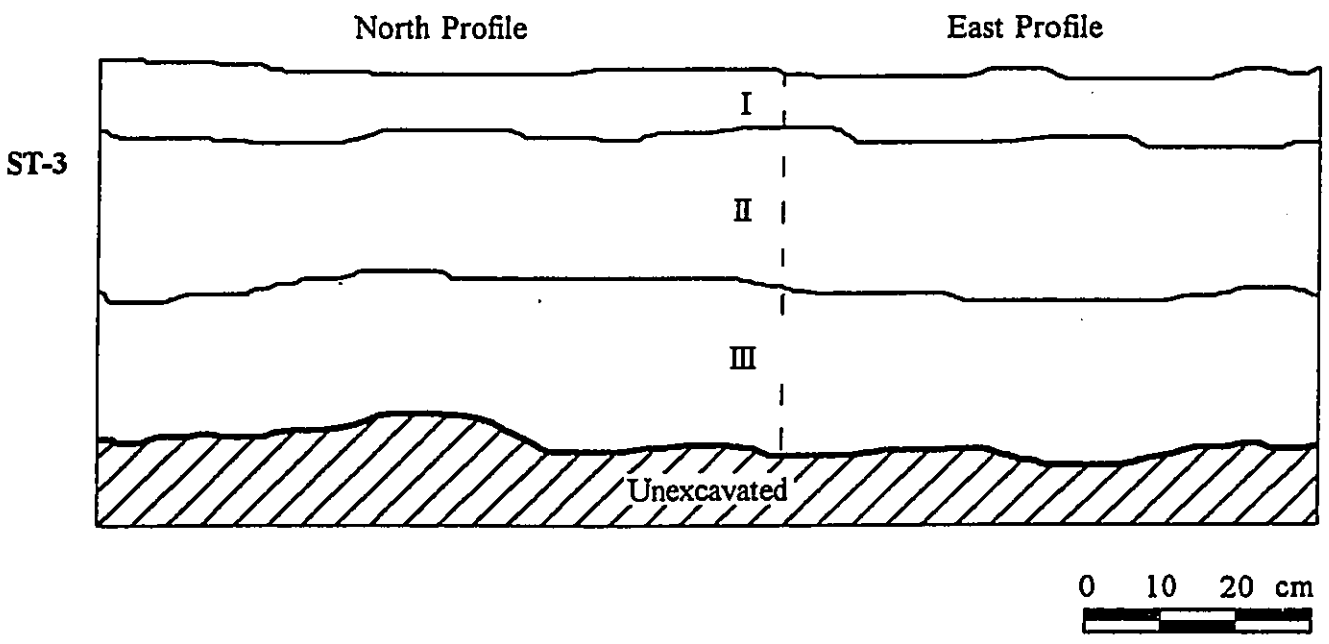
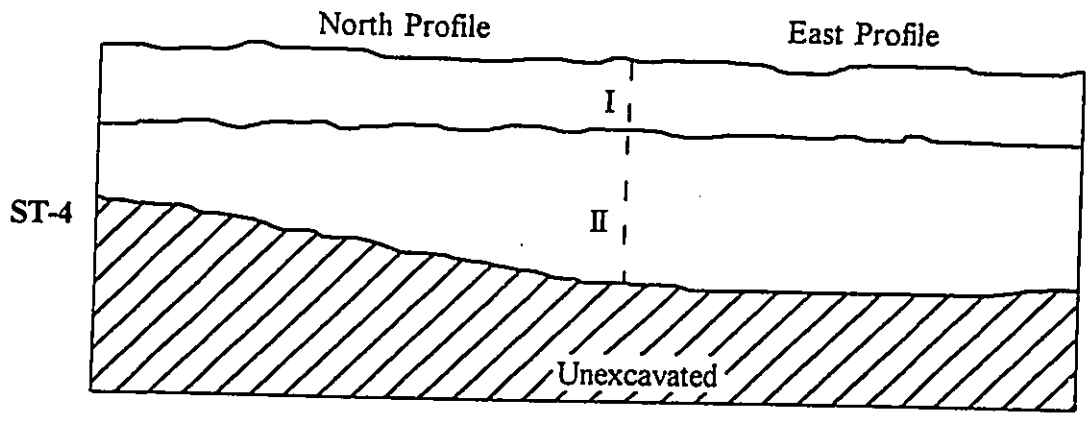
APPENDIX A

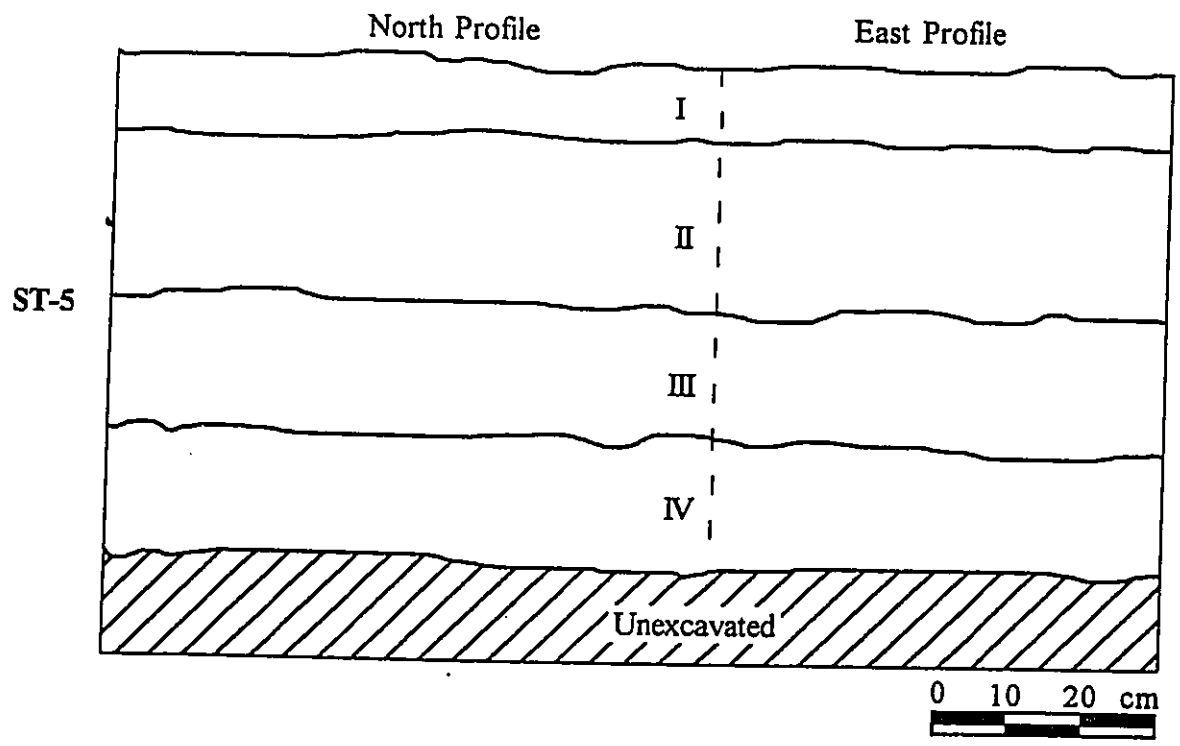
Stratigraphic Trench Profiles


North Profile
East Profile
ST-1
I
II
III
IV
V
Unexcavated


North Profile
East Profile
ST-2
I
II
Unexcavated


North Profile
East Profile
ST-3
I
II
III
Unexcavated
0 10 20 cm


North Profile
East Profile
I
II
ST-4
Unexcavated


North Profile
East Profile
I
II
III
IV
ST-5
Unexcavated
0 10 20 cm

APPENDIX B
Soil Descriptions

Project 158 Soil Catalog

Trench	Layer	Color	Approx. Thickness	Texture	Structure		Consistency		Roots	Rock	Boundary
			[cm]			Dry	Moist	Wet			
ST-1	I	10YR 25/2 Very Dark Red	0-10	ss	ls	-	lvf	-	abundant	-	-
	II	75YR 5/6 Strong Brown	10-35	s	fs	-	vf	-	abundant	-	-
	III	10YR 5/6 Yellowish Brown	35-75	s	cos	-	vf	-	abundant	-	-
	IV	10YR 8/2 White	75-80	-	cos	-	vf	-	-	-	-
	V	10YR 6/6 Brownish Yellow	80-B.O.E	-	cos	-	vf	-	-	-	-
ST-2	I	10R 2.5/2 Very Dusky Red	0-17	ss	ls	-	l	-	abundant	common	-
	II	10YR 5/6 Yellowish Brown	17-23	s	fs	-	l	-	common	-	-
ST-3	I	10R 2.5/2 Very Dusky Red	0-10	-	ls	-	l	-	abundant	-	-
	II	10R 2.5/2 Very Dusky Red	10-30	-	fs	-	l	-	common	-	-
	III	10R 2.5/2 Very Dusky Red	30-B.O.E	-	-	-	-	-	-	-	-
ST-4	I	10YR 3/5 Dark Brown	0	ss	ls	l	-	-	abundant	-	-
	II	7.5YR 5/8 Yellowish Brown	10-20/31	s	fs	l	-	-	-	-	-
ST-5	I	710YR 3/5 Dark Brown	0-10	ss	ls	l	-	-	abundant	-	-
	II	10YR 5/8 Yellowish Brown	10-31	s	fs	l	-	-	-	-	-
	III	10YR 7/3 Very Pale Brown	31-50/60	-	fs	h	-	-	-	-	-
	IV	10YR 7/3 Very Pale Brown	50-65	-	-	h	-	-	-	-	-

Appendix B-1

State Historic Preservation Division Letter Dated 5/28/99

BENJAMIN J CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

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

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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS
WATER RESOURCE MANAGEMENT

May 28, 1999

Dr Robert Spear
Scientific Consultant Services
711 Kapiolani Blvd., Suite 777
Honolulu, Hawaii 96813

LOG NO: 23502
DOC NO: 9905RC59

SUBJECT: Review of Archaeological Inventory Survey -- Maui Memorial Medical Center
Wailuku, Wailuku, Maui TMK: 3-8-46: 13, 29

This letter reviews this survey report which was sent to us on March 25, 1999 (Carson et al. 1999. Archaeological Inventory Survey of Approximately 2.5 Acres of the Maui Memorial Medical Center Location ... SCS ms.).

The survey seems to have representatively tested the project area, finding no historic sites. The background review correctly concludes that burials are possible in this area. More recent work since 1996 -- not covered in the background -- has found single and clusters of burials in the Maui Lani project area and other Puuone Sand Dune areas.

We find the survey report acceptable.

However, we do not concur with the recommendations. Although the survey clearly indicates no dense concentrations of burials are present, individual burials or remnants of burials could very well be present in areas between the backhoe trenches. The standard practice that our office has followed for this area of the Puuone dunes in recent years, on the advice of the Maui Island Burial Council, is to have the land altering construction work monitored by a professional archaeologist -- to cover the possibility of inadvertent finds of intact or disturbed burials. This approach seems to have worked quite well to date. Thus, we recommend that monitoring occur for land altering construction for this project. Please advise your client of this recommendation.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

RC.ac

Appendix C

Environmental Noise Assessment Study

D. L. ADAMS ASSOCIATES, LTD.
dba
DARBY & ASSOCIATES
ACOUSTICAL CONSULTANTS

Project No. 99-08

ENVIRONMENTAL NOISE ASSESSMENT STUDY
MAUI MEMORIAL MEDICAL CENTER HELISTOP
WAILUKU, MAUI, HAWAII

April 5, 1999

Prepared for
Munekiyo, Arakawa, & Hiraga, Inc.
Wailuku, Hawaii

PALI PALMS PLAZA • 970 NO. KALAHEO AVENUE • SUITE A-311
KAILUA, HAWAII 96734 • (808) 254-3318 • FAX (808) 254-5295

CONTENTS

1.0 SUMMARY

1.1 The proposed Maui Memorial Medical Center helistop will be a private-use helistop. Emergency medical helicopters will be used to transport patients to and from the medical center.

