JAMES "KIMO" APANA
Mayor

JOHN E. MIN
Director

CLAYTON I. YOSHIDA
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

June 8, 1999

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OFC. OF
QUALITY CONT

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

Dear Ms. Salmonson:

RE: Final Environmental Assessment (EA) - Finding of No Significant Impact (FONSI) for Mango Manor Commercial Complex, Proposed Change in Zoning at 270 Lahainaluna Road, Tax Map Key: 4-6-010:025, 026, and 032, Lahaina, Maui, Hawaii (EA 990005)

The Maui Planning Department (Department) has not received any substantive comments during the 30-day public comment period which began on April 23, 1999 and ended on May 24, 1999. The Department has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the June 23, 1999 OEQC Environmental Bulletin.

The Department has enclosed a completed OEQC Publication Form and four copies of the Final EA. Please call Ms. Julie Higa, Staff Planner, of this office at 270-7814 if you have any questions.

Very truly yours,

JOHN E. MIN
Director of Planning

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793
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JEM:JH:cmb
Enclosures
c: Clayton Yoshida, AICP, Deputy Director of Planning
Rory Frampton, Chris Hart and Partners
Kelly Cairns, Deputy Corporation Counsel
Julie Higa, Staff Planner
Project File
General File
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Final
Environmental Assessment

Mango Manor
Commercial Complex

Lahaina, Maui, Hawai'i
TMK: 4-6-10: 25; 26 & 32

CHRIS HART & PARTNERS

June 1999

Final Environmental Assessment

Mango Manor
Commercial Complex

Lahaina, Maui, Hawai'i
TMK: 4-6-10: 25; 26 & 32

CHRIS HART & PARTNERS

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June 1999

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I. INTRODUCTION

A. OVERVIEW OF THE REQUEST

District:	Lahaina, Maui, Hawai`i
Location:	The intersection of Honoapiilani Highway and Lahainaluna Road.
Land Areas:	Parcel 25 10,841 sq. ft. Parcel 26 11,678 sq. ft. Parcel 32 1,388 sq. ft. Total Area 23,907 sq. ft.
Landowners:	Mr. Barry L. Brown Mr. David B. Rosen P. O. Box 11782 Lahaina, Maui, Hawai`i 96761 Phone: 661-1800 Fax: 669-1258
Applicant/Agent:	Chris Hart & Partners Landscape Architecture and Planning 1955 Main Street, Suite 200 Wailuku, Hawai`i 96793 Phone: 242-1955 Fax: 242-1956

Land Use Designations:

State Land Use Commission:	"Urban"
West Maui Community Plan:	"Business/Commercial"
County Zoning:	"R-2 Residential"
Other:	None

Summary of Proposed Request

This application has been prepared in compliance with the Environmental Impact Statement Rules, Chapter 200, Department of Health, Hawaii Administrative Rules (HAR). Pursuant to Chapter 343, HRS, a request for a new project within any historic site or district designated in the National or Hawaii Register of Historic Sites requires the preparation of an Environmental Assessment.

The proposed request involves a Change in Zoning from "R-2 Residential" District to "B-2 Business." The request for Change in Zoning has been processed through the Maui Planning Department and a Public Hearing was held by the Maui Planning Commission on October 13, 1998. The Change in Zoning request is currently pending before the Maui County Council.

II. CONSULTING AGENCIES AND INDIVIDUALS

As noted above, the application was processed by the Maui Planning Department and a Public Hearing was held before the Maui Planning Commission. As evidence of pre-consultation, we are including in this report as Appendix C, the Maui Planning Department's report to the Maui Planning Commission, which includes copies of agency comments, as well as letters from surrounding property owners.

III. DESCRIPTION OF THE PROPERTY

A. Property Location

The subject property consists of three (3) parcels and is located at 270 Lahainaluna Road on the southeast corner of Honoapiilani Highway and Lahainaluna Road intersection (TMK 4-6-10: 25; 26; & 32). *See Figures 1 and 2.* The property is accessed via Alika Place and has a total area of approximately 23,907 square feet (sq. ft.). An application to consolidate the three (3) lots into

one parcel has been filed with the Department of Public Works and Waste Management and is currently being processed.

B. Existing Land Uses on the Subject Property

The property is in residential use and has been for over 60 years. Existing structures consist of three residential dwellings and associated ancillary structures. *See Figure No. 3.* Two of the residential structures were built in 1938-39 and both are 1,448 sq. ft. in size. The third residential structure was built in 1966 and is 500 sq. ft. in size. The structures and property had been in a state of disrepair under previous ownership. Since the property's recent purchase in 1997, the current owners have improved the condition of the structures and site considerably.

C. Existing Land Use Designations

- State Land Use Commission: "Urban"
- West Maui Community Plan: "Business/Commercial" (*See Figure No. 6*)
- County Zoning: "R-2 Residential" (*See Figure No. 7*)

In addition, the subject property is located within Lahaina Town which is registered in the National and State Registers of Historic Places.

IV. DESCRIPTION OF THE PROPOSED ACTION

Approval of the requested Change In Zoning from "R-2 Residential" to "B-2 Business" would establish consistency with the property's West Maui Community Plan's "Business/Commercial" designation.

After completion of the Change in Zoning process, the owners anticipate the construction of the Mango Manor Commercial Complex consisting of two, two-story structures, parking, landscaping and other related improvements. The two structures would contain approximately 12,250 sq. ft. and 1,470 sq. ft. of floor area. The structures would be leased out to businesses for retail and/or office space. *(See Figures No. 4a - 4b)*

The proposed project's conceptual design is compatible with the historic Victorian style architecture which has been associated with Lahaina Town. The project's scale and architectural features are consistent with the direction established in the County of Maui's Architectural Style Book for Lahaina.

V. ALTERNATIVES

A. No Action

The two existing older buildings would remain in residential use. These buildings will continue indefinitely under their current use and appearance. However, the no action alternative will prevent full development of the potential of this commercial property.

B. Alternative Siting

A smaller building with angled-in parking along the front, results in an automobile-oriented "strip mall" configuration considered inappropriate for this location. The proposed siting of the building at the front of the property would keep the on-street character, with parking in the back and off site.

C. ALTERNATIVE STYLES, SIZE, AND CONFIGURATION

The architect paid special attention to detail and materials to capture and replicate the old Lahaina style. The second story balcony and fenestration are designed to minimize blank or inhospitable walls. The design conforms to the Victorian (including "Monterey" or "western" types) style of the late 1800s as described in the *Lahaina Environmental Design Manual,* in the section on Historic Architectural Styles—Lahaina Area.

VI. ENVIRONMENT SETTING, IMPACTS AND MITIGATION MEASURES

A. PHYSICAL ENVIRONMENT

1. Surrounding Land Uses

Existing Conditions:

The project site is located on the west side of Maui in historic Lahaina Town. Lahaina Town contains regional commercial services, major civic facilities and spaces, and residential neighborhoods. The town's significant features - it's historic character, compact small-town scale, and it's vitality - are embodied in the Front Street environs.

Uses in the immediate vicinity consist of a mixture of business, industrial and residential. Specific uses surrounding the project site include the following (*See Figures No. 2 & 6*):

- North: Across Lahainaluna Road is the Texaco Gas Station and Pioneer Mill. County Zoning: "M-2 Industrial" District. West Maui Community Plan: Business and Heavy Industrial.

- South: Bordering the property's southern boundary is the Hawai`i Housing Authority's multi-family housing project, and Texaco Gas Bar and Mini-mart. County Zoning: " R-2 Residential " District and "B-2 Commercial" District. West Maui Community Plan: Multi-Family and Business.

- East: Abutting the eastern boundary of the subject property is the West Maui Youth Center and across Mill Street is the Pioneer Mill power plant. County Zoning: "R-2 Residential" District and "M-2 Industrial" District. West Maui Community Plan: Business and Heavy Industrial.

- West: (Across Honoapiilani Highway) Various businesses uses (Lahaina Square Shopping Center, Union 76 Gas Station, Lahaina Towne Antiques) as well as single family and multi-family properties. County Zoning: "B-2 Community Business" District, "R-2 Residential" District, "A-1 Apartment" District, and Historic District No. 1. West Maui Community Plan: Multi-Family and Business.

Potential Impacts and Mitigating Measures:

The subject property is situated at the southeast corner of Honoapiilani Highway and Lahainaluna Road. Currently, the other three corners at this intersection are in commercial use. The existing commercial presence as well as the high visibility of the site makes it ideally situated for business use.

The conversion of the subject property into business use is not expected to disrupt existing land uses in the immediate vicinity due the long established mixed-use character of the area. Surrounding property owners have indicated their support for the proposed change in zoning. Their letters are included in Appendix D.

In the short term, during the construction phase, there is a potential for disruption to neighboring properties. To minimize construction related

impacts to surrounding properties, the applicant is proposing to implement the following mitigation measures: limiting construction activities to normal daylight working hours, notifying abutting property owners of the construction schedule, and proper adherence to the State Department of Health's noise regulations for construction equipment.

2. Climate

Existing Conditions:

The climate in the Lahaina region is influenced by the persistent north-northeasterly trade winds. Lahaina Town is located in the dry leeward portion of West Maui. Average annual temperature in Lahaina is about 75°F. Average monthly temperatures vary by about nine degrees between the coolest and warmest months. Rainfall at the project site averages approximately 15 inches per year.

3. Topography and Soils

Existing Conditions:

The project site gently slopes to the southwest. Site topography has been modified to accommodate existing building structures and parking areas. There are no significant topographic constraints within the project site.

The soil type specific to the project site is the Ewa silty clay loam, 0 to 3 percent slopes (EaA). EaA soils consist of well-drained soils in basins and on alluvial fans. These soils developed in alluvium derived from basic igneous rock. Runoff is very slow and the erosion hazard is no more than slight.

Potential Impacts and Mitigating Measures:
This property has been leveled and utilized as an urban, residential site for over sixty years. There are no significant topographic constraints within the project site. Therefore, the proposed request for a Change in Zoning is not anticipated to result in any negative impacts with regards to topography or soils.

4. Flood and Tsunami Hazard

Existing Conditions:

The project site is designated Zone "C" by the Flood Insurance Rate Map for this region. Zone "C" defines an area of minimal flood hazard potential.

Potential Impacts and Mitigating Measures:

The project drainage system will be designed so that there is no net increase in peak stormwater discharge from the property, (See Section V.D.4.) as such the project is not anticipated to result in any significant impact to the adjacent or down-stream properties with regards to Flood Hazard Potential.

5. Flora and Fauna

Existing Conditions:

The project site is substantially improved. Landscape improvements on the property includes an ample amount of mature shade trees as well as various tropical plants and hedges including Mango, Shower, Lemon, plumeria and palm trees, hedges, and various grasses. There are no rare, endangered or threatened species of plants at the site.

Animal life in the project vicinity similarly reflects the urban character of the region. Avifauna typically found in Lahaina Town includes the common myna,

several species of dove, cardinal, house finch, and house sparrow. Mammals common to this area include cats, dogs, rodents, mongoose.

Potential Impacts and Mitigating Measures:

There are no known significant habitats of rare, endangered or threatened species of flora and fauna located on the project site. Proposed landscape improvements will result in the removal of some of the mature Mango trees, but the new landscape planting plan is intended to enhance the subject property's setting. The proposed project will not have a significant impact upon the flora, fauna and animal life found within the subject property.

6. Air Quality

Existing Conditions:

Air quality in the Lahaina region is considered relatively good. Point sources (e.g., Pioneer Sugar Mill) and non-point sources (e.g., automobile) of emissions are not significant to generate high concentration 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 burning of sugar cane in fields located in West Maui. Maui is currently in attainment for all criteria pollutants established by the Clean Air Act, as well as the State of Hawai`i Air Quality Standards. This means that the ambient air in Maui is in compliance with the State and Federal air quality standards (DOH pers. com.).

Potential Impacts and Mitigating Measures:

Air quality impacts attributed to the proposed project could include dust generated by the short-term, construction-related activities. Site work such as

grading and building construction, for example, could generate airborne particulate. Dust control measures such as regular watering, and sprinkling will be implemented to minimize the potential impact from wind-blown emissions.

On a long-term basis, the project would result in a slight increase in vehicles at the site and therefore, could result in a slight increase in vehicle emissions. However, this amount is considered insignificant given the existing traffic levels on Honoapiilani Highway.

7. Noise Characteristics

Existing Conditions:

Traffic noise from Honoapiilani Highway is the predominant source of background noise in the vicinity of the project site. Pioneer Sugar Mill operations located to the north and east of the project site and commercial activities on Lahainaluna Road (across the street) are also sources of noise in this locale.

Potential Impacts and Mitigating Measures:

The proposed uses will consist of retail and office space, which are not considered significant noise generators. Given the existing ambient noise levels from the adjacent highway intersection and the sugar mill, the proposed project is not anticipated to significantly increase noise to the surrounding properties.

8. Visual Resources /Urban Design

Existing Conditions:

The subject property is located within the Lahaina Town area. The site is not a part of a scenic or unique scenic corridor, nor does it provide valuable vantage points to scenic resources.

Lahaina Town's character is established through its small scale, historic buildings and vitality. Most of the historic buildings are located in the vicinity of Front Street, which has been designated as a Historic District. Design guidelines have been established by the County of Maui in order to govern the design of structures that are built within the Historic District boundaries.

Potential Impacts and Mitigating Measures:

Although the subject property is not located within the Historic District, the proposed project design is consistent with the historic architectural character of Lahaina Town in terms of scale, massing and architectural style. Given the dilapidated condition of the existing structures on the property, the proposed project is anticipated to improve the character of the existing intersection from an urban design perspective.

9. Archaeological/Historical Resources

Existing Conditions:

Lahaina Town is registered in the National and State Registers of Historic Places and portions along the Front Street corridor are designated by the County as Maui County Historic Districts No. 1 and No. 2.

Lahaina was a significant place in the Hawaiian Kingdom, serving as its capital during the first half of the nineteenth century. The Palace Complex Site of

Kamehameha III was located makai of the present Malu'ulu o Lele Park. The current site of Kamehameha III School was the site of royal residences, including that of Nahienaena. While most of the surface remains associated with these and other important sites have been destroyed, there exists the possibility of subsurface remains in areas which have been previously undisturbed.

The subject property has been previously cleared and graded for use as the existing residential use. The two main dwellings were built in 1938 and 1939 receptively. As such, the structures are considered "Historic", since they are over 50 years old. Historic Resources Inventories have been completed and forwarded to the State Historic Preservation Division, Department of Lands and Natural Resources, Honolulu, together with color photographs.

After reviewing the inventories, SHPD-Honolulu responded that these structures were not significant historical structures.

Potential Impacts and Mitigating Measures:

There are no known archaeological sites on the subject property. This is likely due to the extensive disturbance of the property over the last 60 years. In discussion with Mr. Boyd Dixon of the DLNR's Historic Preservation Division, he concurred that it was very unlikely that any archaeological sites exist on the subject property.

In the unlikely event that sub-surface historic/cultural remains are encountered during construction, work will be stopped and the State Historic Preservation Office will be contacted to access the significance of the find and recommend appropriate mitigation measures, if necessary.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Population

Existing Conditions:

The population of the County of Maui has exhibited relatively strong growth over the past decade with a 1997 population of 118,864, an 18.4 percent increase over the 1990 population of 100,374 (US Bureau of the Census, 3/17/98). The 1990 population of Maui Island was 91,361 (Community Resources, Inc., March 1994). The 1990 population of Lahaina District was 14,574, a 41.7 percent increase over Lahaina District's 1980 population of 10,284.

Potential Impacts and Mitigating Measures:

The request for Change in Zoning would allow for the subsequent development of an approximately 13,700-sq. ft. commercial complex. This represents a relatively small increase in commercial space when compared to the existing inventory in West Maui. There will be no direct impact to local population levels. The potential for population growth due to increase job opportunities is not considered significant due to the relatively small size of the anticipated project.

2. Economy

Existing Conditions:

The Lahaina economy is based primarily upon the visitor industry. Visitor accommodations are located near the shoreline along with necessary support facilities and residential communities. Kapalua and Kaanapali have developed into important visitor destination anchors while the old Lahaina Town with its historic character and charm has developed into the region's visitor, service, commercial and residential center. Agriculture is also an important part of Lahaina's economy. Sugar cane and pineapple fields are found in the Lahaina

district, and the historic Pioneer Mill on Lahainaluna Road continues to process cane.

On a short-term basis, the project will support construction and construction-related employment.