1.2 Existing noise sensitive areas include residential areas and schools located to the East and North of Maui Memorial Medical center. Additionally, a learning center is located on Mahalani Street, approximately 1000 feet from the proposed helistop.

1.3 The noise sensitive areas are currently exposed to daytime ambient noise levels of between 50 dBA and 65.4 dBA with the dominant noise sources being traffic, wind, and occasional distant aircraft flybys. The existing ambient Day-Night Average Sound Levels (L_{dn})'s at these areas were calculated to be between 56.4 dBA and 71.8 dBA.

1.4 The total number of helicopter operations are expected to be 30 flights per month.

1.5 The calculated helicopter-generated L_{dn} levels at noise sensitive areas will comply with guidelines set forth by the U.S. Environmental Protection Agency and the Hawaii State Helicopter System Plan as well as other applicable federal and local noise standards and guidelines.

2.0 PROJECT DESCRIPTION

The proposed project involves the development of a new private use helistop on the property of Maui Memorial Medical Center. The new helistop is to be located west of the existing Maui Memorial Medical Center Laundry and Boiler Building and next to the existing Greenhouse and Maintenance Shop as shown in Figure 1. The helistop will be used for emergency medical transportation to and from the medical center.

3.0 NOISE STANDARDS

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

3.1 Hawaii State Helicopter System Plan (HSHSP)

The Hawaii State Helicopter System Plan [Reference 1] recommends that helicopter flight activities should not generate an L_{dn} of more than 5 dB below the existing ambient level. Furthermore, the plan also specifies that no more than eight flights per day at an altitude of 1500 feet above ground level should be allowed over any single area. Additionally, the plan states ".. helicopter flights over dwellings should be avoided and adequate separation distances maintained...". These guidelines are the accepted criteria in Maui county for heliport design.

3.2 U.S. Environmental Protection Agency (EPA)

The U.S. EPA has identified a range of yearly day-night equivalent sound levels, L_{dn}, sufficient to protect public health and welfare from the effects of environmental noise [Reference 2]. The EPA has established a goal to reduce exterior environmental noise to an L_{dn} not exceeding 65 dBA and a future goal to further reduce exterior environmental noise to an L_{dn} not exceeding 55 dBA. Additionally, the EPA states that these goals are not intended as regulations as it has no authority to regulate noise levels, but rather they are intended to be viewed as levels below which the general population will not be at risk from any of the identified effects of noise.

3.3 Federal Aviation Administration (FAA)

The Federal Aviation Administration's noise guidelines for heliports [Reference 3] state that the maximum recommended cumulative sound level (EQL) due to proposed operations of helicopters at a new site should not exceed the ambient level already present in the community at the site of the proposed heliport. This guideline is not used in Hawaii since the HSHSP precludes the use of EQL for determining noise levels for heliports.

3.4 Other Federal and Local Agencies

Other federal and local agencies and standards organizations (State Department of Transportation (DOT), Hawaii Helicopter Operators Association (HHOA), Housing and Urban Development (HUD), etc.) also specify compatible L_{dn} zones for various land uses. They normally allow noise sensitive areas such as residences, parks, and schools to be exposed to an exterior L_{dn} of 55 dBA to 65 dBA, or less. These guidelines are not directly applicable to emergency medical helicopters. However, they were used with the guidelines listed above to determine the noise criteria for assessing potential noise impacts.

4.0 EXISTING ACOUSTICAL ENVIRONMENT

Noise level measurements were conducted on March 16, 1999 to assess the existing acoustical environment at noise sensitive areas in the vicinity of the proposed helistop. In addition, noise level measurements conducted on July 10, 1998 [Reference 4 and 5] were used to supplement those of March 16, 1999. The measurements were obtained at Locations 1 through 5, as shown in Figure 2, using a Larson-Davis Laboratories, Model 700 sound level meter. The following results expressed in terms of 15-minute equivalent sound levels, L_{eq} in units of A-weighted decibels were obtained. Day-night average sound levels L_{dn}'s, in units of A-weighted decibels, were calculated for each location.

Measurement Location	Date/Time of Measurement	Measured Sound Pressure Levels (L_{eq}) in dBA	Calculated Ambient Day-Night Average Sound Levels (L_{dn}) in dBA
1	3/11/99 - 7:20 am	53.5	59.9
2	3/11/99 - 7:45 am	50.0	56.4
3	3/11/99 - 9:20 am	50.5	56.9
4	7/10/98 - 11:55 am	65.4	71.8
5	7/10/98 - 11:30 am	57.3	63.7

Presently, the dominant noise sources at the above locations include traffic, wind, and occasional distant aircraft flybys.

5.0 POTENTIAL NOISE IMPACT DUE TO THE PROJECT AND NOISE MITIGATION

5.1 Noise Contours

Helicopter-generated L_{dn} levels were developed using the Federal Aviation Administration (FAA) Helicopter Noise Model (HNM) Version 2.2 [Reference 6]. Expected flight tracks and profiles were determined through conversations with a former Mercy Air pilot and FAA personnel [Reference 7]. Mercy Air was the former emergency helicopter service for the medical center. The approach and takeoff tracks are shown in Figure 3. The noise contour computations were based on the following assumptions:

a. The Bell 222 helicopter will be used.

b. Average annual daily operations will consist of one flight (one takeoff operation and one approach operation) [Reference 8] and the daily breakdown is 0.5 for daytime flights (0700-2200) and 0.5 for nighttime flights (2200-0700) for each type of operation. This projection of the number of average annual daily operations is based on historical data [Reference 8].

Noise contours for L_{dn}s of 50 dBA, 55 dBA, and 60 dBA are shown in Figure 5. The number of daily helicopter operations used in the HNM calculations are annual daily averages. Such numbers are obtained by dividing the total number of annual operations by 365. Therefore the actual number of daily operations may vary from day to day, depending on flight demand.

5.2 Noise Impact on existing Noise Sensitive Areas

According to the L_{dn} noise contours and the assumption of one flight (one takeoff operation and one arrival operation) per day, the helicopter activities associated with the proposed helistop will comply with the noise guidelines set forth by the U.S. Environmental Protection Agency and the HSHSP. For the expected average daily flight total, an L_{dn} of 50 dBA will not be exceeded at any of the noise sensitive areas. This assumes that approaching and departing helicopters maintain a minimum slant distance of 500 feet from any residences, schools, or other noise sensitive areas. An L_{dn} of 50 dBA will be below the state's "5 dB less than ambient" guideline at all noise sensitive areas.

Calculations of noise contours indicate the number of average annual daily flights could number as high as three without impacting surrounding noise sensitive areas. However, if the expected number of average annual daily flights increases to four or more, then the L_{dn} noise levels at the learning center located on Mahalani Street will experience an L_{dn} of 55 dBA or greater. Thus, for an average of four flights per day the Maui Memorial Medical Center helistop will be in compliance with EPA guidelines but the Hawaii State Helicopter System Plan " 5 dB less than ambient" guideline would be exceeded.

5.3 Noise Impact on the Medical Center

An L_{dn} of 60 dBA will be experienced at Maui Memorial Medical Center housing (Staff Cottages) and for medical center buildings based on the expected average annual daily flight total of one. Since the medical center buildings are air conditioned an L_{dn} of 60 dBA should not result in adverse effects to the medical center. If possible, approaching and departing helicopters should avoid overflying any medical center buildings and try to maintain a maximum distance from the medical center housing.

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1. *Hawaii State Helicopter System Plan, Final Technical Report*, Department of Transportation, Airports Division, State of Hawaii, April 1989.

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3. *Noise Assessment Guidelines for New Heliports,* Federal Aviation Administration, Advisory Circular 150/5020-2, December 9, 1983.

4. *Environmental Noise Assessment Study, Mahalani Street Improvements, Federal Aid Project No. STP-3231(1),* D.L. Adams Associates Ltd., August 4, 1998.

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6. *HNM Heliport Noise Model, Version 2.2, User's Guide*, Federal Aviation Administration, February 1994.

7. Notes from Timothy F. Noonan's conversations with Mont Smith, former Mercy Air pilot, and Randall Lum, FAA Maui Tower, on March 16, 1999.

8. Notes from Timothy F. Noonan's conversation with Bob Tsushima of SSFM Engineers, on March 9, 1999.

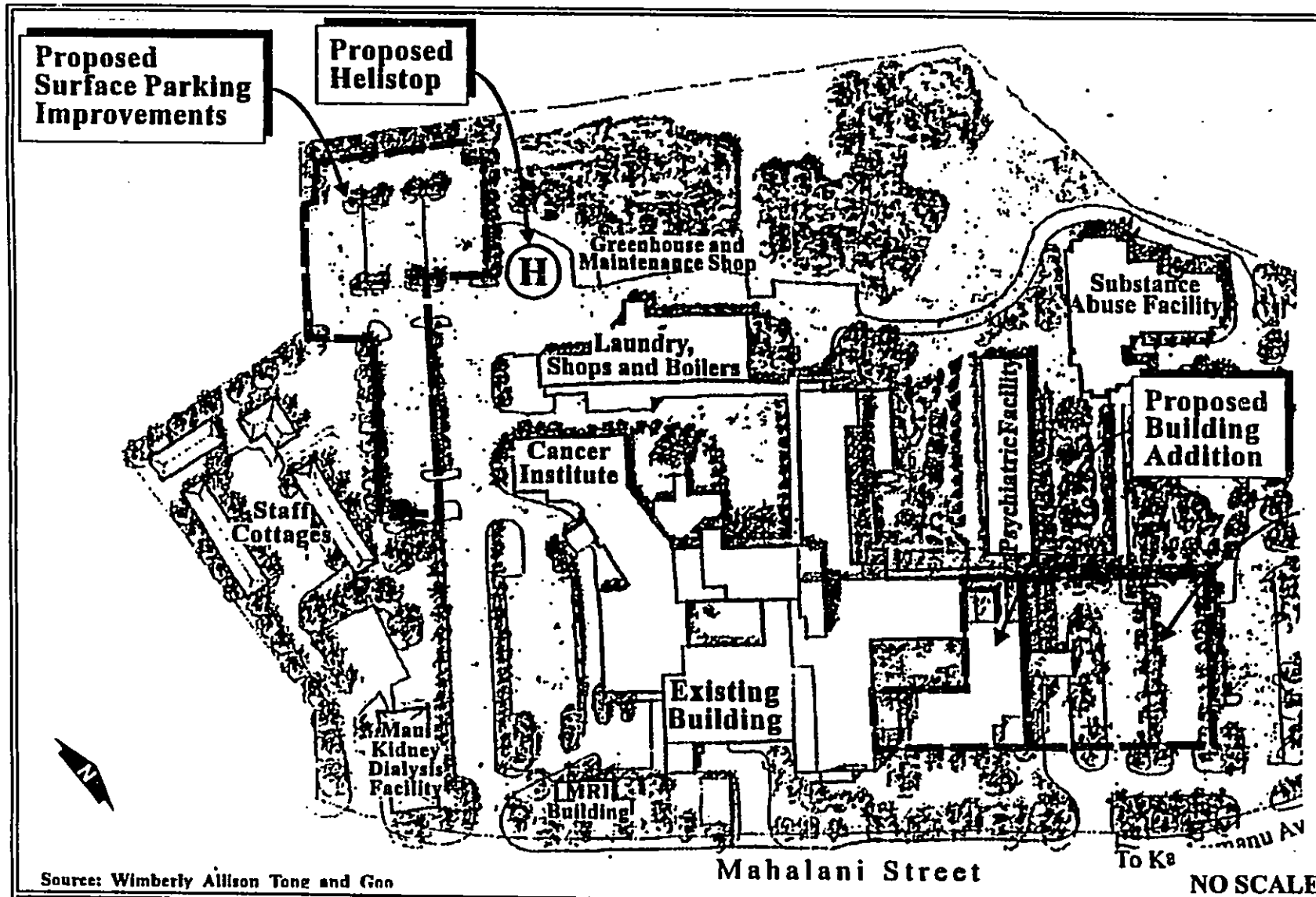

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FIGURE 1 - Project Location and Study Area

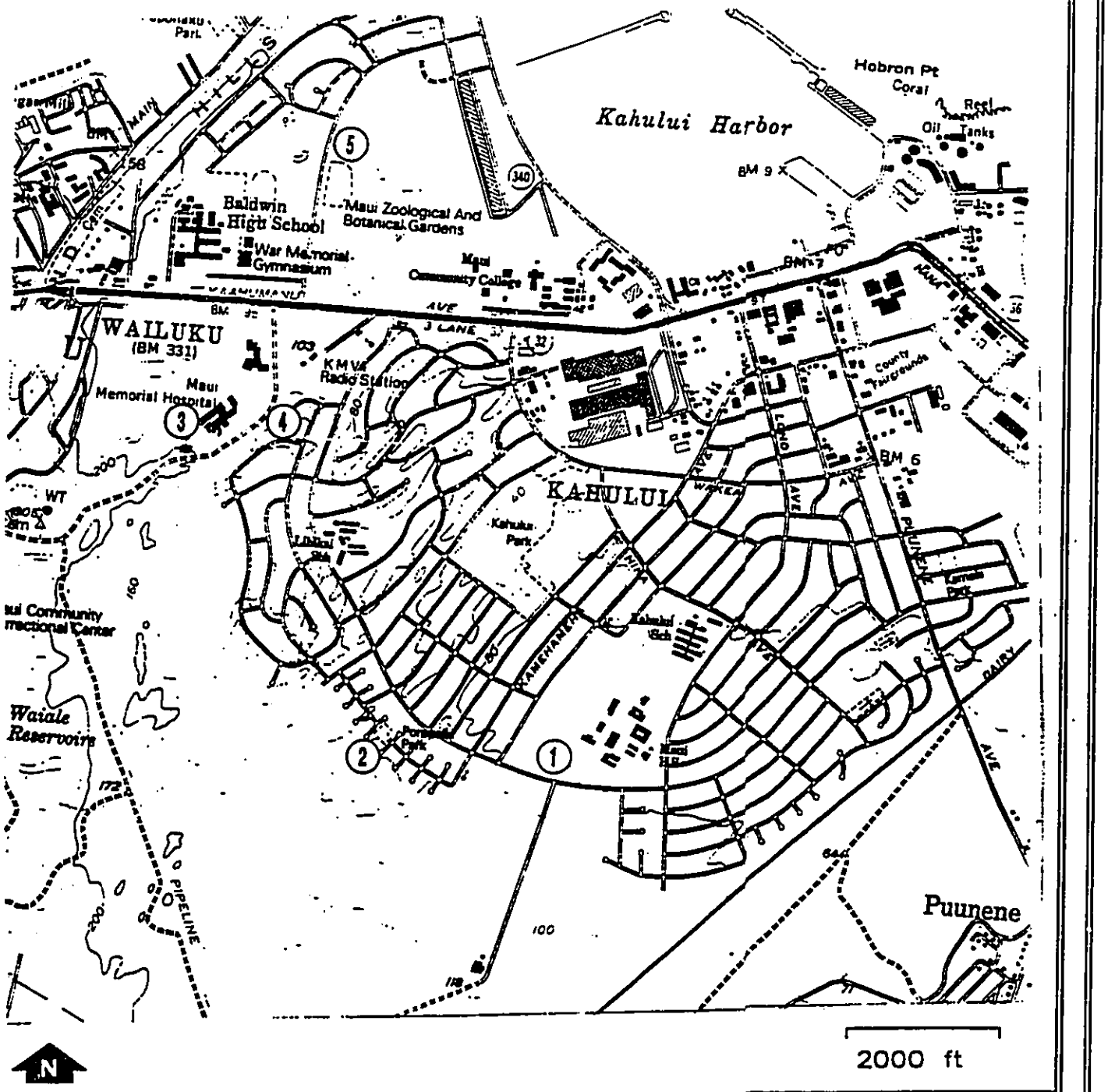

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FIGURE 2 - Locations of Noise Measurements

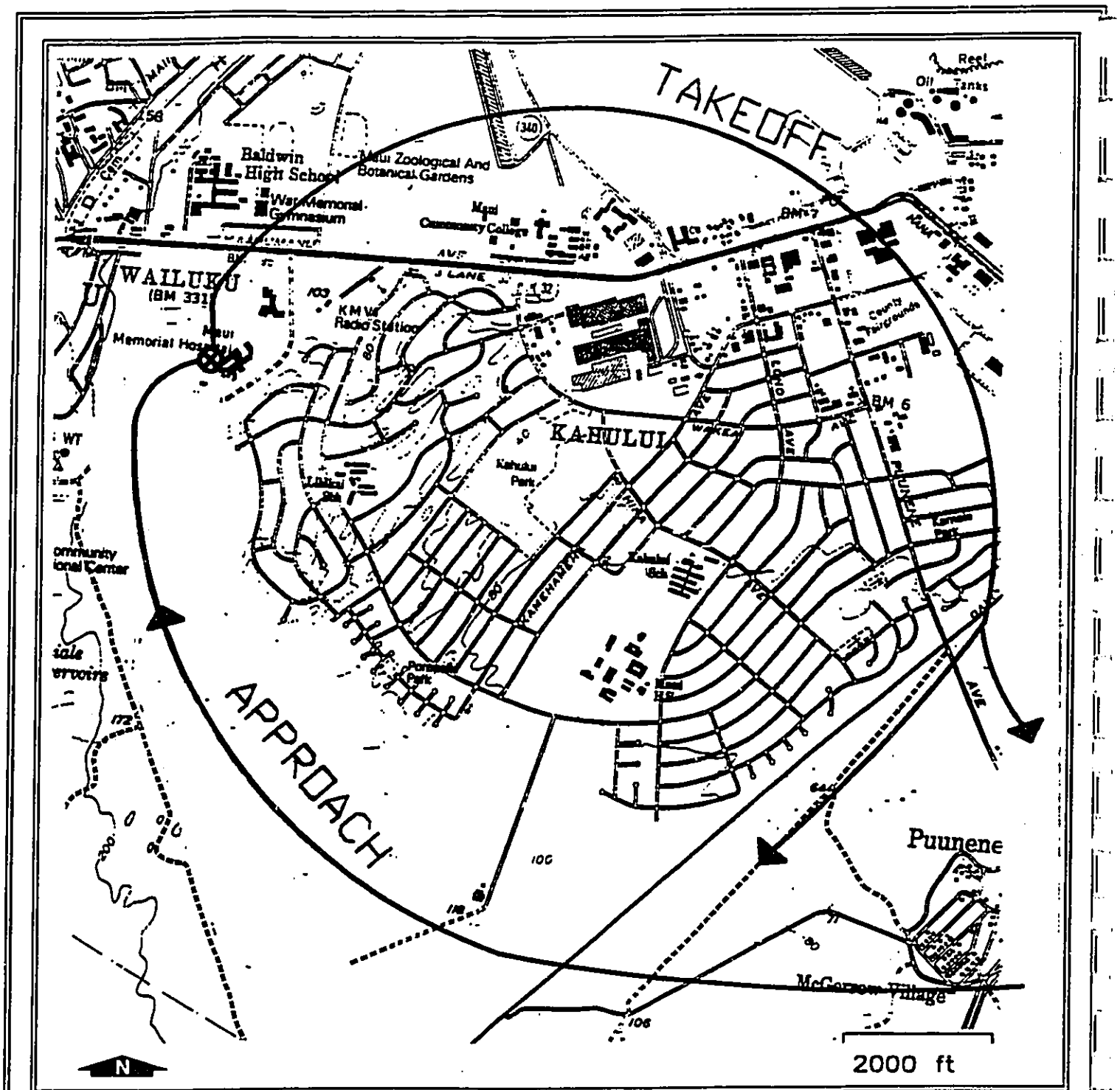

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FIGURE 3 - Approach and Takeoff Flight Tracks

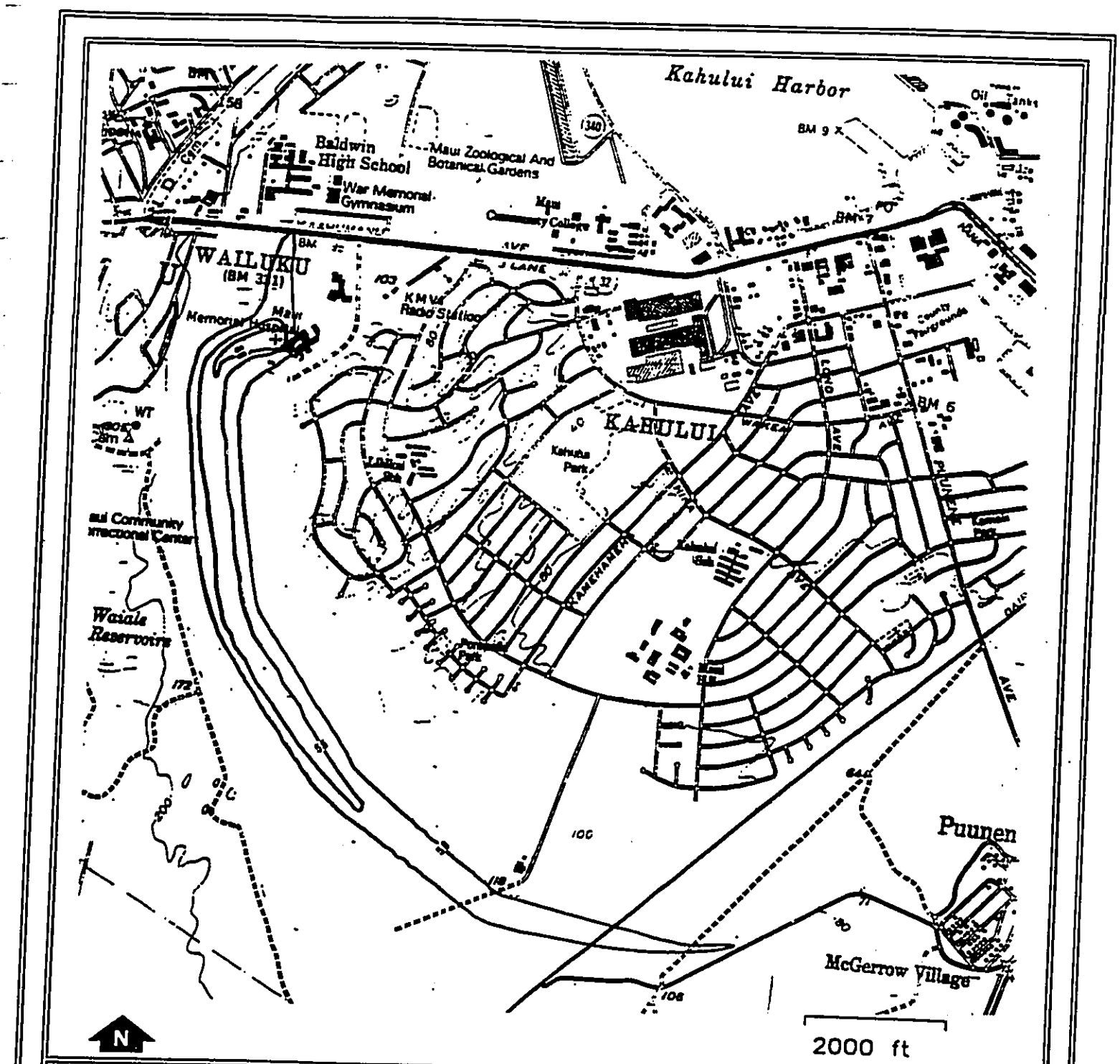

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FIGURE 4 - Noise Contours for an Average of One Daily Flight

Appendix D

Traffic Impact Analysis Report

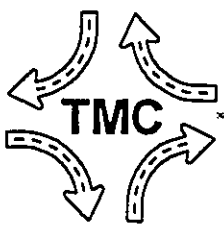
TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED

MAUI MEMORIAL MEDICAL CENTER EXPANSION

PREPARED FOR

MAUI MEMORIAL MEDICAL CENTER

MAY 7, 1999



PREPARED BY

THE TRAFFIC MANAGEMENT CONSULTANT

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TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED
MAUI MEMORIAL MEDICAL CENTER EXPANSION

I. Introduction

A. Purpose of the Study

The purpose of this study is to analyze the traffic impacts resulting from the proposed expansion of the Maui Memorial Medical Center (MMMC) in Wailuku, Maui, Hawaii. The study recommends improvements that would mitigate the traffic impacts, identified in this analysis. This report presents the findings and recommendations of the study.