On a long-term basis, the project will provide employment and business opportunities. Located on the corner of a busy intersection, the project site is considered ideally situated for commercial/business use. The proposed project should have a positive impact upon local employment levels, although the impact is considered insignificant when compared to existing employment levels in West Maui.

C. PUBLIC SERVICES

1. Recreational Facilities

Existing Conditions:

Lahaina has a wide reputation as a recreational destination, particularly for ocean related activities. Ocean sports and recreation available in the Lahaina District include swimming, fishing, surfing, scuba diving, snorkeling, sailing, and para-sailing. State and County beach parks in the Lahaina District include the Honolua-Mokuleia Marine Life Conservation District, the D. T. Fleming Park, Honokowai Beach Park, Wahikuli State Wayside, Malu'ulu o Lele Park, Puamana Beach Park, Launiupoko St. Wayside, Ukumehama Beach Park, and Papalaua State Wayside.

The Lahaina Recreational Center park is located a half-mile south of the subject property. This is the central non-ocean County park on the west side of Maui and includes the Lahaina Aquatic Center on the north side of Shaw Street.

Potential Impacts and Mitigating Measures:
The proposed project is not anticipated to adversely affect the recreational facilities.

2. Police and Fire Protection

Existing Conditions:

The Lahaina District Station of the Maui County Police Department has provided police protection for the Lahaina District since 1974. The station is located behind the Lahaina Civic Center in Wahikuli. Police protection in the Front Street improvement area is supplemented by the Front Street "Koban" (substation) which is the base for Lahaina's three police bicycle patrol officers.

Fire protection in the Lahaina District is provided by the Maui County Fire Department's Lahaina Station. The Lahaina Fire Station, built in 1972, is staffed by 30 firefighters. There are three shifts with ten men on each shift. The station has two fire trucks.

Potential Impacts and Mitigating Measures:

The proposed project is not anticipated to adversely affect public services such as police or fire protection services in terms of service area.

3. Solid Waste

Existing Conditions:

Only two municipal landfills are currently operating on Maui, the Central Maui Landfill in Puunene, and the Hana landfill. Single-family residential solid waste collection is provided by the County and taken to the Central Maui Landfill, which also accepts waste from private refuse collection companies. A convenience station is located in Oluwalu to service West Maui residents. Solid

wastes are transported from this convenience station to the Central Maui Landfill.

Potential Impacts and Mitigating Measures:

Solid waste collection for the proposed Mango Manor Commercial Complex will be provided by private companies. The existing structures will be demolished and debris will be properly disposed.

4. *Schools*

Existing Conditions:

The Lahaina District is serviced by both private and public schools which provide education for preschool through high school age children. Public schools in the Lahaina District include the King Kamehameha III Elementary School for children from kindergarten through fifth grade, the Lahaina Intermediate School for grades six through eight, and Lahainaluna High School for grades nine through twelve. Private schools in the Lahaina District include Sacred Hearts School for grades kindergarten through twelve and several preschools.

Potential Impacts and Mitigating Measures:

The proposed commercial project is not anticipated to adversely affect educational facilities.

D. INFRASTRUCTURE

1. Roadways

Existing Conditions:

As in the rest of Maui, the automobile is the primary source of transportation in Lahaina. An extensive roadway system exists in the Lahaina area. Right-of-way widths vary with each roadway. Some roads are paved with curbing and sidewalks while others are comprised of asphaltic concrete pavement with limited curbing.

A Traffic Impact Analysis was completed by Parson Brinckerhoff Quade & Douglas, Inc. in July 1998. The study area was defined by Honoapiilani Highway to the west, Lahainaluna Road to the north, Mill Street to the east, and Dickenson Street to the south. Four intersections were studied Honoapiilani Highway/Lahainaluna Road is signalized, while the other three, Lahainaluna Road/Mill Street, Honoapiilani Highway/Dickenson Street and Mill Street/Alika Place, are unsignalized. The intersection operating conditions are expressed as the qualitative measure Level-of-Service (LOS), which is represented by a letter designation ranging from A to F. LOS A represents free-flow operating conditions, while LOS F represents congested conditions.

Access to the property is provided via Alika Place and Mill Street. The intersection of Mill Street and Lahainaluna Road is approximately 260 feet mauka of the Lahainaluna Road/Honoapiilani Highway intersection.

The existing conditions at Honoapiilani Highway/Lahainaluna Road are rated at LOS E at the AM peak hour and LOS F at the PM peak hour, while Honoapiilani Highway/Dickenson Road are rated at LOS A and LOS C, and Mill Street/ Lahainaluna Road are rated at LOS D.

Potential Impacts and Mitigating Measures:

The Year 2000 roadway conditions were assuming the same except for Honoapiilani Highway/ Dickenson Road, which is presently being converted into a signalized intersection. This will ease the traffic flow at Lahainaluna Road/Mill Street, during peak hours and school travel peak periods. Parsons Brinckerhoff recommends the signalization of the Honoapiilani Highway/Dickenson Road intersection. Anticipated trip generation by the *proposed 13,720 sq. ft. commercial project will not significantly impact the given* existing levels of traffic on Honoapiilani Highway and Lahainaluna Road and the signalization of Honoapiilani Highway/Dickenson Road.

The TIAR concludes that the traffic generated by the proposed development can be accommodated by the surrounding roadway system. The TIAR recommends that the proposed access to the site will be via Alika Place. Existing Alika Place is a paved surface with widths varying from 17 to 20 feet. The condition of the paved surface is fractured in spots, and there are no pavement markings. Roadway edge lines along Alika Place and a stop line at Mill Street are recommended as part of the proposed development. A pavement overlay of Alika Place also may be warranted and, if it is, the proposed development could participate in their fair share of its cost.

The TIAR states that the overall intersection of Mill Street/Lahainaluna Road is projected to operate well, but the Mill Street approach is projected to experience an increase in delay due to the added traffic volumes. A traffic signal is not warranted for the intersection. To help peak hour conditions at this intersection, directional guide signs that direct traffic to the intersection of Honoapiilani Highway and Dickenson Street will be implemented at the intersection of Alika Place and Mill Street.

In addition, the applicants have agreed to limit the uses which would normally be allowed under B-2 zoning to low intensity commercial and office uses.

Permitted uses would not include high-density trip generators such as gas stations or fast food restaurants.

2. Wastewater

Existing Conditions:

The proposed Mango Manor Commercial Complex is serviced by an 8-inch County sewer line, which crosses the Honoapiilani Highway and the subject property through a 12 foot easement. There is an additional 8-inch sewer line located on the northern side of Lahainaluna Road. Presently, sewage from the property is transported to the pump station at Mala Wharf and pumped to the wastewater treatment plant at Honokowai. In discussion with the personal at Wastewater Division, they concurred that the present 8-inch sewer line would be sufficient to handle the proposed commercial project's wastewater.

3. Water

Existing Conditions:

The Lahaina Town's water sources are Kahana Stream and a water well near Lahainaluna School. This system is also reinforced by the Alaeloa Source with a 16-inch transmission line along Lower Honoapiilani Road and Honoapiilani to Lahaina Town.

The proposed Mango Manor Commercial Complex is serviced by two 5/8-inch water meters from a 3-inch line running from Panaewa Place. There is an 8-inch waterline located along the north side of Lahainaluna Road and a 12-inch waterline located the mauka side of Honoapiilani Highway. Fire protection for the subject property is provided by existing fire hydrants on Lahainaluna Road and on Mill Street at Alika Place. (Pers. Com., Department of Water Supply)

Potential Impacts and Mitigating Measures:

In discussion with the personnel of the Department of Water Supply, they concurred that the two 5/8-inch water meters will be sufficient to supply the water needs for the proposed project. Using Sate water consumption standards of 140 gallons per 1000 square feet, they anticipate that the new development will consume approximately 1,518 gallons per day (GPD).

4. Drainage

Existing Conditions:

Lahaina Town is located within three major drainage basins. Fortunately, the potential for major flooding of low areas has been lessened due to interceptor ditches constructed by Pioneer Mill Company within the sugar cane fields mauka of the town. These ditches divert runoff and thereby reduce flooding in Lahaina Town. Rainfall within Lahaina Town does cause flooding within low-lying areas and streets. Major flooding could occur due to a long duration storm.

According to the Preliminary Drainage Report, the current total runoff volume is estimated to be 1,291 cu. ft. for a 50 year 1 hour storm. Presently, stormwater runoff generated within the subject property sheetflows into the landscaped areas, where it infiltrates into the ground or it flows into the improved drainage collection system along Honoapiilani Highway. The runoff entering this system eventually discharges into the ocean. *See Appendix A*

Potential Impacts and Mitigating Measures:

Once the project is completed, the new total runoff volume for a 50 year 1 hour storm is estimated at 3,200 cu. ft. for a net increase of approximately 1,600 cu. ft.

A drainage system will be installed onsite to collect runoff from impervious rooftops, walkways, parking areas, as well as the landscaped areas and direct it into a subsurface detention system.

Onsite runoff will be stored under the parking lot in an area of approximately 60 ft. by 60 ft. A coarse aggregate envelope encased within a geotextile can be used for this project. The depth of the coarse aggregate envelope shall be at least 4 feet thick. The volume of water contained within the retention basin is 3,200 cu. ft.

The building finished floor elevation will be constructed higher than the surrounding area to assure that no flooding occurs within the building.

Furthermore, the proposed project will not change the general drainage patterns through the lot. Storm discharge from off-site properties will be allowed to pass through the site by overland swales to makai of the property. A swale along the western boundary will be graded to allow off-site water to go around the main building and through the property. The swale can be constructed with a flat grade to allow maximum infiltration and reduction of sediments.

In summary, the proposed development will not significantly alter existing drainage patterns and will not negatively impact adjoining or downstream properties.

5. Electrical and Telephone Systems

Existing Conditions:

Electrical service to the subject property is presently provided by MECO powerlines. The additional electrical power needs for the expansion project will be supplied by Maui Electric Company, Ltd.

GTE Hawaiian Telephone Company (HTCO) maintains overhead telephone lines, which serve the subject property. Additional telephone system requirements generated by the project will be met by HTCO.

VII. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES, AND CONTROLS

A. HAWAII LAND USE LAW

Chapter 205, Hawaii Revised Statutes, 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 parcel is within the "Urban" District. The existing and proposed improvements are permitted within the "Urban" District.

B. GENERAL PLAN OF THE COUNTY OF MAUI

The General Plan of the County of Maui (1980) update provides long term goals, objectives, and policies directed toward the betterment of living conditions in the County. Addressed are social, environmental, and economic issues, which influence future growth in Maui County. The proposed project is consistent with the following General Plan objective and policies:

Objective: To see that all developments are well designed and are in harmony with their surroundings.

Policies:

- Require that appropriate principles of urban design be observed in the planning of all new developments.

Objective: To provide an economic climate, which will encourage controlled expansion and diversification of the County's economic base.

Policies:

- Maintain a diversified economic environment compatible with acceptable and consistent employment.

C. WEST MAUI COMMUNITY PLAN

Nine (9) community plan regions have been established in Maui County. Each region's growth and development is guided by a Community Plan, which contains objectives and policies in accordance with the County General Plan. The purpose of the Community Plan is to outline a relatively detailed agenda for carrying out these objectives.

The proposed project is located within the West Maui Community Plan, which was recently updated and adopted by ordinance No. 2476 on February 27, 1996. The subject property is designated on the West Maui Community Plan Land Use Map as "Business/Commercial". The proposed project will be consistent with the "Business/Commercial" designation. The proposed project is also consistent with the following West Maui Community Plan goals, objectives, and policies:

Goal: An attractive, well-planned community with a mixture of compatible land uses in appropriate areas to accommodate the future needs of residents and visitors in a manner that provides for the stable social and economic well-being of residents and the preservation and enhancement of the region's open space areas and natural environmental resources.

Objective and Policy:

- Establish an appropriate supply of urban land within the region to meet the needs of the community over the next 20 years. The Community Plan and its map shall define the urban growth limits for the region and all zoning requests and/or proposed land uses and developments shall be consistent with the West Maui Community Plan and its land use map. (Pg. 16)

Goal: A diversified economy that provides a range of stable employment opportunities for residents, allows for desired commercial services for the community, and supports the existing visitor and agricultural industries, all in a manner that will enhance both the community's quality of life and the environment.

Objectives and Policies:

- Promote a diversified economic base which offers long term employment to West Maui residents, and maintains overall stability in economic activity in the areas of:
  - Visitor-related service/commercial services.
  - Resident-related service/commercial services
- Expand light industrial and service commercial activities in appropriate locations to accommodate the region's needs.

  - Encourage neighborhood commercial activities and professional services to serve existing and future residents. (Pg. 26)

Goal: An attractive and functionally integrated urban environment that enhances neighborhood character, promotes quality design at the resort destinations of Kaanapali and Kapalua, defines a unified landscape planting and beautification theme along major public roads and highways, watercourses, and at major public facilities, and recognizes the historic importance and traditions of the region.

Objectives and Policies:

- Maintain the scale, building massing and architectural character of historic Lahaina Town.
- Enhance the appearance of major roads and highways in the region.
- New building and renovation of existing buildings in Lahaina town should respect the scale, texture, materials, and facades of existing structures in the Lahaina Historic District.
- Building heights should reflect the context of existing building heights and massing in the Lahaina Historic District. The maximum building

heights shall be two stories or 35 feet with a mixture of one- to two-story building heights encouraged.

D. MAUI COUNTY ZONING

As noted earlier, pursuant to Maui County Code, Chapter 19, this project involves a request for a Change in Zoning from "R-2 Residential" to "B-2 Business" District for the proposed Mango Manor Commercial Complex property in Lahaina, Maui, Hawaii (TMK 4-6-10: 25; 26 & 32). The proposed commercial improvements are consistent with the "B-2 Business" District.

A request for a "Change In Zoning" must meet the following criteria as found in § 19.510.040.4:

a. The proposed request meets the intent of the general plan and the objectives and policies of the community plan of the county,

This is previously discussed in this report Sections VI. B and C, General Plan for the County of Maui and West Maui Community Plan, respectively.

b. The proposed request is consistent with the applicable community plan land use map of the county,

The West Maui Community Plan Map designates the subject property as "Business/Commercial", which is consistent the proposed use.

c. The proposed request meets the intent and purpose of the district being requested,

As stated in Maui County Code Section §19.18.010, the purpose and intent of a community business district is intended to provide all types of goods and services for the community, with the exception of those uses more generally associated with industrial district, but at a lower intensity of use than in the

central business district. The proposed project will be consistent with the Maui County Code, Chapter 19.18.

d. The application, if granted, would not adversely impact or interfere with public or private schools, parks, playgrounds, water systems, sewage, solid waste disposal, drainage, roadways and transportation systems, or other public requirements, conveniences and improvements.

Previously in this report, impacts to public facilities and infrastructure were discussed in detail in Section V, "Environmental Setting, Impacts, and Mitigation Measures." No major significant impacts are anticipated.

e. The application, if granted, would not adversely impact the social, cultural, economic, environmental, and ecological character and quality of the surrounding area.

As noted previously in this report, no significant adverse impacts are anticipated on the social, cultural, economic, environmental, and ecological character and quality of the surrounding area.

f. If the application change in zoning involves the establishment of an agricultural district with a minimum lot size of two acres, an agricultural feasibility study shall be required and reviewed by the Department of Agriculture and the United State Soil and Conservation Service.

Not Applicable.

E. ENVIRONMENTAL ASSESSMENT SIGNIFICANCE CRITERIA

An agency determines that an action may have a significant impact on the environment if it meets any of the following criteria.

1. ***Involves an irrevocable commitment to, loss or destruction of any natural or cultural resource;***

The subject property has been previously cleared and graded for use as the existing residential use. The two main dwellings were built in 1938 and 1939 receptively. As such, the structures are considered "Historic", since they are over 50 years old. Historic Resources Inventories have been completed and forwarded to the State Historic Preservation Division, Department of Lands and Natural Resources, Honolulu, together with color photographs.

After reviewing the inventories, SHPD-Honolulu responded that these structures were not significant historical structures.

By incorporating mitigation measures during construction, there will be no adverse impacts to the beaches and nearshore waters from point and non-point sources of pollution.

2. ***Curtails the range of beneficial uses of the environment;***

The subject properties are already developed in an existing urban area. Although there will be an intensification of uses, these uses will not expand beyond the existing 'built environment" and thus will not curtail alternative beneficial uses of the property

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

The proposed project concurs with the County of Maui's General Plan and West Maui's Community Plan environmental policies, goals and guidelines,

which are consistent with the State's environmental policies, goals and guidelines.

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

The use of the site will change from low-density residential use to a higher-density commercial use with a total floor area of 13,720 square feet. Upon completion, this project will provide increased employment opportunities in the Lahaina region. The proposed project will have a positive impact on the local economy and employment opportunities, although the impact is considered insignificant when compared to existing employment levels in West Maui.

Furthermore, the proposed project will not negatively impact recreational facilities, health care, schools or population counts, thereby not impacting the social welfare of the community.

5. *Substantially affects public health;*

The proposed project will not negatively impact the health care system of Maui.

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

The proposed project will generate employment for existing residents and not generate population growth. There will be no negative impact on recreational facilities, or schools, thereby not causing any secondary impacts.

7. *Involves a substantial degradation of environmental quality;*

The granting of the project will have no significant impact on the region's coastal or marine resources, and mitigation measures will be implemented to ensure that there will be no significant impact to nearshore waters from point and non-point sources of pollution. Furthermore, the proposed development and construction on the property will comply with applicable State and County regulations relating to prevention of pollution of nearshore waters.

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

The proposed project will consist of a complete build-out of the property with maximum coverage of the site. There is no commitment to a larger action, and as discussed throughout the report, the environment will be protected through mitigative measures.

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

There are no known significant habitats of rare, endangered or threatened species of flora and fauna located on the project site. Proposed landscape improvements will result in the removal of some of the mature Mango trees, but the new landscape planting plan is intended to enhance the subject property's setting. The proposed project will not have a significant impact upon the flora, fauna and animal life found within the subject property.

10. *Detrimentally affects air or water quality or ambient noise levels;*

Air quality in the Lahaina region is considered relatively good. Point sources (e.g., the Pioneer Sugar Mill) and non-point sources (e.g., automobiles) of emissions do not generate high concentrations of pollutants. The relatively high quality of air can also be attributed to the region's constant exposure to wind, which quickly disperses concentrations of emissions. This rapid dispersion is evident during the burning of sugarcane in the fields of West Maui.

The increase in the number of employees, as well as customers, may result in a slight increase in the volume of traffic. However, this increase is not considered significant compared to the overall amount of traffic in Lahaina Town. As such, the proposed project is not anticipated to be detrimental to local air quality. The project is geared to independent consumers and not as a tour bus destination.

Water quality is discussed in the Drainage section. A drainage system will be installed onsite to collect runoff from impervious rooftops, walkways, parking areas, as well as the landscaped areas and direct it into a subsurface detention system.

Furthermore, the proposed project will not change the general drainage patterns through the lot. Storm discharge from off-site properties will be allowed to pass through the site by overland swales to makai of the property.

In summary, the proposed development will not significantly alter existing drainage patterns and will not negatively impact adjoining or downstream properties.

The proposed Mango Manor Commercial Complex may generate increased noise levels due to increased human and vehicle traffic during operational hours. When compared to the area's ambient noise levels, this increase is not considered significant.

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

The 1998 revised Flood Insurance Rate Map shows subject property in Zone C. Zone C defines an area of minimal flooding.

12. ***Substantially affects scenic vistas and view planes identified in county or state plans or studies;***

The subject property is located within the Lahaina Town area. The site is not a part of a scenic or unique scenic corridor, nor does it provide valuable vantage points to scenic resources.

Although the subject property is not located within the Historic District, the proposed project design is consistent with the historic architectural character of Lahaina Town in terms of scale, massing and architectural style. Given the dilapidated condition of the existing structures on the property, the proposed project is anticipated to improve the character of the existing intersection from an urban design perspective.

13. ***Requires substantially energy consumption.***

The proposed usage of the site consists of approximately 6,875 square feet of shopping center and 6,875 square feet of office. The building will be air conditioned, but the demand will be consistent with buildings of this type, which will not require substantial energy consumption.

VII. FINDINGS AND CONCLUSIONS

Approval of the subject request will establish consistency with the West Maui Community Plan Land Use Map. The property's location at the intersection of Honoapiilani Highway and Lahainaluna Road makes it ideally situated for Business Commercial use.

Detailed review of the proposed improvements will occur during the subsequent Building permit review process. Project construction activities may generate minor short-term nuisances. These impacts will be minimized through proper adherence to accepted construction mitigation measures relative to dust and noise control. All construction activities are anticipated to be limited to normal daylight working hours. Impacts generated from construction activities are not considered adverse.

From a long-term perspective, the proposed commercial complex will be consistent with the existing land uses on properties located in the immediate vicinity the long established mixed-use character of the surrounding area. The proposed project site is located in "Zone C", an area of minimal flooding. The project is not anticipated to have an affect on significant archaeological or historical sites.

The project will have a positive impact on employment opportunities, but will not have a significant impact upon local population levels. Public service needs such as police, medical facilities and schools will not be adversely impacted by the project. Impacts upon roadways, water, wastewater, drainage, and other infrastructure systems are not considered significant.

In light of the foregoing findings, it is concluded that the proposed action will not result in any significant impacts, and a Finding of No Significant Impact is warranted.

VIII. REFERENCES

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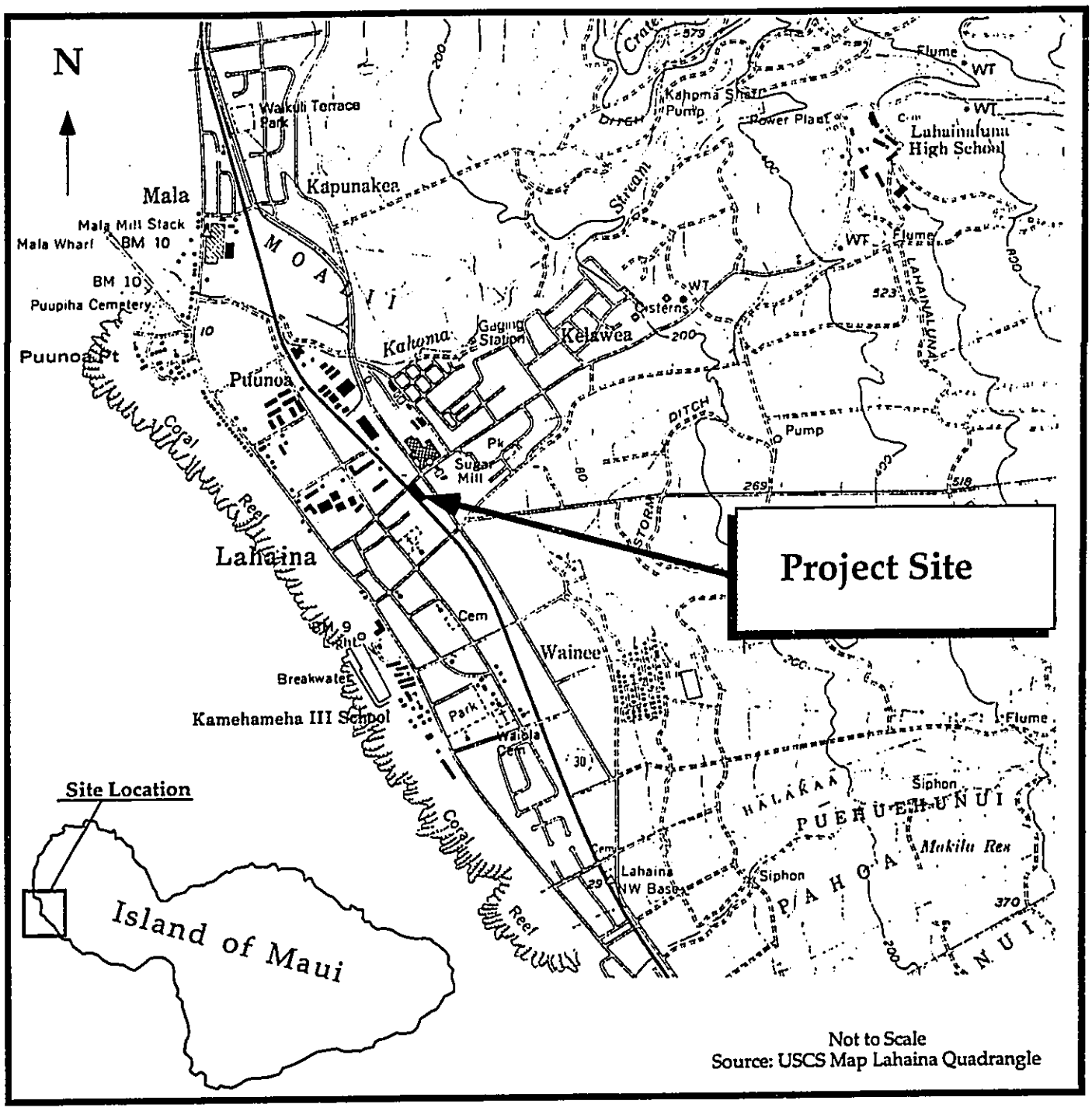
FIGURES

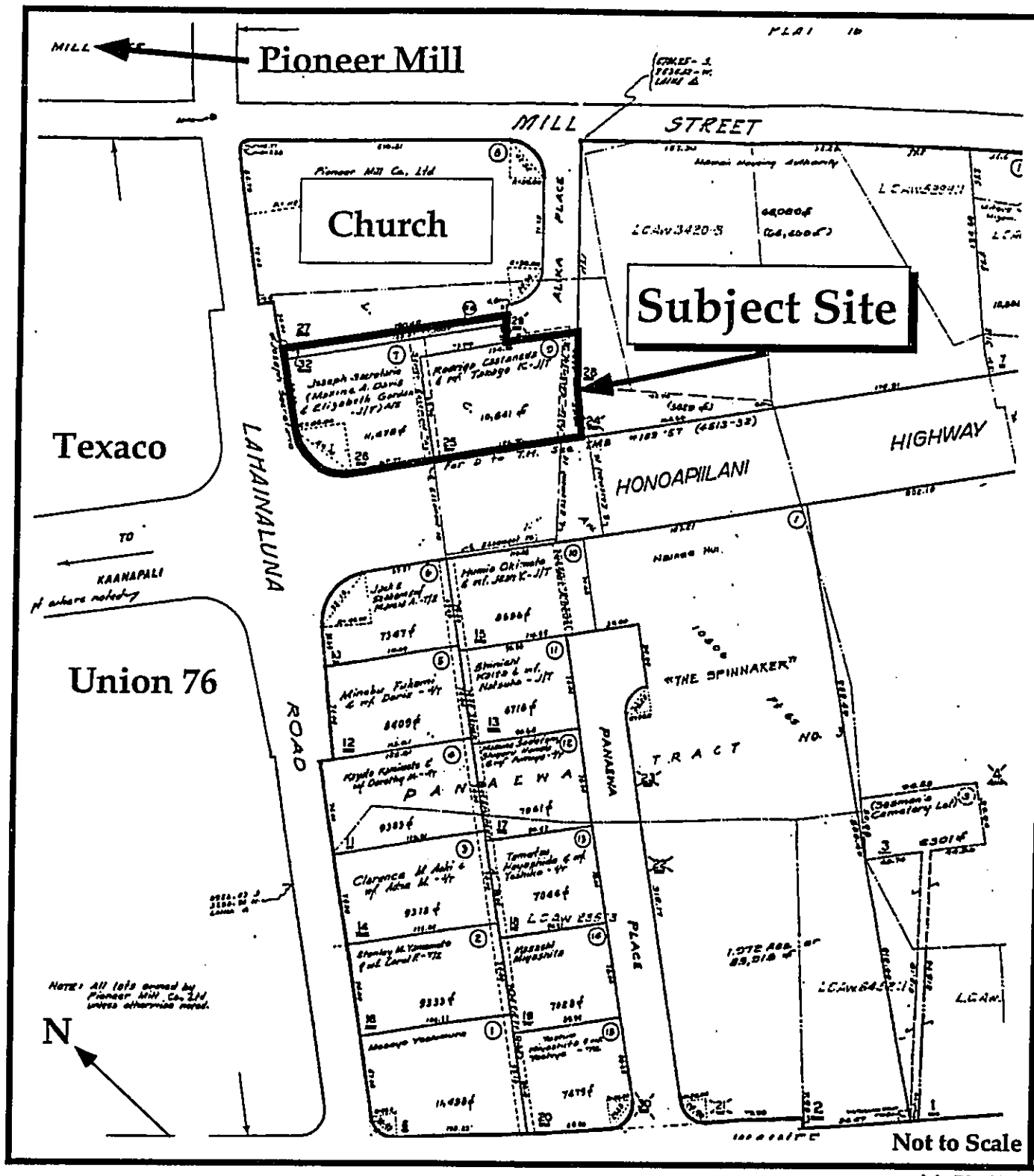


Regional Location Map

Mango Manor Commercial Complex
Lahaina, Maui, Hawai`i
TMK 4-6-10: 25; 26 & 32

CHRIS HART &PARTNERS

Figure No. 1



Tax Map Key Plat 4-6-10
Mango Manor Commercial Complex
Lahaina, Maui, Hawai`i
TMK 4-6-10: 25; 26 & 32