B. Scope of the Study

The scope of this study includes:

1. Description of the proposed project.
2. Evaluation of existing roadway and traffic conditions.
3. Description of planned roadway improvements in the vicinity.
4. Estimation of future traffic resulting from the construction of planned roadway improvements and future development in the area.
5. Assessment of future traffic conditions without the proposed project.
6. Development of trip generation characteristics of the proposed project.
7. The identification and analysis of traffic impacts resulting from the proposed expansion.
8. Recommendation of improvements that would mitigate the traffic impacts, identified in this study.

C. Project Description

Maui Memorial Medical Center is the only major acute care hospital in the County of Maui, which includes the islands of Maui, Lanai, and Molokai. The proposed expansion of MMMC is expected to meet the needs of a growing residential population and an even more rapidly growing non-resident or visitor population.

Maui Memorial Medical Center is located between Wailuku and Kahului, the two major population centers on the island of Maui. MMMC is situated on the northwest side of Mahalani Street, which intersects Kaahumanu Avenue opposite Kanaloa Drive. A map of the project's vicinity is depicted on Figure 1. The existing Medical Center consists of about 259,358 square feet of gross floor area (SFGFA).

The expansion of MMMC is comprised of four primary components: a new six level building addition, where the existing main entry is located; a three level parking garage, constructed over the east parking lots; an expanded surface parking lot located in the west corner of the MMMC campus; and a new helistop also located in the west corner of the campus. The proposed expansion and improvements would occur within the existing MMMC property. The proposed improvements are illustrated on Figure 2. The following improvements are expected to occur by the Year 2002:

- The building addition would increase the gross floor area by 54,540 square feet for a total of 313,898 SFGFA.
- The parking garage would provide a total of about 225 parking stalls and eliminate about 75 existing surface parking stalls for a net increase of 150 parking stalls.
- The surface parking, located at the end of the West Driveway, would provide an additional 70 stalls.
- The helistop represents a new helicopter ambulance service facility.

The total employee count is not expected to increase with the MMMC expansion. The total bed count is expected to increase from the current 194 beds to 201 beds.

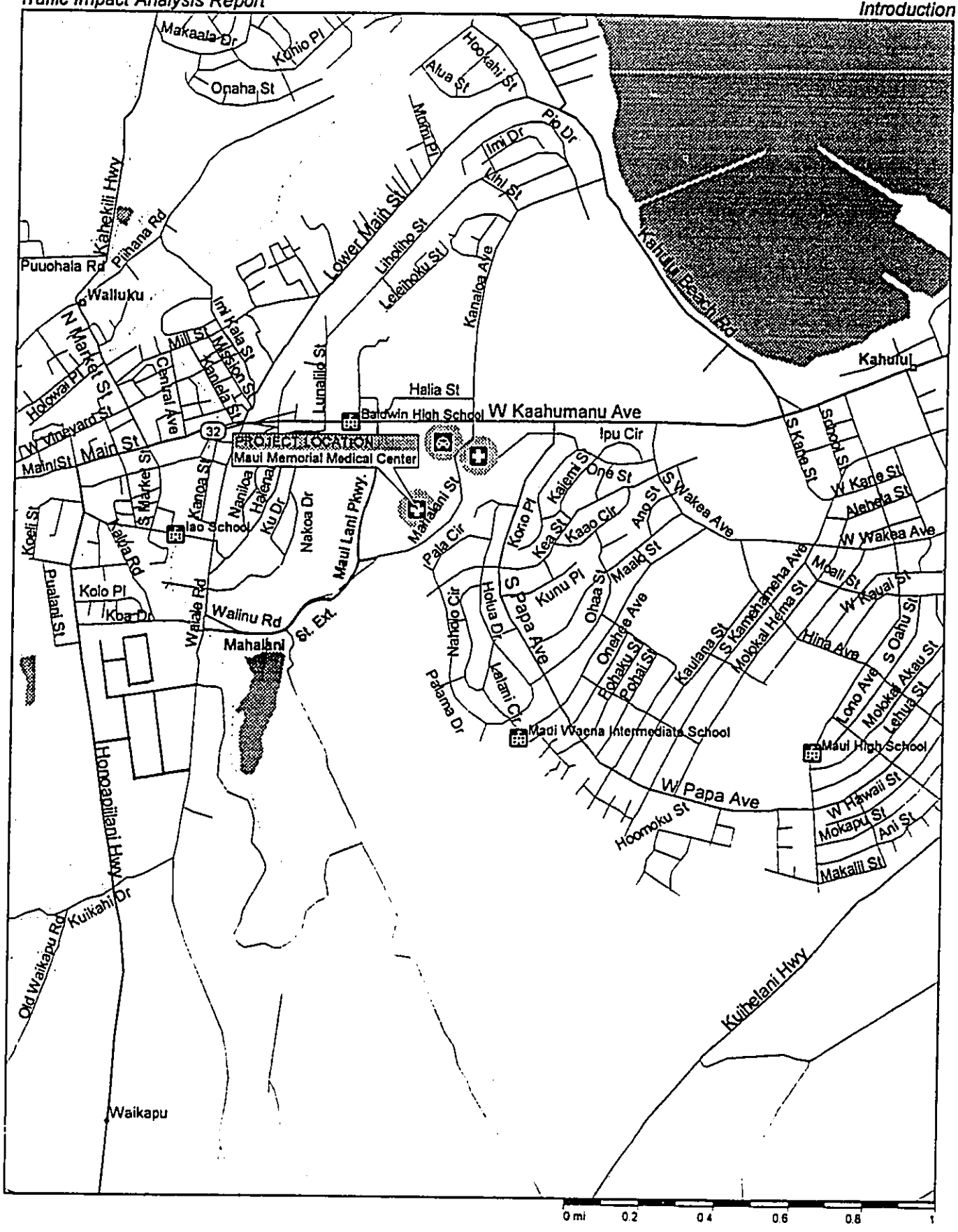
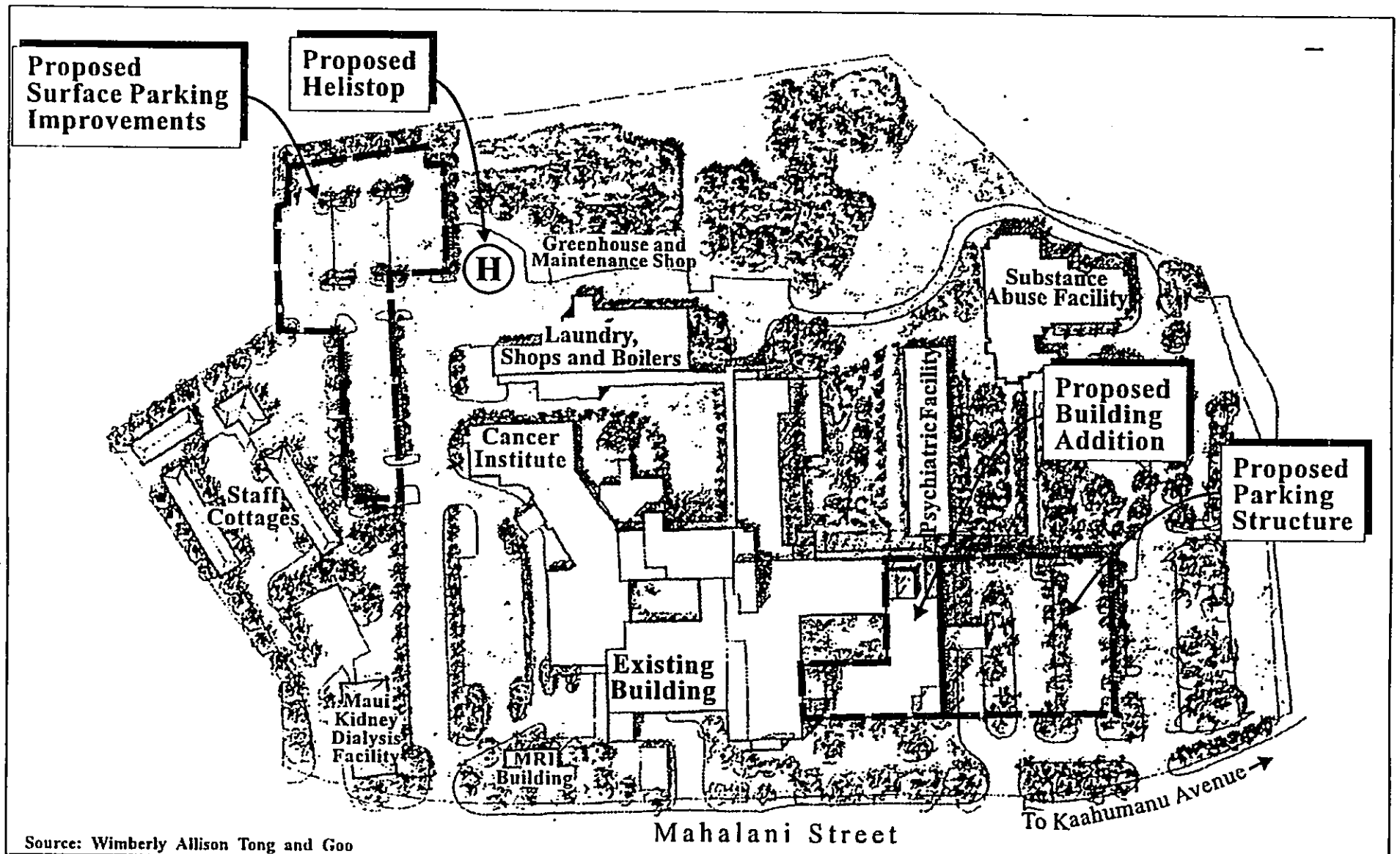


Figure 1. Vicinity Map



Source: Wimberly Allison Tong and Goo

Figure 2

Maui Memorial Medical Center Expansion Improvements
Conceptual Site Development Plan

Prepared for: Hawaii Health Systems Corporation

MUNEKIYO, ARAKAWA & HIRAGA, INC.

NOT TO SCALE

The proposed parking would increase the total on-site parking from 395 stalls to 615 stalls. An 18-stall parking lot is expected to be constructed on the southwest side of Mahalani Street by the County of Maui as part of the Mahalani Street widening project. The total of 633 off-street parking stalls is expected to meet current parking needs.

D. Access

Access to the Maui Memorial Medical Center is provided only from Mahalani Street at Kaahumanu Avenue. At the present time Mahalani Street terminates southwest of MMMC. Motorists, originating outside of Central Maui, must pass through either Kahului or Wailuku to reach MMMC.

Access to the MMMC campus is provided by three (3) primary driveways. A fourth driveway provides only service access. The East Driveway is located at the northeast corner of the campus, closest to Kaahumanu Avenue. The East Driveway leads to the east parking lots. The Main Driveway leads to the Medical Center entry lobby. The Main Driveway and the East Driveway is connected by an internal roadway, parallel to Mahalani Street. The West Driveway provides access to the Emergency Room entry and surface parking lots, located on the west side of the campus.

Under the proposed expansion, the Main Driveway is proposed to be relocated further north on Mahalani Street to align with the new Medical Center lobby entry and the upper floors of the proposed parking garage. The East Driveway would provide access to the lower level of the parking garage, as well as the surface parking lots on the east side of the campus. The West Driveway would continue to provide access to the west side of the campus, including the proposed 70-stall parking lot expansion.