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Figure No. 2

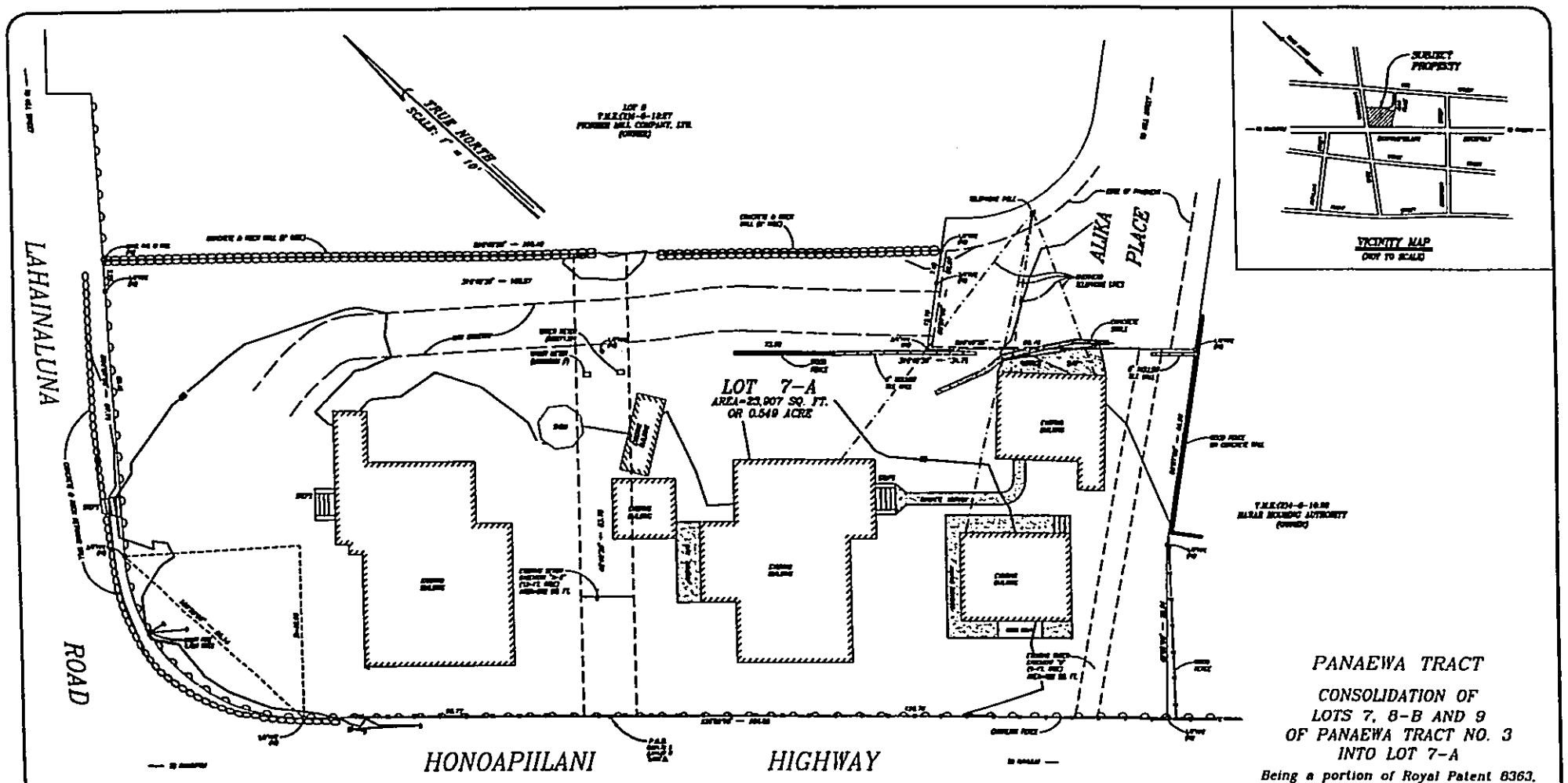
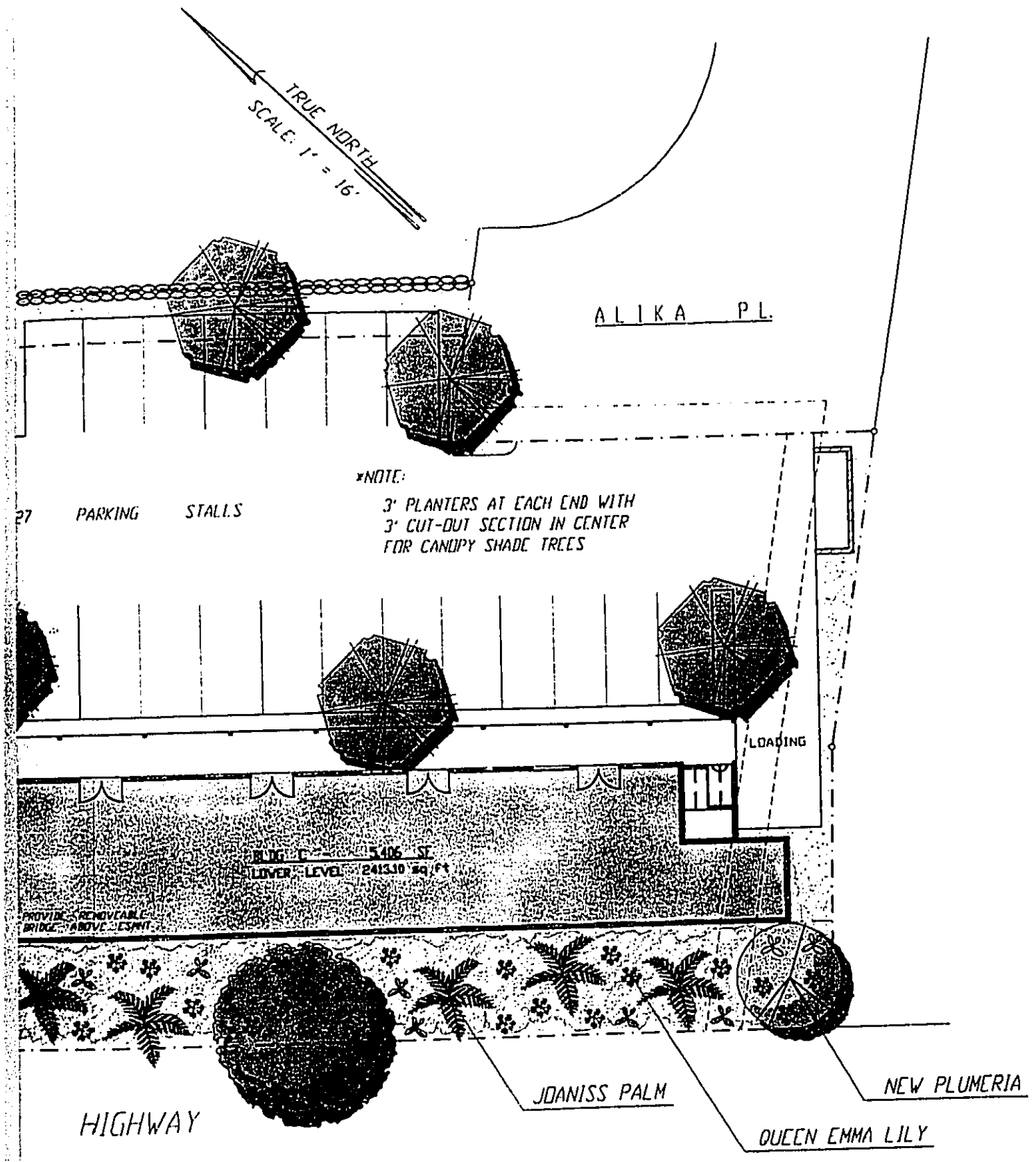

TRUE NORTH
SCALE: 1" = 10'
LAHAINALUNA
ROAD
HONOAPIILANI
HIGHWAY
ALIKA
PLACE
LOT 7-A
AREA=23,907 SQ. FT.
OR 0.549 ACRE
SUBJECT PROPERTY
VICINITY MAP
NOT TO SCALE
PANAEWA TRACT
CONSOLIDATION OF
LOTS 7, 8-B AND 9
OF PANAEWA TRACT NO. 3
INTO LOT 7-A
Being a portion of Royal Patent 6363,
Land Commission Award 10806, Part 65
to Kamehameha III
SITUATE AT PANAEWA
LAHAINA, MAUI, HAWAII
DATE: FEBRUARY, 1989
SCALE: 1" = 10'
AKAMAI LAND SURVEYING
P.O. BOX 1748
KAHULUI, MAUI, HAWAII 96732
OWNER & ADDRESS:
BARRY L. BROWN
RUTH E. BOSCH
P.O. BOX 11748
LAHAINA, HI 96761
REGISTERED PROFESSIONAL LAND SURVEYOR
STATE OF HAWAII CERTIFICATE NO. 5080
BRADLEY DUDLEY DEPONTE
LICENSED PROFESSIONAL LAND SURVEYOR
STATE OF HAWAII CERTIFICATE NO. 5080
L.U.C.A. FILE NO.

Figure No. 3



MANOR

NCEPT PLAN

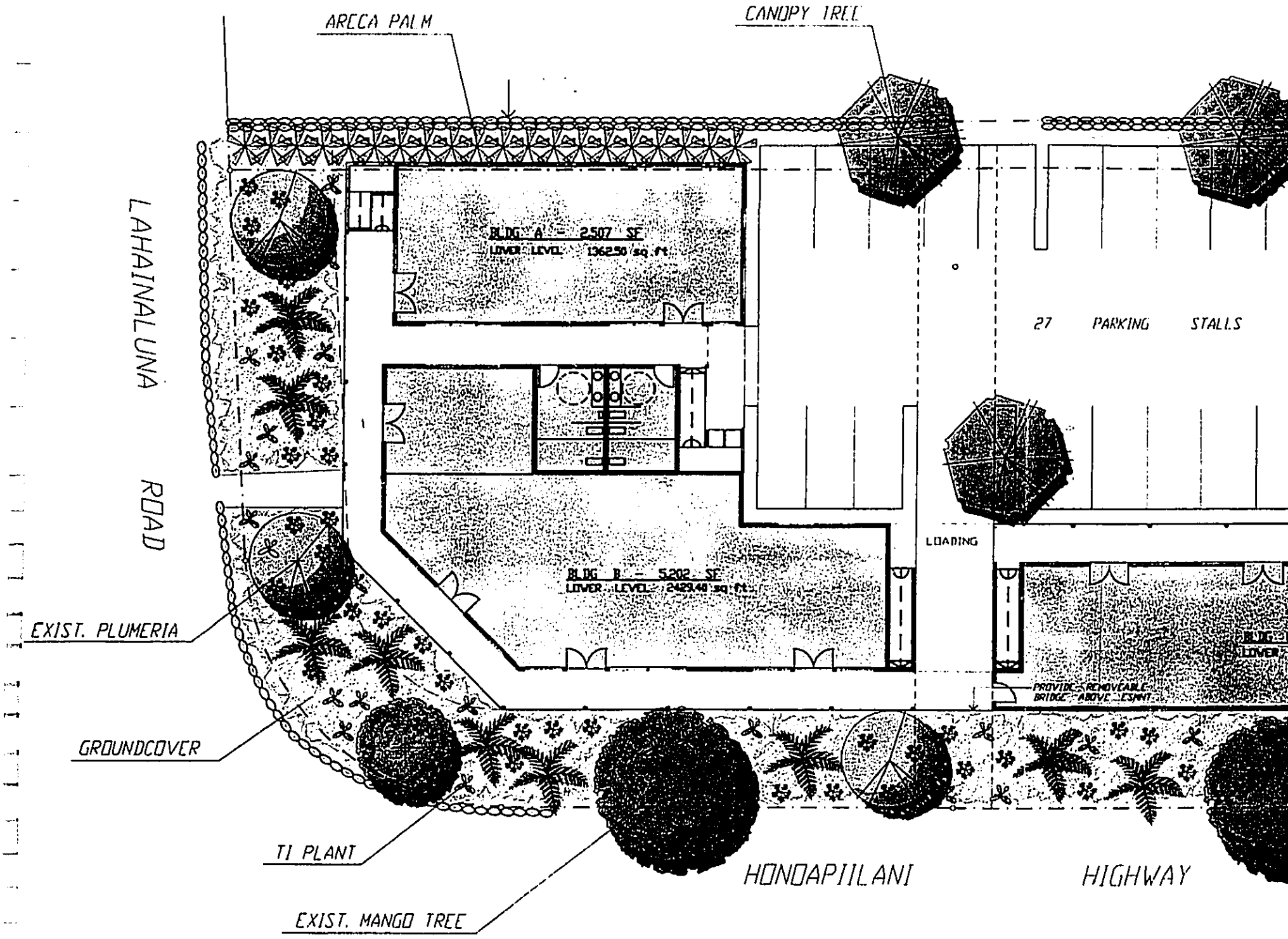
0 : 25, 26 & 32

*NOTE:
LANDSCAPE TO BE WATERED
BY NEW AUTOMATIC SYTEM

Figure No. 4a

CHRIS HART

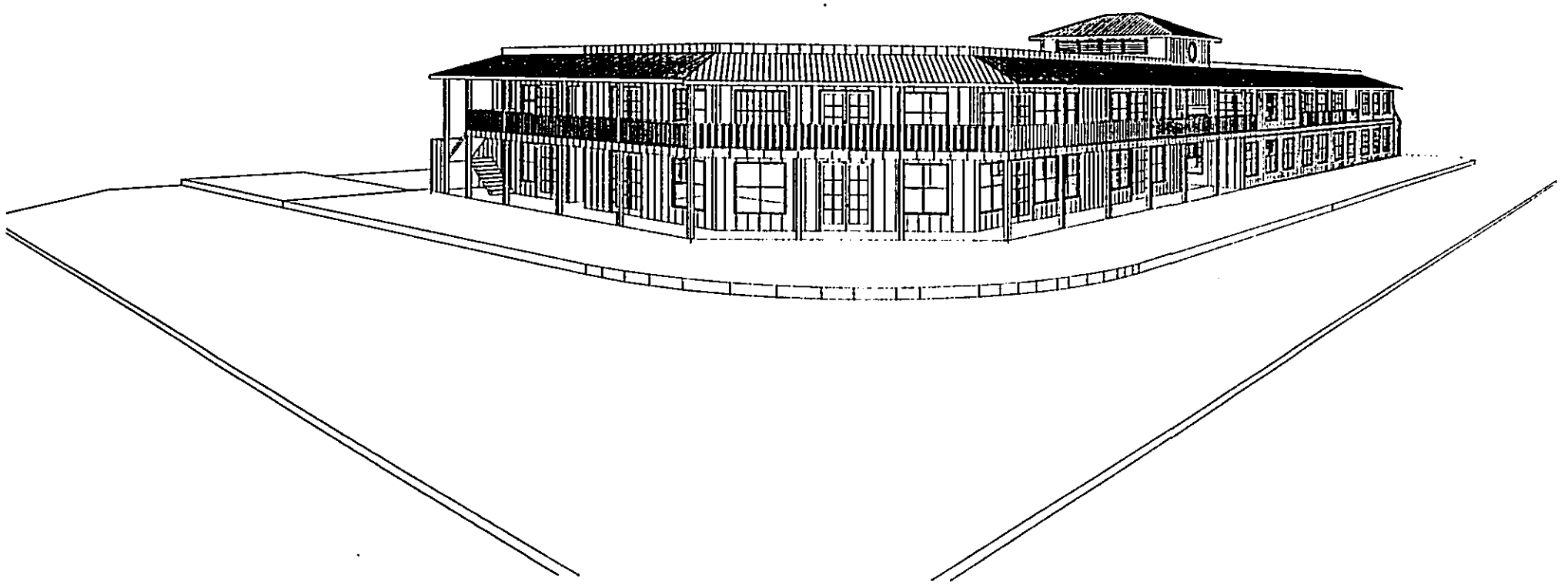
11 AUGUST 1996



MANGO MANOR

LANDSCAPE CONCEPT PLAN

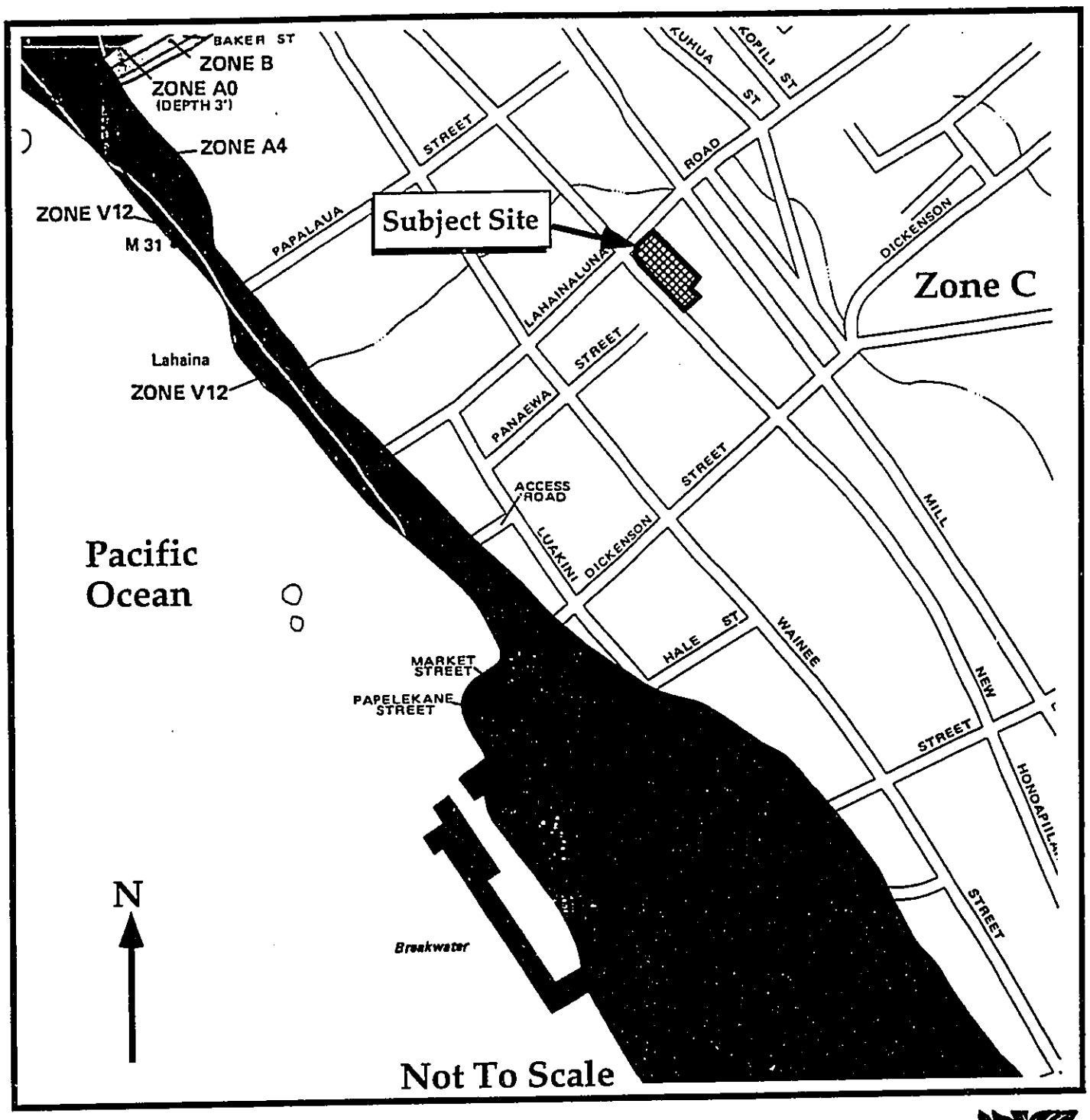
T.M.K. : (2) 4 - 6 - 10 : 25, 26 & 32



Project Perspective from Honoapiilani Highway
Mango Manor Commercial Complex
Lahaina, Maui, Hawai`i