II. Roadway System

A. Mahalani Street

1. Existing Conditions

Mahalani Street is a two lane, two way local roadway, providing access to several institutional and government facilities, including the Maui Police Department, Kaiser Permanente Clinic, Maui News office, Wailuku Health Center, J. Walter Cameron Center, Maui Memorial Medical Center, the Hali O

Mana'O Lana Hou housing facility and the Hui Malama Learning Center. Mahalani Street terminates south of the Hali O Mana'O Lana Hou housing facility and the Hui Malama Learning Center. Mahalani Street is signalized at its intersection with Kaahumanu Avenue, opposite Kanaloa Avenue.

On street parking along both sides of Mahalani Street, fronting MMMC, were heavily utilized during the peak traffic periods. On street parking can accommodate approximately 120 vehicles. Parallel parking is provided on the northwest (Medical Center) side of the roadway and perpendicular parking on the southeast (Kahului) side of the road.

2. Proposed Improvements

At this writing, Mahalani Street is under design by the County of Maui to widen the roadway from two lanes to four lanes between the Kaiser Clinic driveway and the MMMC frontage. Fronting MMMC, Mahalani Street would be widened to provide one through lanes in each direction, a median left turn lane, a parking lane on the southeast side of roadway opposite the Medical Center, and bicycle lane/route on the both sides of the roadway. A concrete sidewalk is planned only on the Medical Center side of Mahalani Street. An off-street parking lot is planned on the Kahului side of Mahalani Street, southeast of the West Driveway. The County improvements are expected to be completed by the end of the Year 2000.

Mahalani Street at Kaahumanu Avenue is being improved by the State Department of Transportation (DOT) to widen the Mahalani Street approach to three lanes, an exclusive left turn lane, a through-only lane, and an exclusive right turn lane. Two southbound lanes also are being planned on Mahalani Street, including an exclusive left turn lane to the Kaiser Permanente Clinic driveway. The proposed improvement is in the design phase at this writing and is expected to be constructed by the end of the Year 2000.

The County of Maui, in cooperation with the developer of Maui Lani, is planning to improve Mahalani Street to Maui Lani Parkway to two (2) traffic lanes, a bicycle lane on both sides of the roadway, and a concrete sidewalk on the MMMC side of the roadway. Under construction at this writing, a two-lane Mahalani Street Extension would continue from Maui Lani Parkway to Waiale Drive.

B. Kaahumanu Avenue

1. Existing Conditions

Kaahumanu Avenue is a four-lane, divided arterial highway between Kahului and Wailuku. Kaahumanu Avenue provides two through lanes, an exclusive left turn lane, and an exclusive right turn lane in both directions at its intersection with Mahalani Street/Kanaloa Avenue.

2. Proposed Improvements

In addition to widening the Mahalani Street approach at Kaahumanu Avenue, State DOT is planning to provide double left turn lanes on westbound Kaahumanu Avenue to Mahalani Street.

C. Maui Lani Parkway

1. Existing Conditions

Maui Lani Parkway is a four-lane divided collector roadway between Kaahumanu Avenue and Mahalani Street. At this writing the roadway has been constructed, but is not yet opened to the public.

2. Proposed Improvements

Maui Lani Parkway is planned as a four-lane divided collector roadway between Kaahumanu Avenue and Kuihelani Highway. The section between Kaahumanu Highway and Mahalani Street has been constructed, but is not yet opened to the public. Within the time frame of this study, Maui Lani Parkway is expected to be extended to the Mahalani Street Extension.

D. Waiale Drive

1. Existing Conditions

Waiale Drive is a two-way, two-lane collector roadway in Wailuku. Waiale Drive has recently been extended to the newly constructed Kuikahi Drive Extension, which intersects Honoapiilani Highway, south of Wailuku. Kuikahi Drive Extension has not been opened at this writing. Access between Honoapiilani Highway and Waiale Drive is provided via Kealani Makai Parkway, Kamole Street, and Olomea Street.

2. Proposed Improvements

Kuikahi Drive is proposed to be signalized at Honoapiilani Highway, and Kuikahi Drive Extension is expected to be open to the public.

III. Existing Traffic Conditions

A. General

1. Field Investigation

A manual traffic count survey was conducted in the project vicinity on March 9-10, 1999, during the peak periods of traffic between the hours of 6:00 AM to 9:00 AM, and 2:30 PM to 5:30 PM. Additional traffic count data were obtained from the State of Hawaii Department of Transportation and previous studies conducted in the vicinity.

2. Capacity Analysis Methodology

The highway capacity analysis performed for this study is based upon procedures presented in the "Highway Capacity Manual" (HCM), Special Report 209, Transportation Research Board, and the "Highway Capacity Software", Federal Highways Administration. The highway capacity analysis worksheets are compiled under a separate cover.

Level of Service (LOS) is defined as "a qualitative measure describing operational conditions within a traffic stream". Several factors are included in determining LOS such as: speed, delay, vehicle density, freedom to maneuver, traffic interruptions, driver comfort, and safety. LOS "A", "B", and "C" are

considered satisfactory levels of service. LOS "D" is generally considered a "desirable minimum" operating level of service. LOS "E" is an undesirable condition and LOS "F" is an unacceptable condition.

"Volume-to-capacity" (v/c) ratio is another measure indicating the relative traffic demand to the facility's traffic carrying ability. A v/c ratio of 0.50 indicates that the traffic demand is utilizing 50% of the roadway's capacity.

B. Existing AM Peak Hour Traffic Analysis

The AM peak hour of traffic occurred between 7:00 AM and 8:00 AM, which coincided with the MMMC employee shift change from night to day shifts (7:00 AM to 7:30 AM) and the start of workday for the office staff (7:45 AM to 8:00 AM). The overall intersection of Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue operated at an overall LOS "D" and a v/c ratio of 0.74. The critical traffic movements at the intersection operated at LOS "E" during the existing AM peak hour of traffic, including the westbound left turn movement and the eastbound through movement on Kaahumanu Avenue and all lanes on Kanaloa Avenue. The shared left turn/through lane on Mahalani Street also operated at LOS "E" during the existing AM peak hour of traffic. The left turn queue on westbound Kaahumanu Avenue occasionally exceeded the storage capacity of the left turn lane and queued into the through lane of traffic.

The existing access driveways to MMMC operated at LOS "B" or better during the AM peak hour of traffic. The East and West Driveways carried the heaviest demands turning off Mahalani Street. The existing AM peak hour traffic and results of the capacity analysis are depicted on Figure 3.

C. Existing PM Peak Hour Traffic Analysis

The PM peak hour of traffic occurred from 3:45 PM to 4:45 PM. The intersection of Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue again operated at an overall LOS "D" and a v/c ratio of 0.83. The critical traffic movements continued to operate at LOS "E" during the PM peak hour of traffic.

The East and West Driveways were the most heavily utilized during the PM peak hour of traffic. Figure 4 depicts the existing PM peak hour traffic and results of the capacity analysis.