Figure No. 4b

CHRIS HART & PARTNERS



Flood Insurance Rate Map
Panel No. 150003 163 B
Mango Manor Commercial Complex
Lahaina, Maui, Hawai`i

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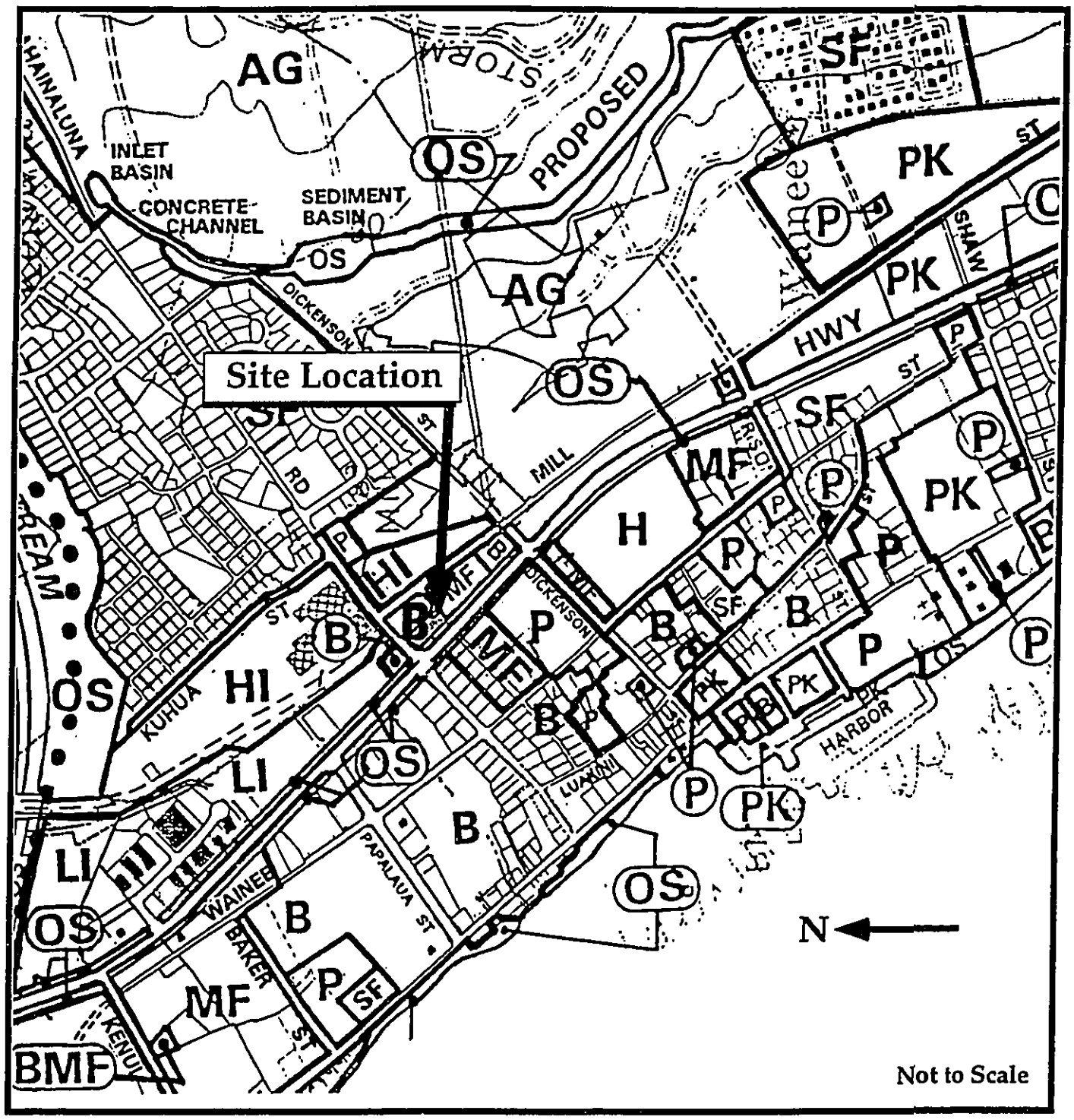
Figure No. 5



West Maui Community Plan
Mango Manor Commercial Complex
Lahaina, Maui, Hawai`i
TMK 4-6-10: 25; 26 & 32

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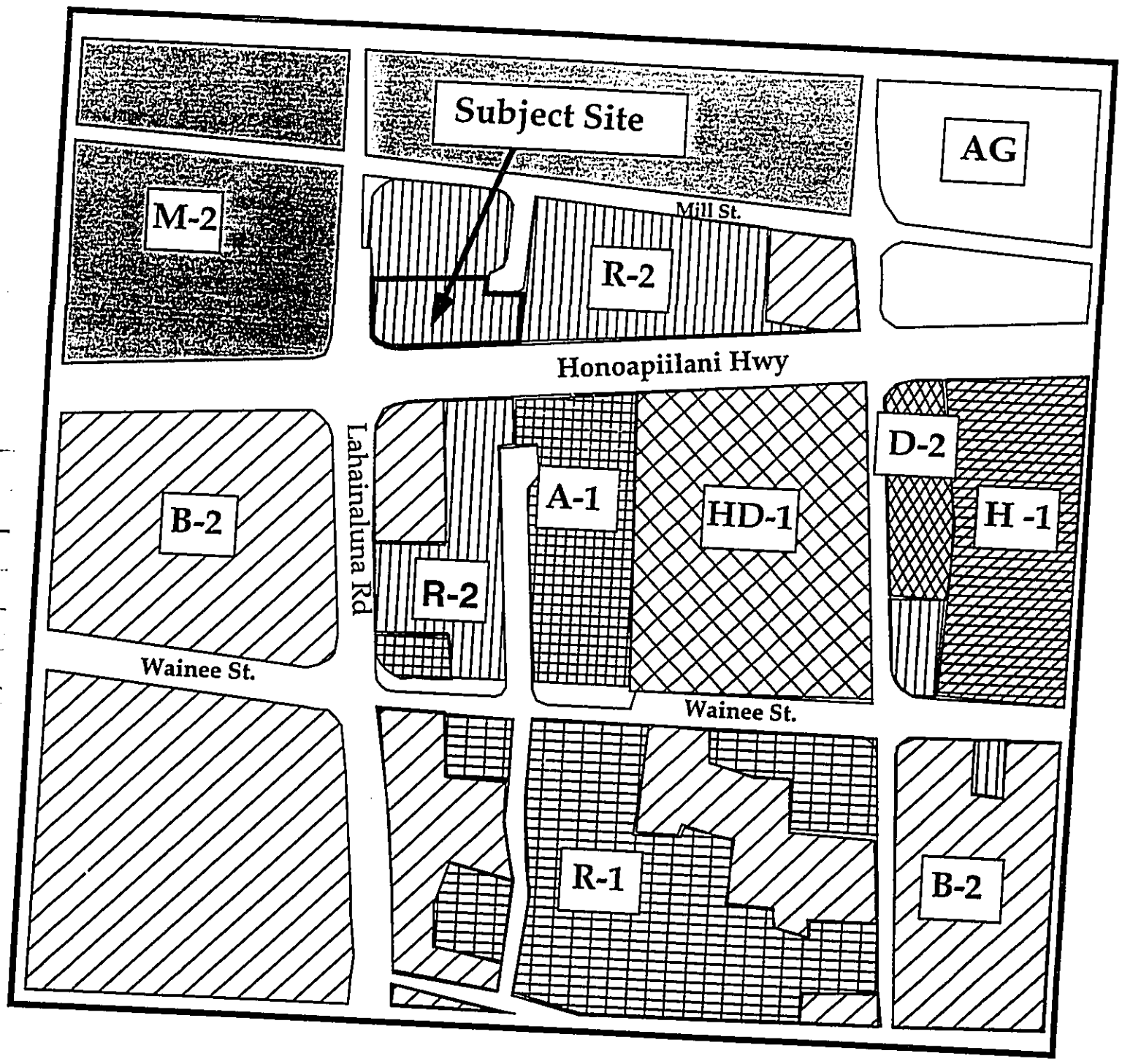
Figure No. 6



Maui County Zoning
Mango Manor Commercial Complex
Lahaina, Maui, Hawai`i

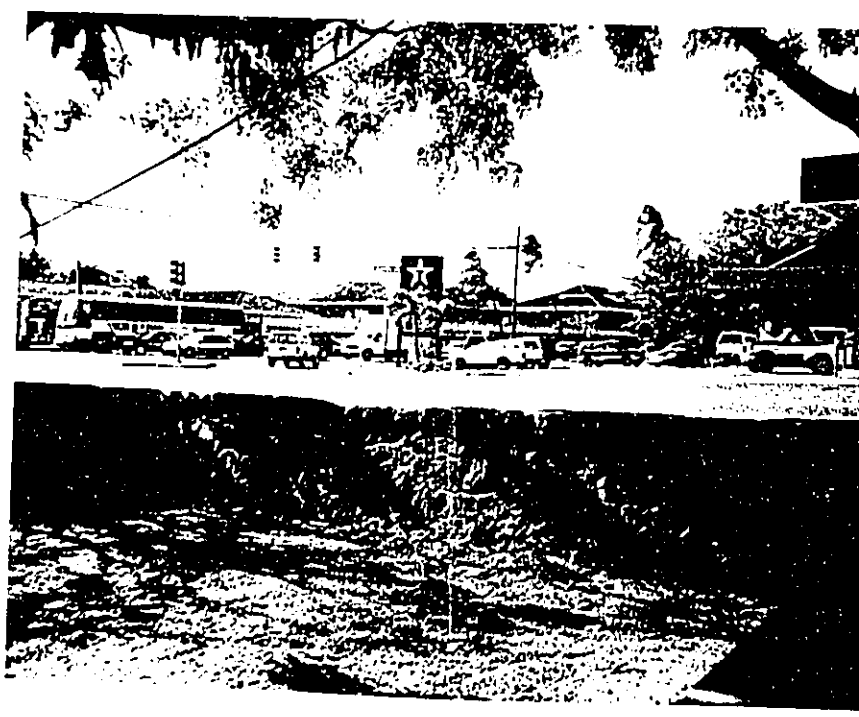
CHRIS HART & PARTNERS

Figure No. 7

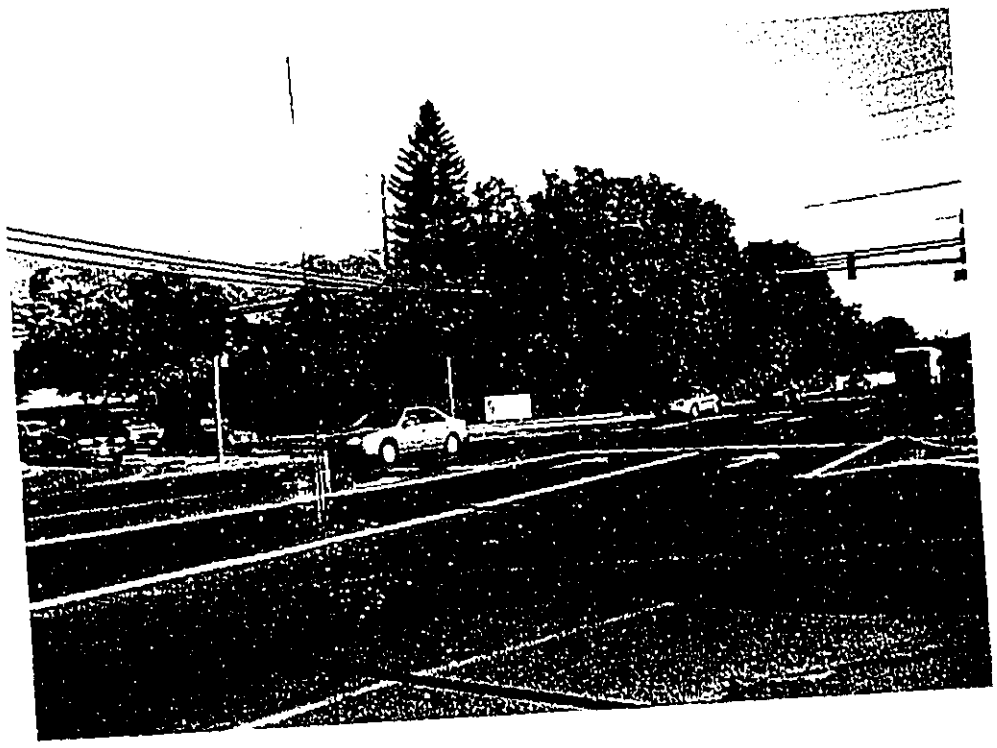
A View Across Lahainaluna Road at the Subject Property.

CHRIS HART & PARTNERS

View from Interior of the Property looking East.



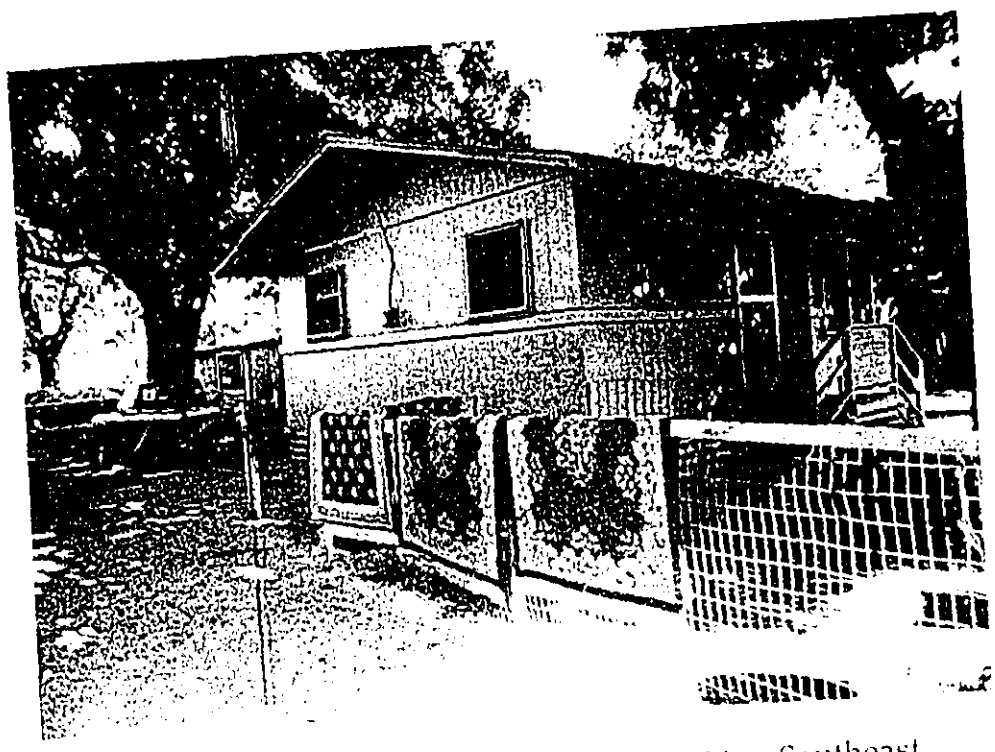
A View from the Subject Property towards the Northw



A View Across Hono`api`ilani Highway towards the Subject Property.

CHRIS HART & PARTNERS

roperty towards the Northwest.



View from Interior of the Property looking Southeast.

Figure No. 8

Appendix A

Preliminary Drainage Report

PRELIMINARY DRAINAGE REPORT
FOR
MANGO MANOR
LAHAINA, MAUI, HAWAII
TMK: (2) 4-6-10: 25, 26, & 32

Prepared for:

Barry Brown Realty

Prepared by:

C. Takumi Engineering, Inc.
18 Central Avenue
Wailuku, Hawaii 96793

February 1998

PRELIMINARY DRAINAGE REPORT
FOR
MANGO MANOR
LAHAINA, MAUI, HAWAII
TMK: (2) 4-6-10: 25, 26, & 32

Scope:

This report summarizes the existing drainage conditions and proposes a drainage plan conforming to the "Rules of the Design of Storm Drainage Facilities in the County of Maui" for the proposed Mango Manor Development in Lahaina, Maui, Hawaii, TMK: (2) 4-6-10: 25, 26, and 32.

Project Description:

The project area of the three combined lots is 23,907 sq. ft. Presently, four large structures are scattered throughout the lots. Access to the lots are via Alika Place. The area is relatively flat with an elevation difference of about one foot between the makai boundary and the mauka boundary approximately 100 feet away.

The proposed project consists of two commercial buildings, a paved parking lot and other amenities. Vehicle access to the project remains via Alika Place.

Flood Zone:

The National Flood Insurance Program, Flood Insurance Rate Map, Maui County, Hawaii, identifies the project being within an area of minimal flooding or a Zone C classification.

On-Site Drainage:

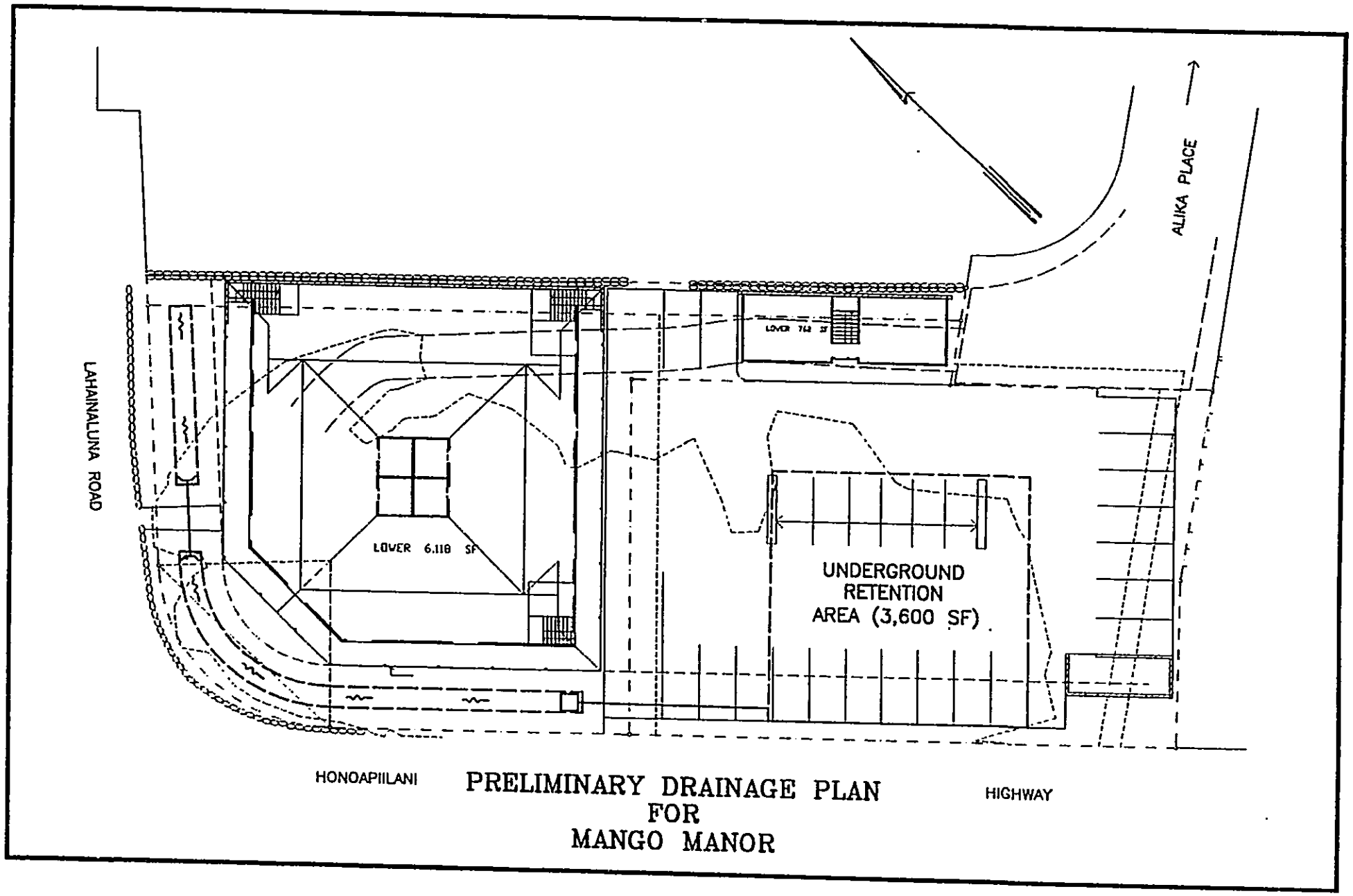
Currently, the use is residential. The "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii," August 1972, by the Soil Conservation Service in cooperation with The Unversity of Hawaii Agricultural Experiment Station classifies the soil type as Ewa (EeA), a silty clay loam with permeability ranging from 0.63 to 2.0 inches per hour. Drainage computations for the existing residential condition is shown in Appendix A. Generally, storm runoff flows in the mauka to makai direction then south along Honoapiilani Highway.

The proposed project will not change the general drainage patterns through the lot. Storm discharge from off site properties will be allowed to pass through the site by overland swales to makai of the property. A swale along the western boundary shall be graded to allow off site water to go around the main building and through the property. The swale can be constructed with a flat grade to allow maximum infiltration and reduction sediments.

The proposed project will be changed from residential use to a commercial development and storm runoff due to development will increase. The increase in storm run-off will be kept on the project site by providing an underground retention system within the proposed parking lot. It is estimated that 18,300 sq. ft. of the property will be roofed or paved. Runoff computations for the proposed conditions are given in Appendix B. The volume of runoff to be retained for a 50 year storm is 3,200 cu. ft.

Runoff will be stored under the parking lot in a location as shown in Exhibit 1. An area under the parking lot approximately 60' X 60' will be used to retain storm waters for the site. A coarse aggregate envelope encased within geotextile can be used for this project. The depth of the coarse aggregate envelope shall be at least 4 feet thick. The volume of water contained within the retention basin is 3,200 cu. ft. and computations are provided in Appendix C.

The building finished floor elevations shall be constructed higher than the surrounding area to assure that no flooding occurs within the buildings.



PRELIMINARY DRAINAGE PLAN
FOR
MANGO MANOR

Appendix A

Mango Manor Commerical Project
Preliminary Run-Off Computations
for
Existing Conditions

Appendix A

Mango Manor Commerical Project
Preliminary Run-Off Computations
for
Existing Conditions

Area:
Total Area = 23,907 sq. ft.

Soil Type: Ewa (EaA).. Soil Hydrologic Classification: B
Runoff Curve Numbers for Soil Hydrologic Classification: B
Residential (1/4 ac. Lots) - CN = 75

Rainfall Intensity (50 yr. - 1 hr.) Storm: I = 2.5 inches
Runoff Depth for Selected CN's:
@ CN = 75, I = 2.5 inches: d = 0.65 inches = 0.054 ft.

Volume of Runoff for 50 year storm: 23,907 sq. ft. X 0.054' = 1,291 cu. ft.

Appendix B

Mango Manor Commercial Project
Preliminary Run-Off Computations
for
Developed Conditions

Appendix B

Mango Manor Commercial Project
Preliminary Run-Off Computations
for
Developed Conditions

Area:
Total Area = 23,907 sq. ft.
Roofed and Paved Area = 18,300 sq. ft.

Soil Type: Ewa (EaA). *Soil Hydrologic* Classification: B
Runoff Curve Numbers for Soil Hydrologic Classification: B
Paved Parking Lots, Driveways, Roofs, etc. - CN = 95
Open Spaces, Lawns, Etc. - Fair Condition: CN = 69

Rainfall Intensity (50 yr. - 1 hr.) Storm: I = 2.5 inches
Runoff Depth for Selected CN's:
@ CN = 95, I = 2.5 inches: d = 1.96 inches = 0.163 ft.
@ CN = 69, I = 2.5 inches: d = 0.43 inches = 0.036 ft.

Volume of Runoff for 50 year storm:

Paved Area:	18,300 sq. ft. X 0.163' =	2,983 cu. ft.
Landscaped Area:	5,407 sq. ft. X 0.036' =	195 cu. ft.
TOTAL RUNOFF VOLUME	=	3,177 cu. ft. Use 3,200 cu. ft.

Appendix C

Mango Manor Commercial Project
Preliminary Storm Retention Volume Computations
for
Developed Conditions

Appendix C

Mango Manor Commercial Project
Preliminary Storm Retention Volume Computations
for
Developed Conditions

50 Year Storm Volume from Developed Site: 3,200 cu. ft.

Area of retention basin: 60' long X 60' wide = 3,600 cu. ft. (See attached Exhibit)

According to "Rules for the Design of Storm Drainage Facilities in the County of Maui":

Use #4 to 1-1/2" aggregate with approximately 50% of the total volume considered as void and 50% of the total void volume is allowed for design of retention basins.

Depth of gravel envelope required:

d = 3,200 cu. ft./(3,600 sq. ft. X 50% X 50%) = 3.56 feet.

A four feet deep gravel envelope has a storage volume of 3,600 cu. ft. > than 3,200 cu. ft. required.

Appendix B

Traffic Impact Analysis Report

TRAFFIC IMPACT ANALYSIS

Mango Manor Commercial Complex

LAHAINA, MAUI, HAWAII

July 1998

PARSONS BRINCKERHOFF

Over a Century of Engineering Excellence

TRAFFIC IMPACT ANALYSIS

MANGO MANOR COMMERCIAL COMPLEX

Lahaina, Maui, Hawaii

July 1998

Prepared For:

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PBQD Reference Number:
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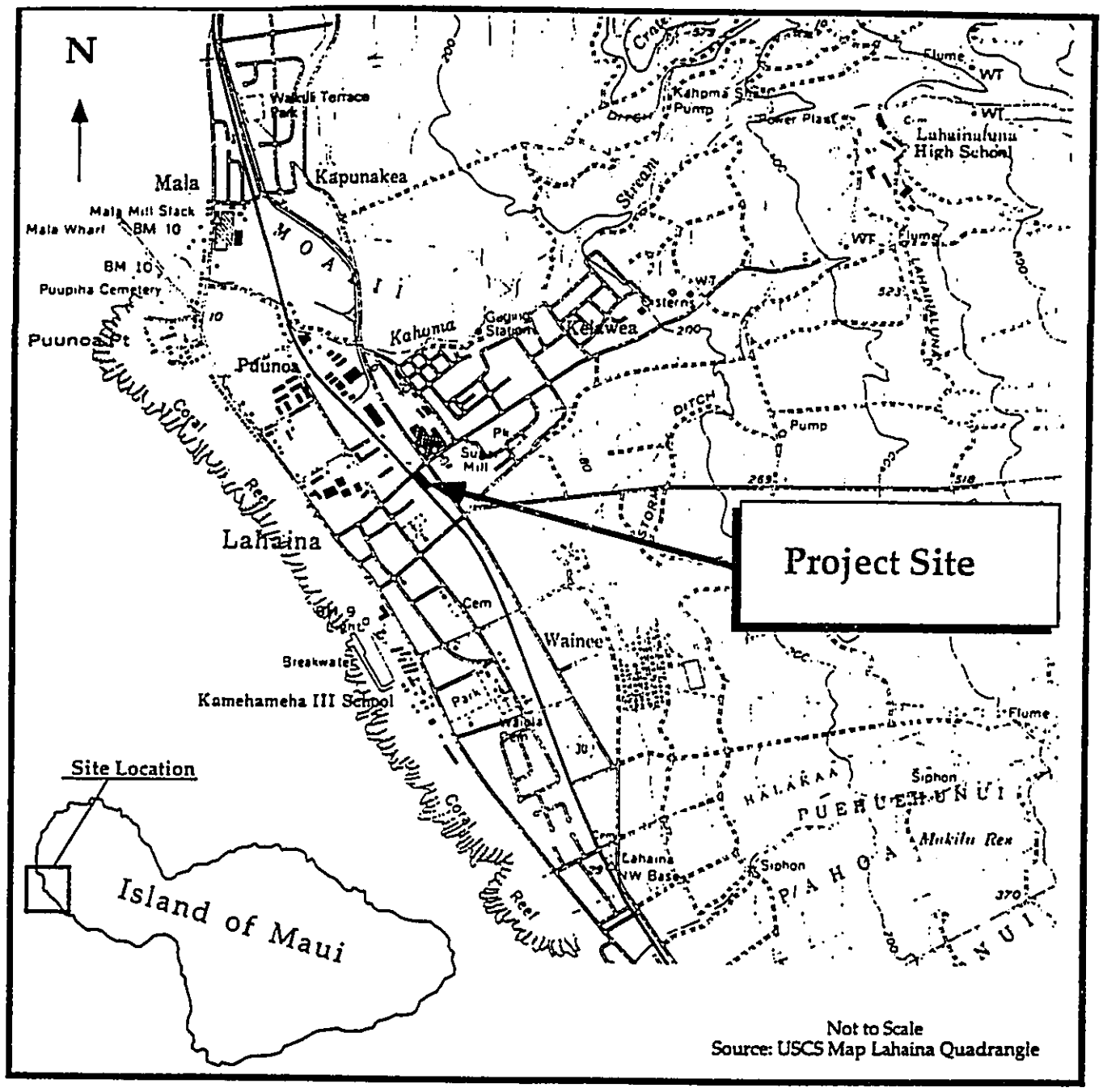
I. INTRODUCTION

The Mango Manor Commercial Complex is a proposed two building, two-story commercial complex in Lahaina, Maui, Hawaii. Figure 1 shows the project vicinity map. Located at the southeast corner of Honoapiilani Highway/Lahainaluna Road intersection, the complex would be accessed by Alika Place via Mill Street. The proposed 23,907 square foot property is planned to provide parking, landscaping, and approximately 13,720 leasable square feet of office and retail space. Figure 2 provides the proposed site plan.

The purpose of this report is to document existing and projected Year 2000 traffic conditions at key intersections within the study area. The study area is defined by Honoapiilani Highway to the west, Lahainaluna Road to the north, Mill Street to the east, and Dickenson Street to the south. Existing roadway conditions are documented, and the operational characteristics of the four intersections within the study area are described. Future traffic conditions are reported with and without the project for the same four intersections.

The Year 2000 analysis is used to identify the traffic impacts of the Mango Manor Commercial Complex. Based on the results, recommendations are made on access design and intersection improvements that would benefit roadway operations in the study area.