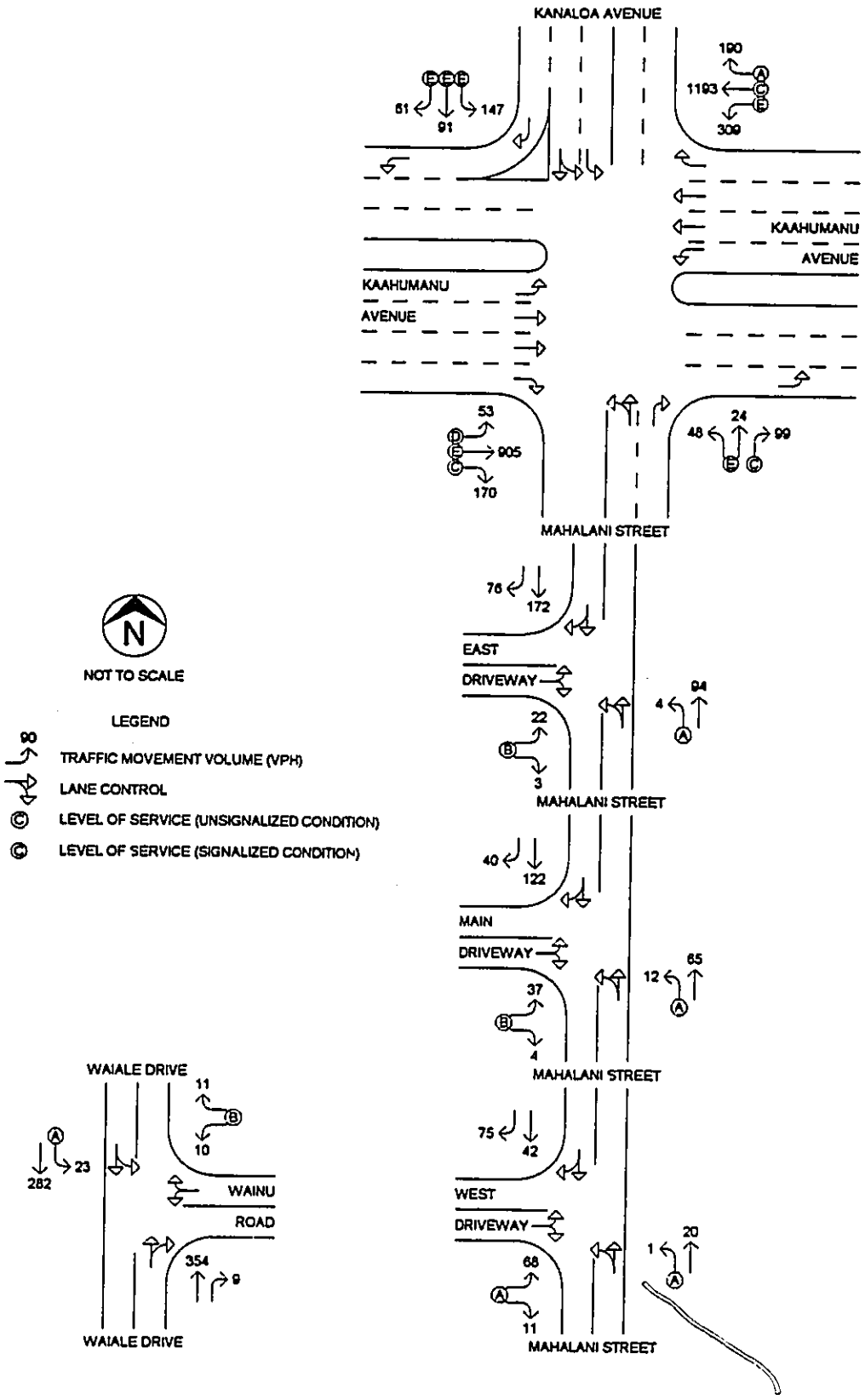


Figure 3. Existing AM Peak Hour Traffic

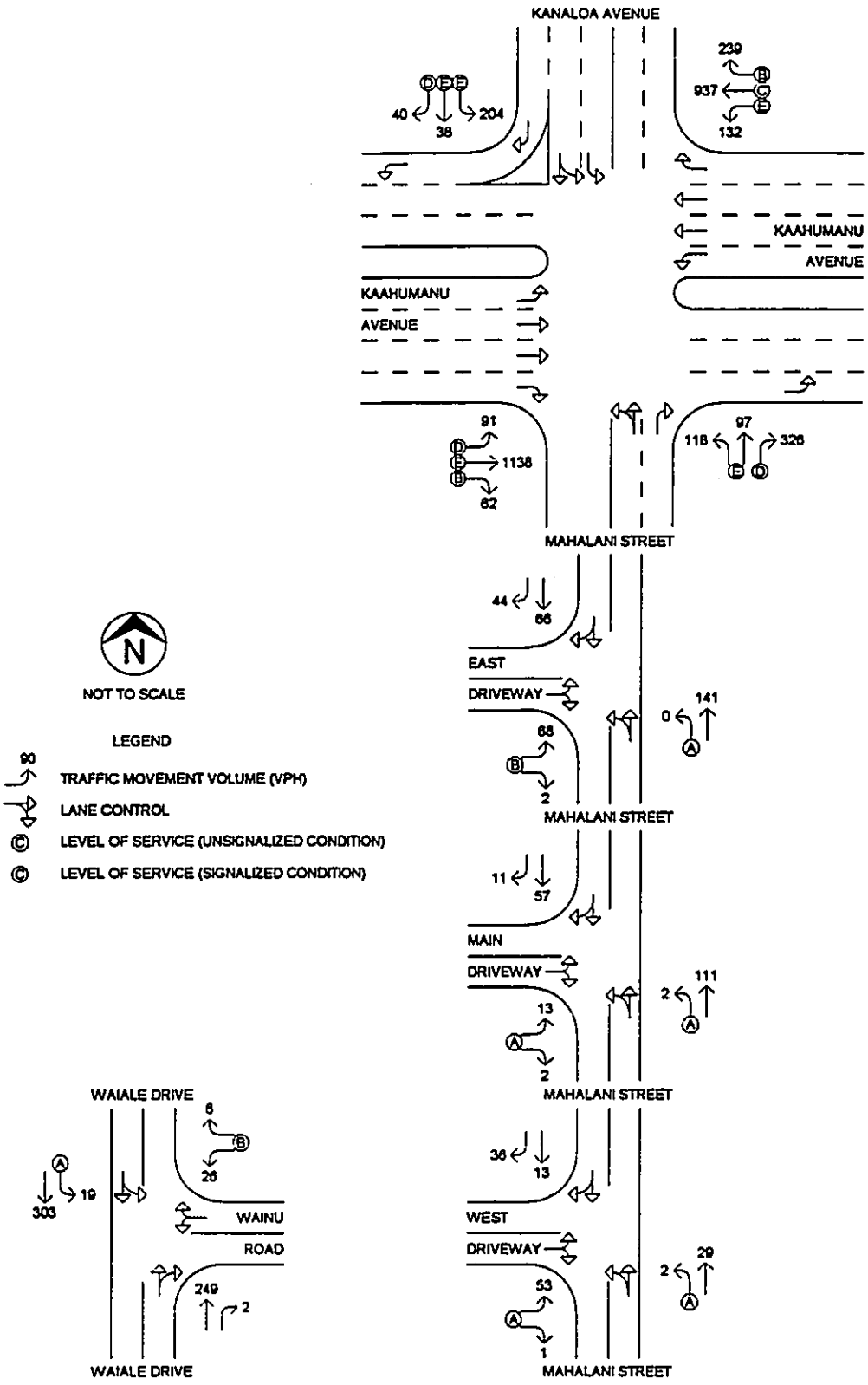


Figure 4. Existing PM Peak Hour Traffic

IV. Projected Traffic

A. Trip Generation

1. Trip Generation Methodology

The trip generation methodology, used in this study, is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in the "Trip Generation", 6th Edition. ITE trip rates are developed by correlating the total vehicle trip generation data with various land use characteristics, such as the vehicle trips per 1,000 square feet of gross floor area (SFGFA).

2. Trip Generation Characteristics

The trip generation characteristics for the proposed project were based upon the expansion of MMMC from the existing 259,358 SFGFA to 313,898 SFGFA for a net increase of 54,540 SFGFA. Table 1 summarizes the trip generation characteristics.

Table 1. Trip Generation Summary

Independent Variable = 1,000 SFGFA		Trip Rate	Vph
AM Peak Hour Traffic	Enter	0.61	33
	Exit	0.22	12
	Total	0.83	45
PM Peak Hour Traffic	Enter	0.20	11
	Exit	0.64	35
	Total	0.84	46

The proposed MMMC expansion is expected to increase the trips generated by a total of 45 vehicle trips per hour (vph) during the AM peak hour of traffic – 33 vph entering traffic and 12 vph exiting traffic. During the PM peak hour of traffic, the proposed expansion is expected to generate an additional 46 vph – 11 vph entering traffic and 35 vph exiting traffic.

B. External Traffic

The background growth in traffic was estimated at 3.00 percent per year through the Year 2002 planning horizon, which corresponds to the projected population growth on Maui, developed for the "Maui Long Range Land Transportation Plan" (MLRLTP) prepared for the State of Hawaii Department of Transportation in cooperation with the County of Maui Departments of Public Works and Planning, dated February 1997. The background growth rate was applied uniformly throughout the study area.

C. *Anticipated Future Development*

1. Maui Lani

Maui Lani is a planned residential community located to the west and south of Maui Memorial Medical Center. The golf course has been completed. By the Year 2002 planning horizon for this study, the following phases of Maui Lani are expected to be developed:

a. Phases 1B and 1C (also known as the "Bluffs") would contain 384 single family dwelling units. Phases 1B and 1C are located along the southwest limits of Kahului, between Kea Street and Kamehameha Avenue. Kamehameha Avenue, Onehee Avenue, and Kea Street would extended as part of the subdivision development.

b. Phase 2 (also known as the "Island") would contain 225 single family dwelling units. Phase 2 is located to south of MMMC. Access would be provided on the extension of Maui Lani Parkway, opposite the Mahalani Street Extension and by the extension of Onehee Avenue. The extensions of Maui Lani Parkway and Onehee Avenue are expected to be included as part of this phase.

c. Phase 3 is planned as a commercial development containing 274,428 SFGFA. Phase 3 is located on Kaahumanu Avenue, opposite Baldwin High School. The activities envisioned include physicians offices, pharmacy, and other health related commercial businesses. Access would be provided on Maui Lani Parkway.

Maui Lani Parkway, between Kaahumanu Avenue and Mahalani Street, has been constructed but not yet opened to the public. Maui Lani Parkway is expected to be extended between Mahalani Street and the Mahalani Street Extension and open to traffic within this study's time frame. The traffic generated by the aforementioned Phases of Maui Lani was added to the background traffic forecast for this study.

2. J. Walter Cameron Center

The "Traffic Impact Analysis Report for the Proposed J. Walter Cameron Center", December 1997, analyzed the traffic impacts resulting from the expansion of the existing J. Walter Cameron Center, located on Mahalani Street to the north of MMMC. The Cameron Center expansion would include a child care center and the Maui Economic Opportunity (MEO) family center. The traffic generated by the expansion of the J. Walter Cameron Center was added to the background traffic forecast for this study.

D. Traffic Assignment

The Mahalani Street Extension is expected to provide an alternate access for the existing and planned uses on Mahalani Street, as well as the future phases of Maui Lani. It also would provide another route between Wailuku and Kahului. The traffic assignment of MMMC, other land use activities on Mahalani Street, and the initial phases of Maui Lani were estimated based upon the future distribution of population on the island, developed by the "Maui Long Range Land Transportation Plan".

The regional impacts of the proposed roadways are beyond the scope of this study. These roadways may provide a more convenient route between Kahului and South and West Maui. However, the effects would be temporary until other roadways – such as the Maui Lani Parkway, Lono Avenue extension, the widening of Mokulele Highway, Airport Access Road, and the Puunene Bypass – complete the roadway network in Central Maui.

V. Traffic Conditions Without Project

A. Traffic Improvements Planned By Others

The following traffic improvements are in various stages of design and construction by the County of Maui, State DOT, and the developer of Maui Lani:

1. The intersection of Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue would be improved to provide:
   a. Double left turn lanes on westbound Kaahumanu Avenue to Mahalani Street.
   b. Exclusive left turn, through, and right turn lanes on northbound Mahalani Street.
   c. Kanaloa Avenue would be restriped to provide an exclusive right turn lane, a through-only lane, and an exclusive left turn lane.
2. Fronting MMMC, Mahalani Street would be widened from two lanes to three lanes to provide two through traffic lanes, a median left turn lane, and bicycle lanes/routes in each direction. A parking lane would be provided on the southwest side of the roadway,
3. Mahalani Street would be improved to Maui Lani Parkway and open to traffic.
4. Maui Lani Parkway would be extended to the proposed Mahalani Street Extension and open to traffic.
5. Mahalani Street Extension would be constructed between Maui Lani Parkway and Waiale Drive. Separate left turn and right turn lanes would be provided on Mahalani Street Extension at Waiale Drive.
6. Kuikahi Drive would be opened to traffic between Waiale Drive and Honoapiilani Highway.

B. AM Peak Hour Traffic Analysis Without Project

The DOT-proposed improvements at the intersection of Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue are expected to improve the AM peak hour traffic operations to LOS "C".

The MMMC driveways are expected to operate at LOS "B" or better. Left turn lanes on northbound Mahalani Street at the MMMC driveways are not expected to be warranted without the proposed project, according to the American Association of State Highway and Transportation Officials (AASHTO) guidelines.

The left turn movement from the Mahalani Street Extension to Waiale Drive is expected to operate at LOS "F" during the AM peak hour of traffic without the proposed project. Figure 5 depicts the AM peak hour traffic without the proposed project and the results of the capacity analysis.

C. PM Peak Hour Traffic Analysis Without Project

During the Year 2002 PM peak hour of traffic without the proposed project, the intersection of Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue is expected to operate at LOS "D" and a v/c ratio of 0.96. The critical traffic movements are expected to improve from the existing LOS "E" conditions to LOS "D".

The MMMC driveways are expected to operate at LOS "B" or better. The left turn traffic demands at the MMMC driveways are not expected to meet AASHTO volume warrant for exclusive left turn lanes.

The left turn movement from the Mahalani Street Extension to Waiale Drive is expected to continue to operate at LOS "F" during the PM peak hour of traffic without the proposed project. The PM peak hour traffic without the proposed project and the results of the capacity analysis are depicted on Figure 6.

D. Traffic Improvements Without Project

The following traffic improvements are necessary to mitigate roadway deficiencies expected without the proposed project at the intersection of Waiale Drive and the Mahalani Street Extension:

1. The exclusive right turn lane should be provided on northbound Waiale Drive at the Mahalani Street Extension.
2. The exclusive left turn lane should be provided on southbound Waiale Drive at the Mahalani Street Extension.
3. The median shelter should be provided on southbound Waiale Drive to facilitate the left turn movement from the Mahalani Street Extension.