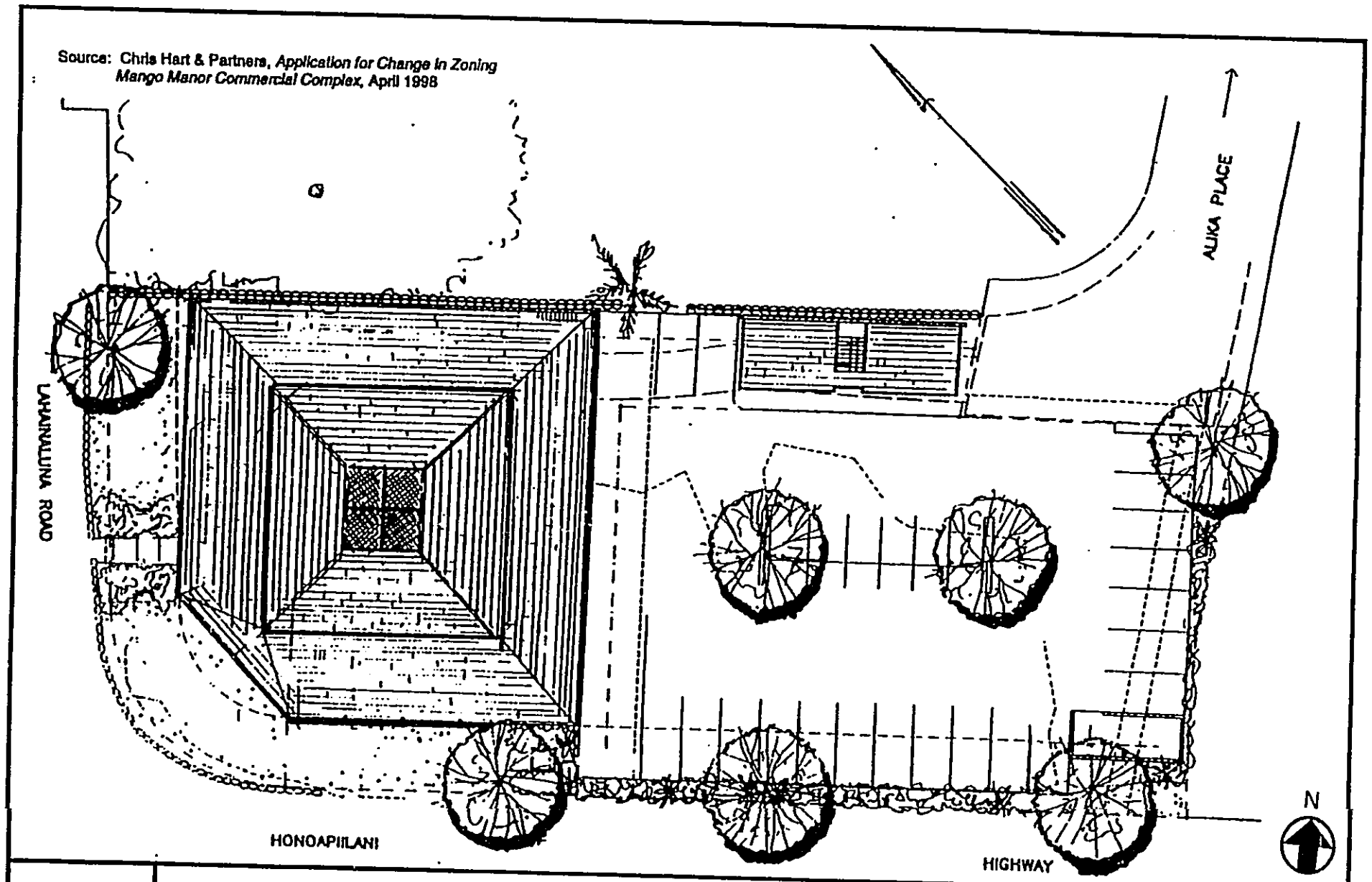
Source: Chris Hart & Partners, *Application for Change in Zoning Mango Manor Commercial Complex*, April 1998

PB 100 YEARS

VICINITY MAP

Figure
1

Source: Chris Hart & Partners, *Application for Change in Zoning Mango Manor Commercial Complex*, April 1998



PB

SITE PLAN

Figure 2

II. EXISTING CONDITIONS

A. EXISTING ROADWAY SYSTEM

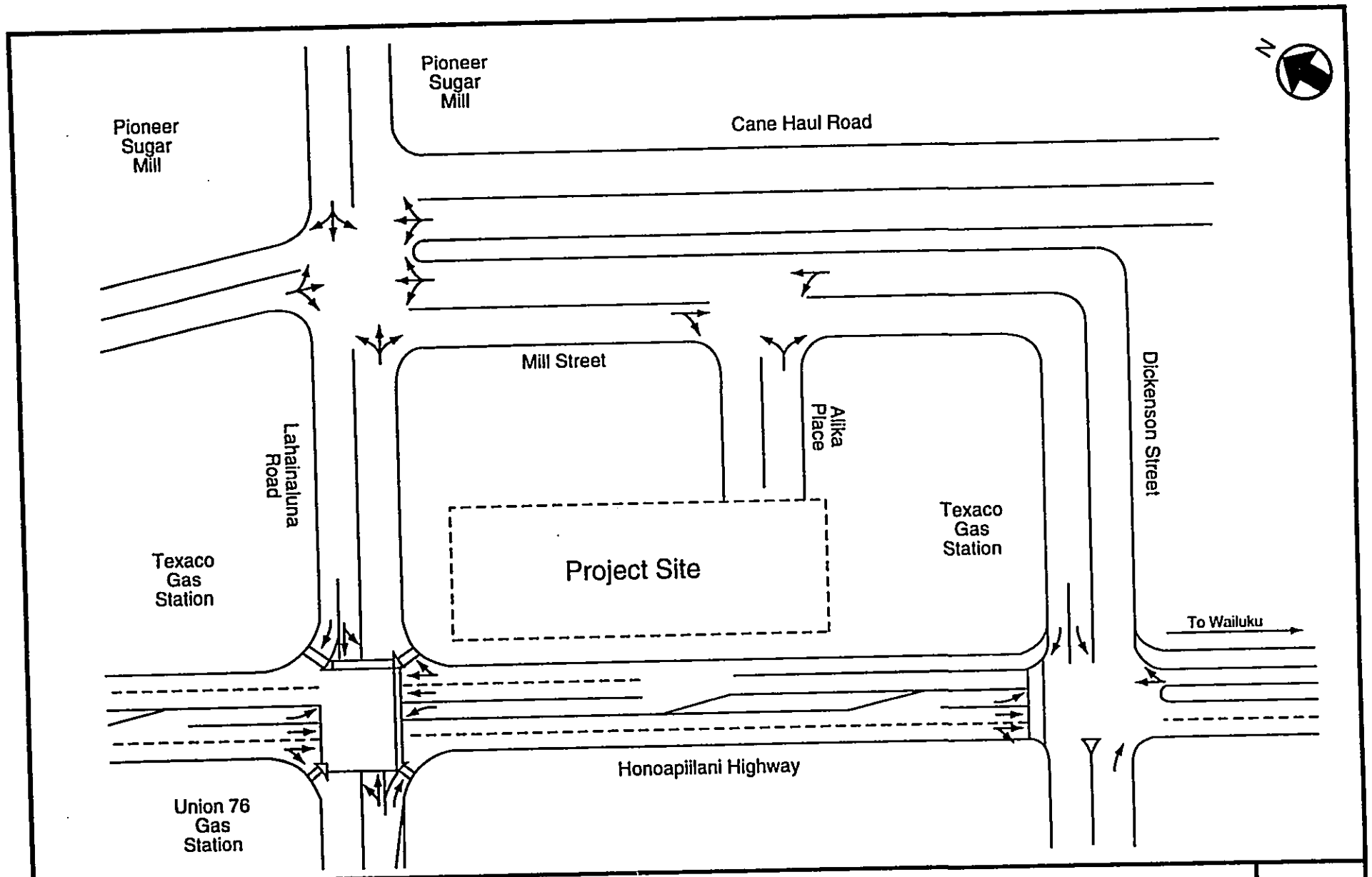
Figure 3 illustrates the existing roadway conditions described in this section.

In the project study area, Honoapiilani Highway is a four-lane, undivided highway which runs parallel to the coastline of Maui. As shown in Figure 3, the highway transitions from a two-lane roadway south of Dickenson Street to a four-lane highway in the project vicinity. The highway forms a signalized intersection with Lahainaluna Road, providing exclusive left-turn lanes. The highway also forms an unsignalized intersection with Dickenson Street. The posted limit is 40 miles per hour (mph).

Lahainaluna Road is a two-lane roadway which runs in the east-west direction. The roadway provides access to Lahainaluna High School, Lahainaluna Intermediate School, and Princess Nahienaena Elementary School. At the signalized intersection with Honoapiilani Highway, the Lahainaluna Road approaches provide shared left/through lanes and channelized right-turn lanes. The roadway forms an unsignalized intersection with Mill Street. The posted limit is 20 mph.

Mill Street is a north-south, two-lane roadway parallel to Honoapiilani Highway. In addition to the intersection with Lahainaluna Road, the roadway forms an unsignalized, two-way stop intersection with Alika Place. The posted limit is 20 mph.

At the intersection of Lahainaluna Road and Mill Street, an unpaved cane haul road runs parallel to Mill Street and then forms the north leg of the intersection (see Figure 3). The roadway provides access to the Pioneer Sugar Mill. Existing counts and observations show that there is minimal traffic volume along the cane haul road, and it has negligible impacts on intersection operations.



EXISTING LANE CONFIGURATIONS

Figure 3

Dickenson Street is a two-lane roadway that runs in the east-west direction. At the unsignalized intersection with Honoapiilani Highway, Dickenson Street to the east provides a channelized right-turn lane onto the highway. As shown in Figure 3, the west leg of the intersection is limited to right-turns to and from Dickenson Street, and the east leg does not provide a through movement. The posted speed limit is 20 mph.

B. EXISTING TRAFFIC VOLUMES

Manual turning movement traffic counts were conducted during the afternoon peak periods on Wednesday, July 1, 1998, and during the morning peak periods on Thursday, July 2, 1998, at the following four intersections:

- Honoapiilani Highway and Lahainaluna Road,
- Honoapiilani Highway and Dickenson Street,
- Lahainaluna Road and Mill Street, and
- Mill Street and Alika Place.

The morning and afternoon peak hours were found to occur from 7:15 to 8:15 AM and 4:00 to 5:00 PM.

Since the traffic count was conducted when schools were not in session, the traffic volumes obtained were lower than they would have been during the school year. The schools would not affect the PM peak hour traffic data since school hours fall outside of the PM peak hour, but the AM peak hour would be affected by the school traffic due to the three schools along Lahainaluna Road. The AM peak hour turning traffic count data were, therefore, adjusted at the following turning movements based on the 1997 *Hawaii State Department of Transportation (SDOT) Traffic Counts* at Station 25-C: Honoapiilani Highway and Lahainaluna Road, conducted when schools were in session:

- Honoapiilani Highway/Lahainaluna Road: southbound left, westbound left, westbound right
- Lahainaluna Road/Mill Street: westbound through, eastbound through

- Honoapiilani Road/Dickenson Street: southbound through

The existing traffic volumes are shown in Figure 4, and the traffic data are included in Appendix A of this report.

C. EXISTING INTERSECTION OPERATIONS

Traffic operations at each intersection were evaluated based on the existing roadway conditions and traffic volumes. The intersection of Honoapiilani Highway and Lahainaluna Road was analyzed using the *1994 Highway Capacity Manual* methodology for signalized intersections, and the remaining three intersections were analyzed using the methodology for unsignalized intersections. Intersection operating conditions are expressed as the qualitative measure Level-of-Service (LOS). LOS is represented by a letter designation ranging from A to F. LOS A represents free-flow operating conditions, while LOS F represents congested conditions. More detailed LOS definitions are included in Appendix B.

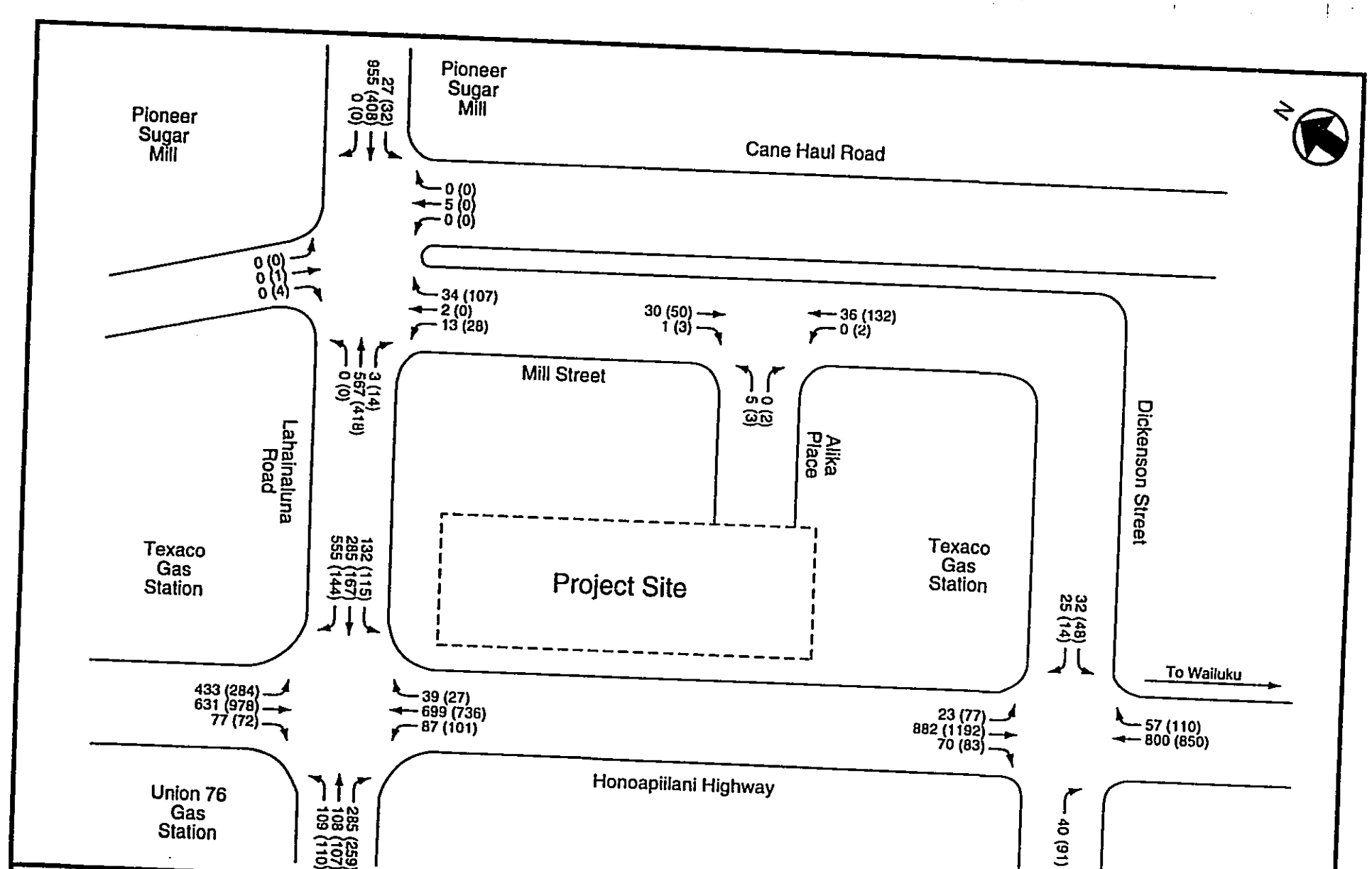
Signalized Intersections

Based on the operational analysis of the Honoapiilani Highway/Lahainaluna Road intersection, the overall intersection operates at LOS E in the AM peak hour, experiencing traffic delays. The eastbound and westbound approaches of Lahainaluna Road encounter the most delay (62.0 and 73.9 seconds/vehicle, respectively), operating at LOS F. During the PM peak hour, the intersection operations improve to LOS D for each approach, and the approach delays notably decrease for most movements. The traffic signal cycle length varies from 120 to 180 seconds per cycle; the analysis was conducted using a 135 second cycle length. Table 1 displays the results of the analysis, and the analysis worksheets are in Appendix C.

Unsignalized Intersections

Table 2 summarizes the analysis of existing unsignalized intersections.

As shown in Table 2, the overall intersection of Honoapiilani Highway and Dickenson Street operates acceptably in both peak hours (LOS A and LOS C), although westbound



EXISTING PEAK HOUR TRAFFIC VOLUMES

Figure 4

Table 1

Existing Conditions Level of Service

Signalized Intersection

Intersection	AM Peak Hour 7:15-8:15 AM		PM Peak Hour 4:00-5:00 PM	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Honoapiilani Highway/Lahainaluna Road	**E**	**54.0**	**D**	**33.0**
EB Left/Through	E	56.7	D	39.7
EB Right	F	67.8	D	36.3
WB Left/Through	F	87.4	D	34.5
WB Right	D	27.6	A	0.0
NB Left	E	58.2	D	39.6
NB Through/Right	E	59.9	D	36.1
SB Left	F	71.2	D	37.0
SB Through/Right	C	17.8	D	27.2

Note: NB- northbound, SB- southbound, EB- eastbound, WB- westbound

Dickenson Street experiences notable delays. The volume of traffic on Honoapiilani Highway limits the number of acceptable gaps in traffic entering from Dickenson Street. Eastbound Dickenson Street and southbound Honoapiilani Highway operate at LOS B with minimal delays.

The Mill Street/Alika Place and Mill Street/Lahainaluna Road intersections operate very well in both peak hours. For Mill Street/Alika Place intersection, the approach delays are less than 3.9 seconds/vehicle. Although Mill Street/Lahainaluna Road intersection operates well overall, northbound Mill Street experiences LOS D and a delay of 20.2 seconds/vehicle in the AM peak. The volumes on Lahainaluna Road limit the number of available gaps in traffic for Mill Street traffic to enter the main traffic flow. In the PM peak hour, the volumes along Lahainaluna Road decrease, and the delay for northbound Mill Street decreases to 8.0 seconds/vehicle.