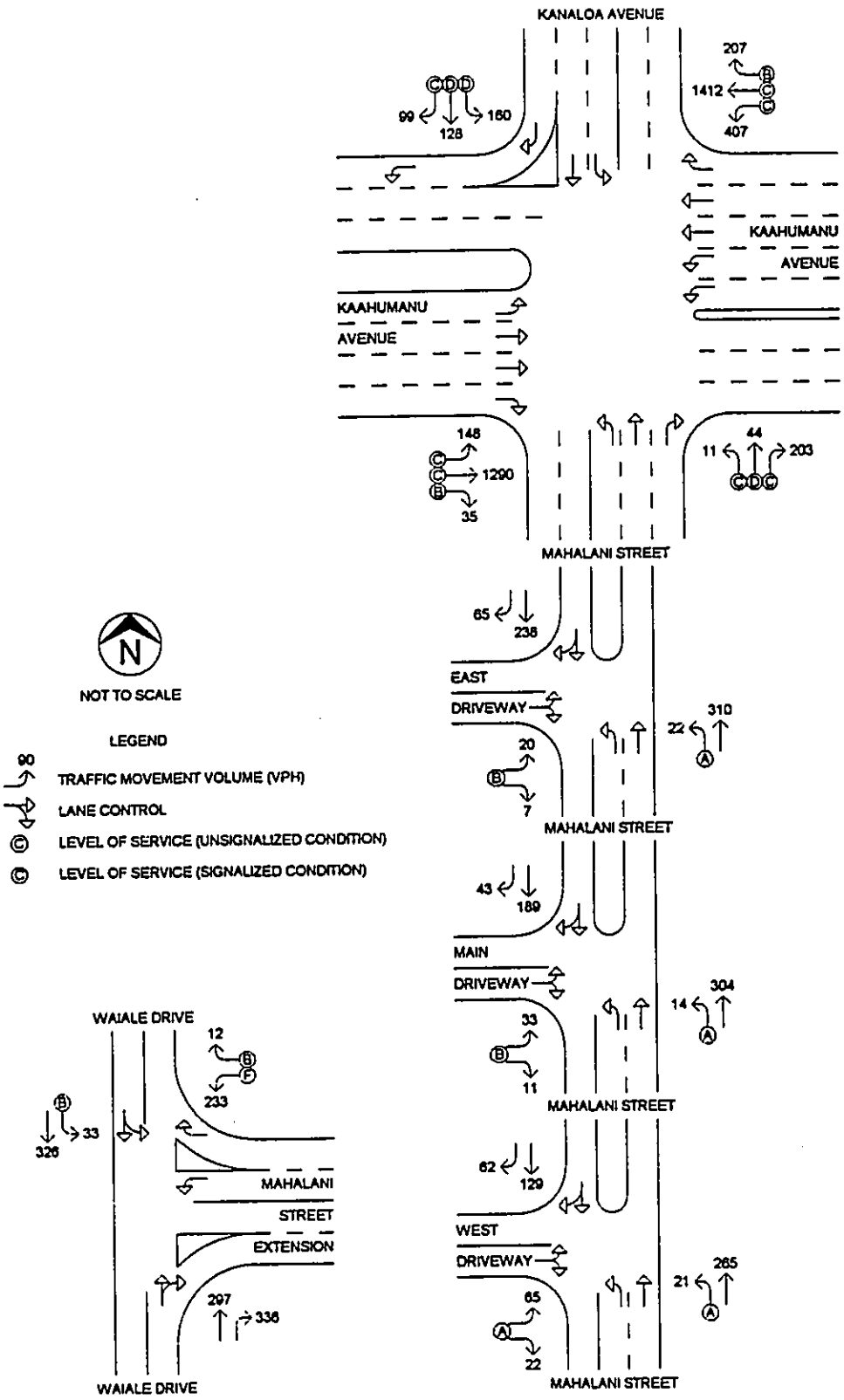


Figure 5. AM Peak Hour Traffic Without Project

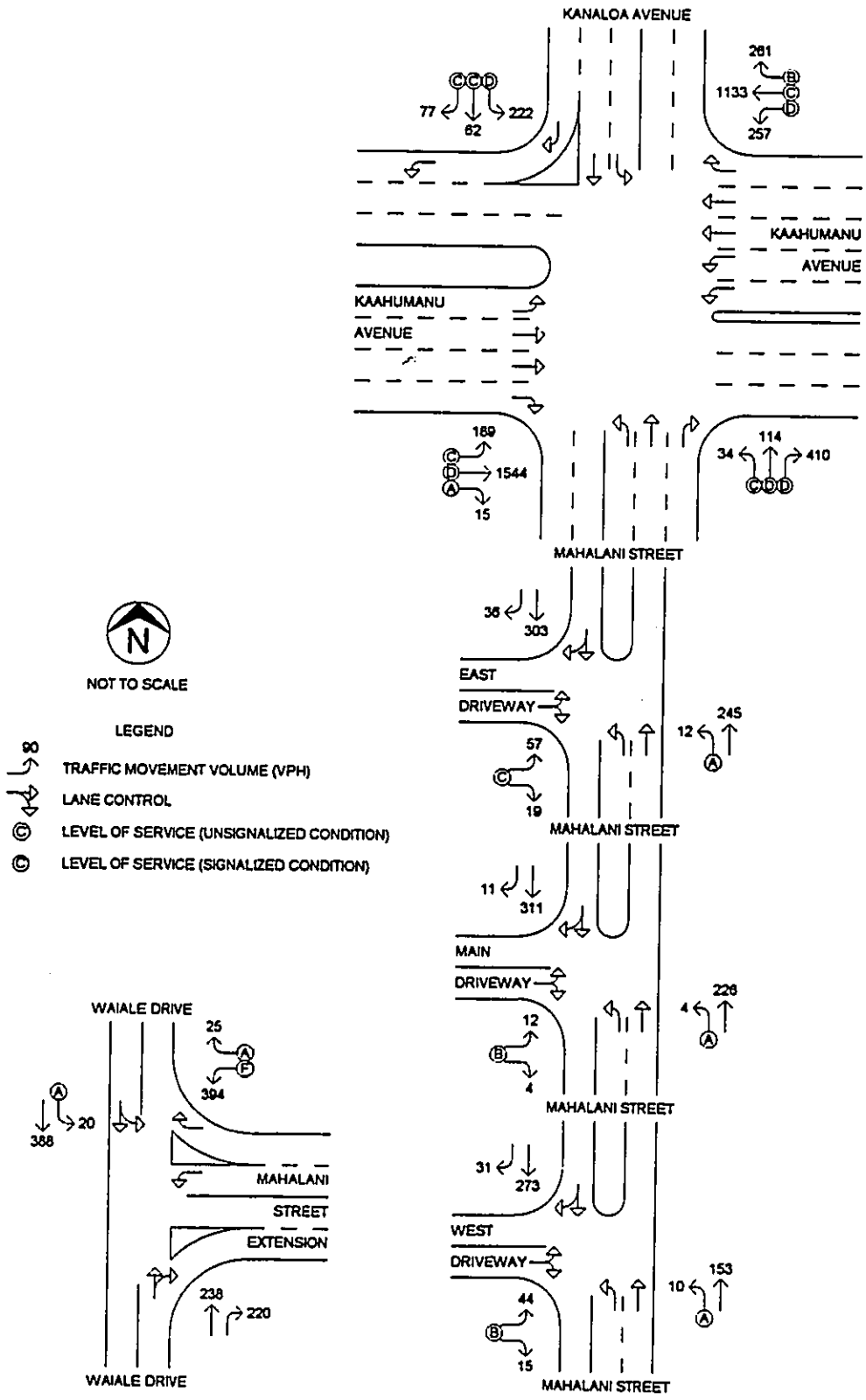


Figure 6. PM Peak Hour Traffic Without Project

VI. Traffic Impact Analysis

A. AM Peak Hour Traffic With Project

The intersection of Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue is not expected to significantly impacted by the proposed MMMC expansion during the AM peak hour of traffic. The intersection is expected to continue to operate at LOS "C" and a v/c ratio of 0.88. The MMMC access driveways are expected to operate at LOS "B" or better.

With the implementation of the proposed improvements at the intersection Waiale Drive and Mahalani Street Extension, the turning movements are expected to operate at LOS "C" or better during the AM peak hour of traffic with the proposed project. Figure 7 depicts the projected AM peak hour traffic with the proposed project and results of the capacity analysis.

B. PM Peak Hour Traffic Analysis With Project

During the Year 2002 PM peak hour of traffic with the proposed project, the intersection of Kaahumanu Avenue and Mahalani Street/Kanaloa Avenue is expected to operate at LOS "D" and a v/c ratio of 0.98. The MMMC access driveways are expected to operate at LOS "C" or better.

The left turn movement from Mahalani Street Extension to Waiale Drive is expected to operate at LOS "C" with the implementation of the proposed improvements. The PM peak hour traffic with the proposed project and results of the capacity analysis are depicted on Figure 8.

VII. Recommendations

A. Traffic Improvements Without Project

1. Upgrade the traffic signal system at the intersection of Kaahumanu Avenue and Mahalani Street/Kanaloa Drive to an eight-phase operation.
2. Widen northbound Waiale Drive to provide an exclusive right turn lane at the Mahalani Street Extension.
3. Widen southbound Waiale Drive to provide an exclusive left turn lane at the Mahalani Street Extension.
4. Widen the south leg of Waiale Drive at Mahalani Street Extension to provide a median shelter lane.

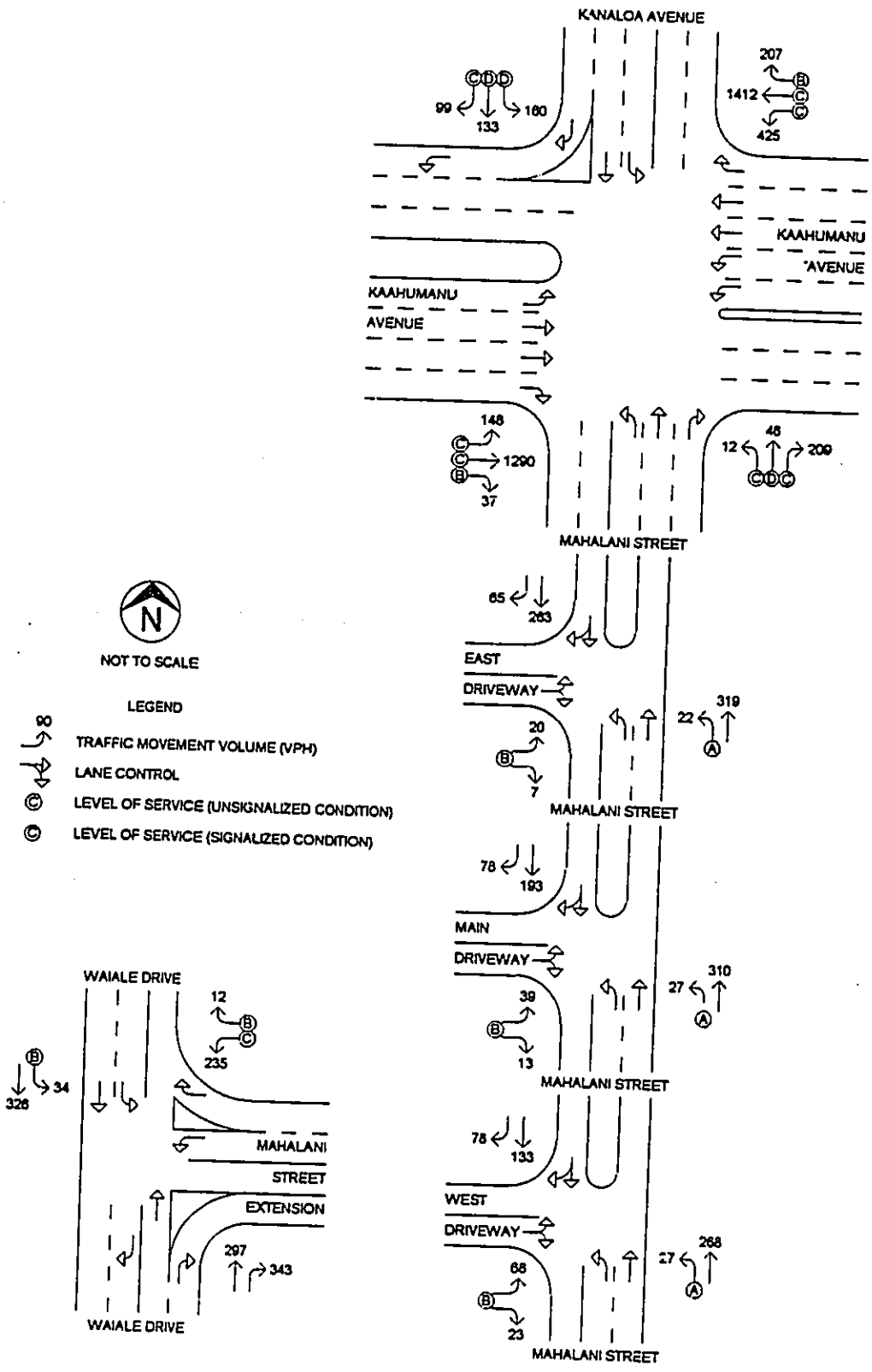


Figure 7. AM Peak Hour Traffic With Project

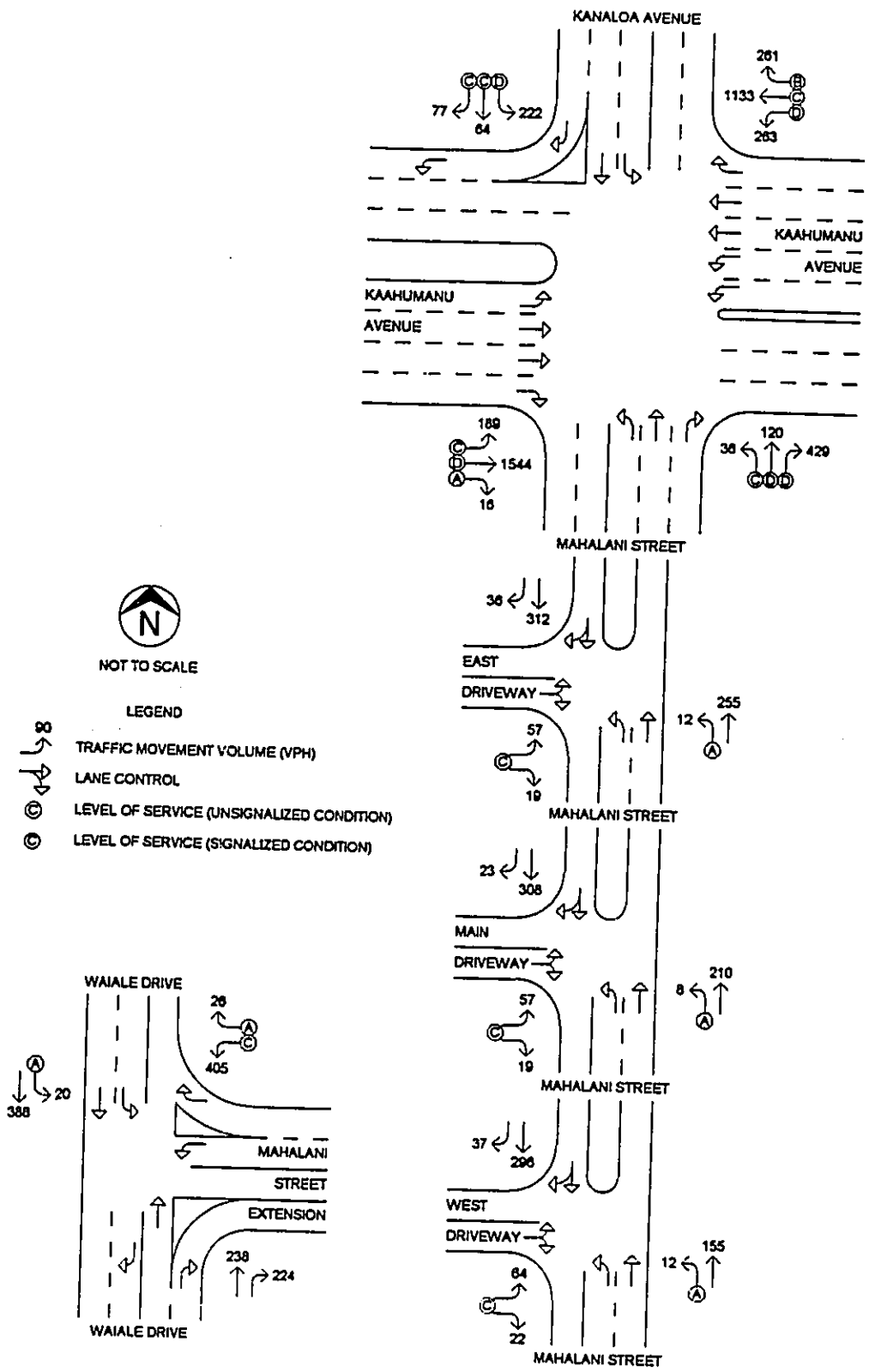


Figure 8. PM Peak Hour Traffic With Project

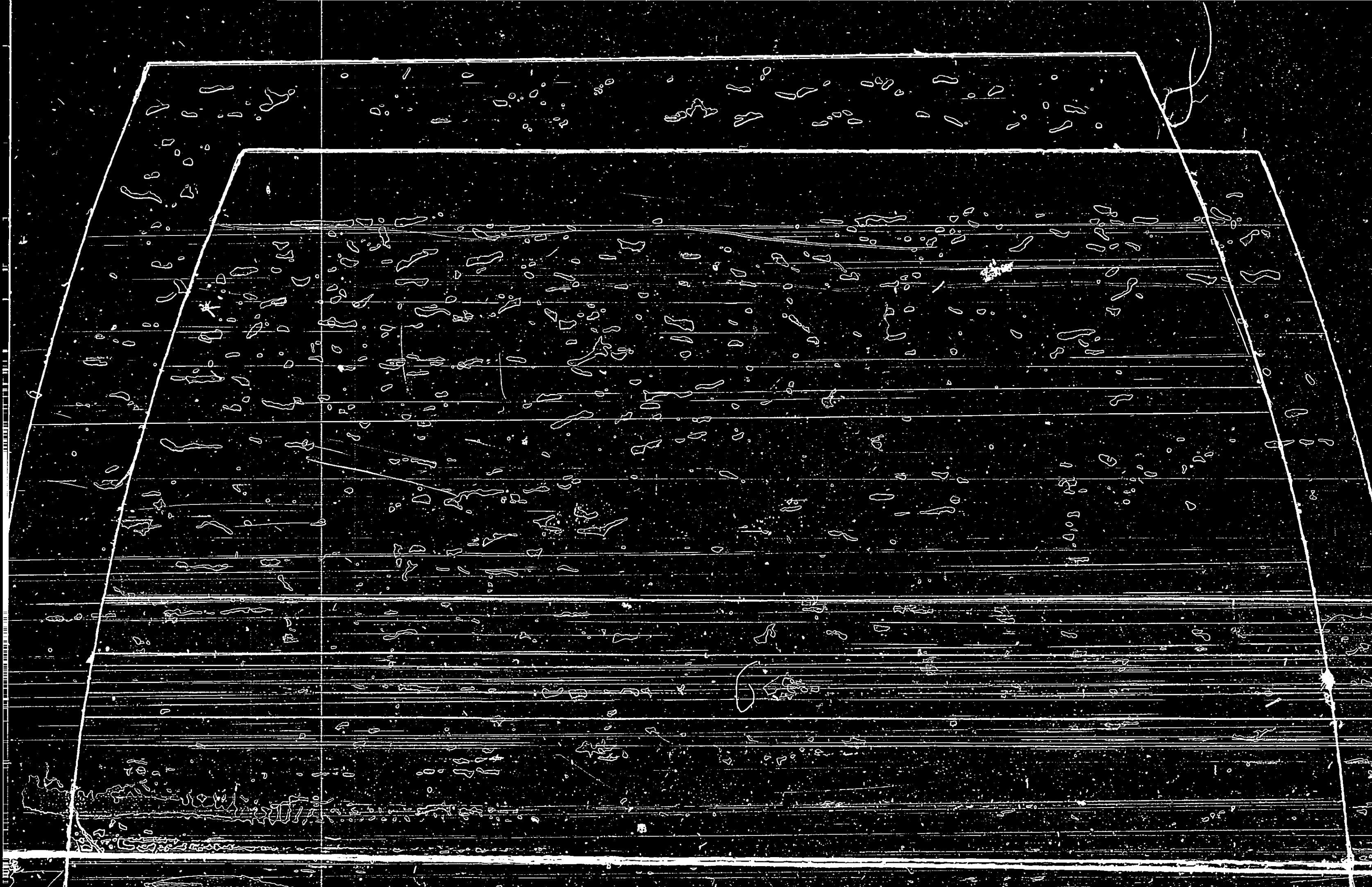
B. Traffic Improvements Proposed With Project

No further traffic improvements necessary to mitigate the traffic impacts of the proposed MMMC expansion.

VIII. Conclusions

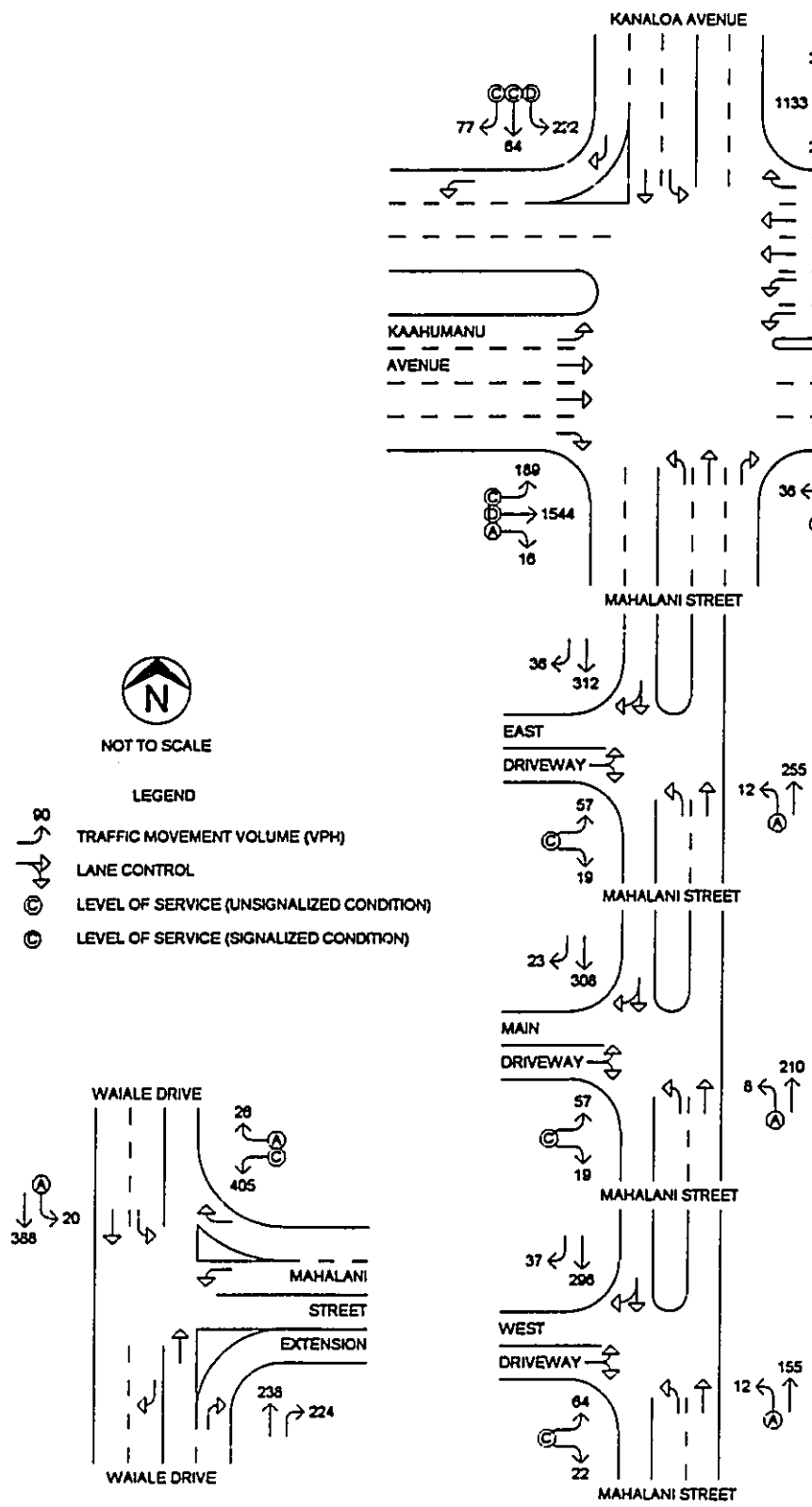
The new roadway improvements, planned by others in the vicinity, are expected to affect the traffic circulation patterns between Wailuku and Kahului. The Mahalani Street Extension and Maui Lani Parkway would improve access to facilities on Mahalani Street. The increase in traffic on Mahalani Street is expected to affect MMMC access driveways. However, the driveways are expected to operate at satisfactory Levels of Service within the time frame of this study.

The proposed expansion of Maui Memorial Medical Center is expected to increase the AM and PM peak hour traffic by 45 vph and 46 vph, respectively. The total number of employees under the proposed expansion is expected to remain unchanged or may decrease as a result of improving the operation's efficiency. The number of hospital beds is expected to increase only marginally relative to the expanded floor area. The proposed Maui Memorial Medical Center expansion is not expected to have a significant impact on traffic operations in the study area.



CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING



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