Table 2

Existing Conditions Level of Service

Unsignalized Intersections

Intersection	AM Peak Hour 7:15-8:15 AM		PM Peak Hour 4:00-5:00 PM	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Honoapiilani Highway/Dickenson Street	**A**	**2.7**	**C**	**16.5**
EB Approach	B	5.2	B	7.1
WB Approach	F	86.0	F	*90.0
SB Approach	A	0.1	A	0.4
Mill Street/Alika Place	**A**	**0.3**	**A**	**0.1**
EB Approach	A	3.9	A	3.8
NB Approach	A	0.0	A	0.0
Lahainaluna Road/Mill Street	**A**	**0.7**	**A**	**1.2**
NB Approach	D	20.2	B	8.0
WB Approach	A	0.1	A	0.3

Note: NB- northbound, SB- southbound, EB- eastbound, WB- westbound
*Adjusted delay according to field observations.

III. YEAR 2000 TRAFFIC CONDITIONS

The Year 2000 was the assumed year of completion for the proposed Mango Manor Commercial Complex. Traffic generated by the proposed development was based on the forecasting methodology of trip generation, trip distribution, and trip assignment.

The Year 2000 roadway conditions were assumed to be the same as the existing roadway conditions with the exception of the Honoapiilani Highway/Dickenson Street intersection. According to the Hawaii State Department of Transportation, the intersection of Honoapiilani Highway and Dickenson Street will be signalized by the Year 2000; therefore, the intersection was analyzed as a signalized intersection for future conditions. As a signalized intersection, all movements will be accommodated. The westbound and eastbound approaches at Dickenson Street will be modified to a single left/through/right lane, and an exclusive left-turn lane will be added to the southbound approach of Honoapiilani Highway.

A. TRIP GENERATION

Trip generation rates documented in the 1997 Institute of Transportation Engineers (ITE) publication, *Trip Generation, Sixth Edition*, were used to estimate the traffic volumes generated by the project. The total floor area of the complex would be approximately 13,720 square feet divided equally for retail and general office land uses; therefore, the gross floor area (GFA) of each land use was assumed to be 6,875 square feet. Table 3 presents the number of vehicular trips generated by the project in the Year 2000.

Table 3

Trip Generation

Landuse	Intensity	AM Peak Hour 7:15-8:15 AM		PM Peak Hour 4:00-5:00 PM	
		Enter	Exit	Enter	Exit
General Office Building (ITE 710)	6,875 sq.ft.	9	1	2	9
Shopping Center (ITE 820)	6,875 sq.ft.	20	13	51	56
TOTAL	**13,720 sq. ft.**	**29**	**14**	**53**	**65**

Source: Institute of Transportation Engineers (ITE), *Trip Generation, Sixth Edition*, 1997

B. TRIP DISTRIBUTION

The traffic generated by the proposed Mango Manor Commercial Complex was directionally distributed for each land type described in Table 3. The general office trips were distributed fifty percent to north Honoapiilani Highway (to Kaanapali) and fifty percent to south Honoapiilani Highway (to Wailuku). The shopping center trips were distributed eighty percent to north Honoapiilani Highway, ten percent to south Honoapiilani Highway, five percent each to the east and west on Lahainaluna Road. These distributions were applied to the trips generated, and the resulting assignment is shown in Figure 5.

C. YEAR 2000 NO BUILD TRAFFIC VOLUMES

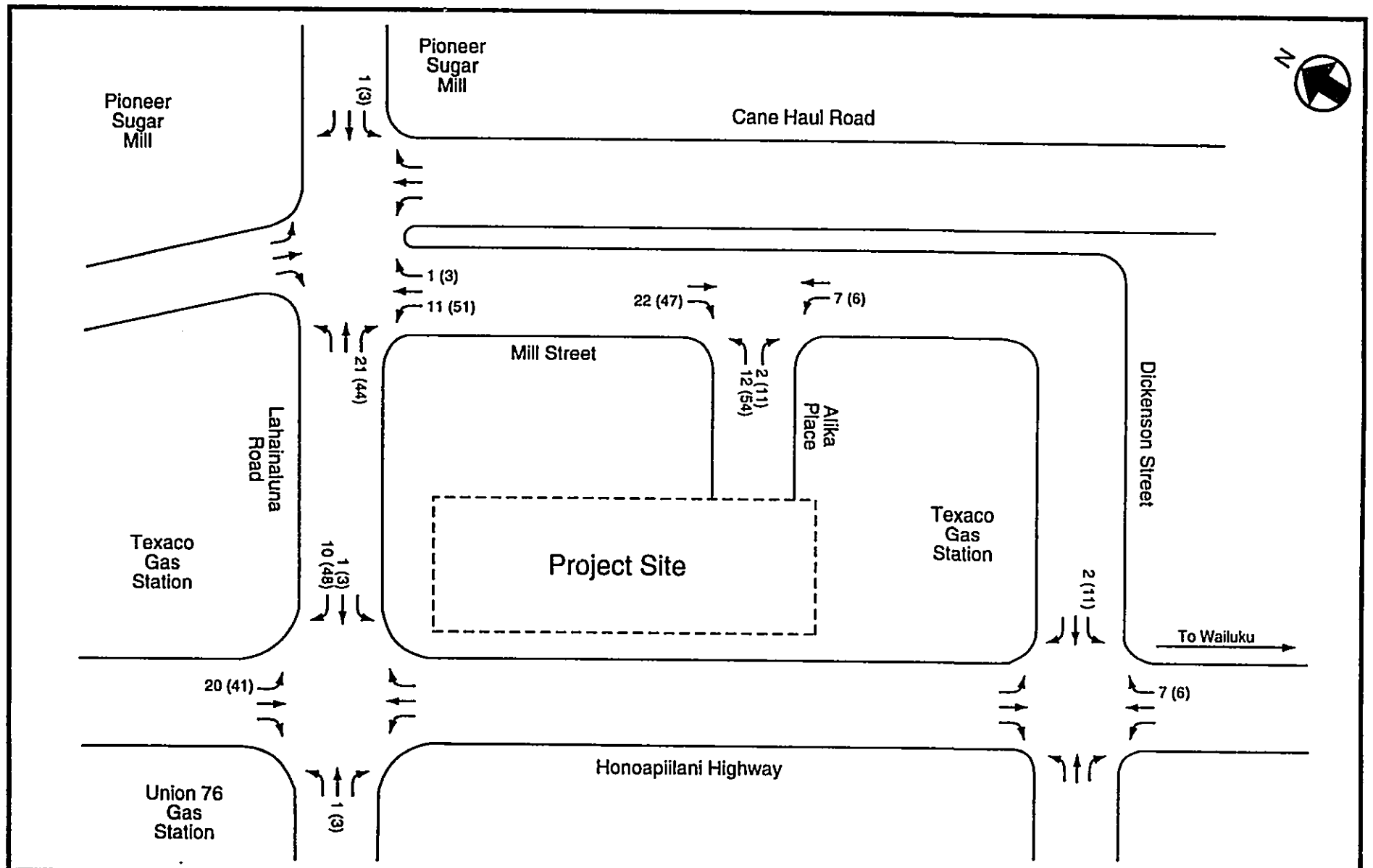
The Year 2000 background traffic volumes were estimated by factoring existing traffic by annual growth rates estimated from 1997 *Hawaii State Department of Transportation (SDOT) Traffic Counts* at Station 25-C: Honoapiilani Highway and Lahainaluna Road. The following annual growth rates were applied by roadway:

- Honoapiilani Highway 3.5%
- Lahainaluna Road (west leg) 5.0%
- Lahainaluna Road (east leg) 0.0%
- Mill Street, Dickenson Street, Alika Place 0.0%

The resulting background traffic volumes are the No Build alternative peak hour traffic volumes shown in Figure 6. The No Build alternative is the traffic that would occur without the Mango Manor Commercial Complex.

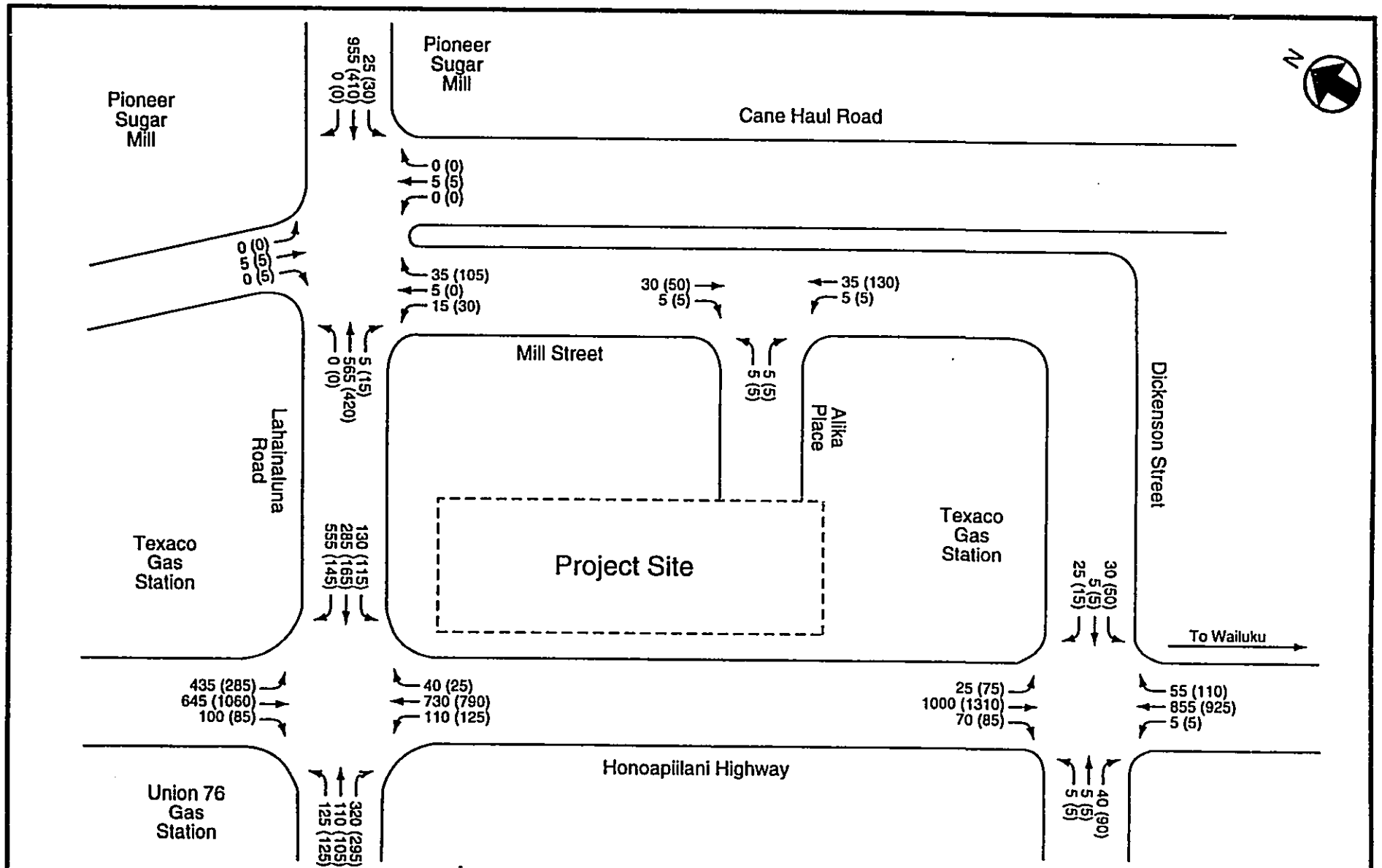
D. TOTAL TRAFFIC

The site generated traffic (see Figure 5) was added to the future No Build traffic (see Figure 6) to obtain the future Build peak hour traffic volumes. Figure 7 presents the Year 2000 Build turning movement volumes.



SITE GENERATED TRAFFIC VOLUMES

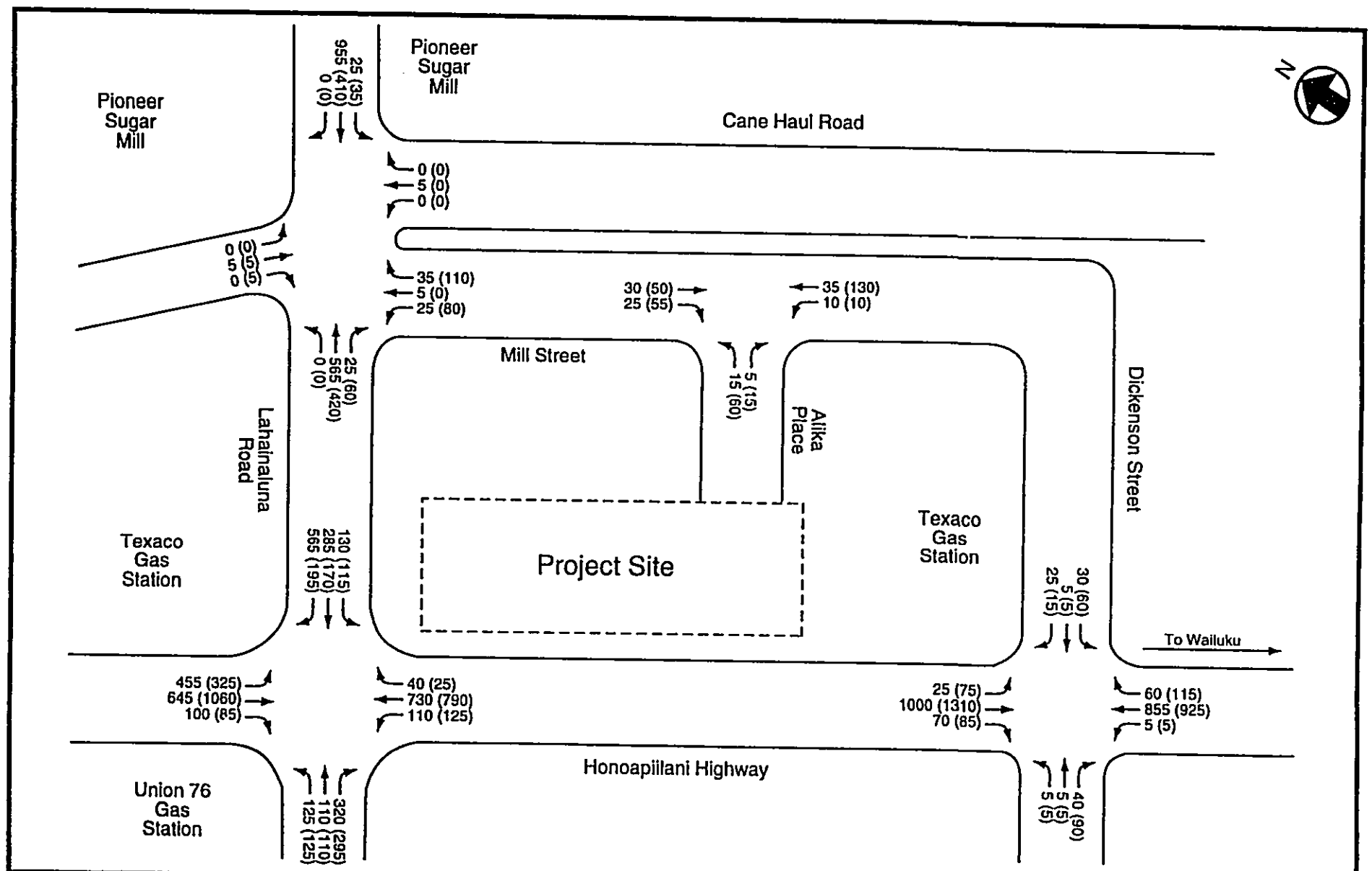
Figure 5



PB 100 YEARS

YEAR 2000 NO BUILD PEAK HOUR TRAFFIC VOLUMES

Figure **6**



YEAR 2000 BUILD PEAK HOUR TRAFFIC VOLUMES

Figure **7**

E. INTERSECTION OPERATIONS ANALYSIS RESULTS

The four study intersections were analyzed for the No Build and Build alternatives using the *1994 Highway Capacity Manual* methods for signalized and unsignalized intersections. The intersection of Honoapiilani Highway and Dickenson Street was analyzed as a signalized intersection based on Hawaii State Department of Transportation (SDOT) plans to install a traffic signal by the end of the year. The intersections of Honoapiilani Highway/Lahainaluna Road, Lahainaluna Road/Mill Street, and Mill Street/Alika Place were assumed to have the same roadway conditions as analyzed in the existing analysis. Table 4 shows the results of the No Build and Build analyses, and the analysis worksheets are in Appendix C.

As shown in Table 4, the Honoapiilani Highway/Lahainaluna Road and Honoapiilani Highway/Dickenson Street intersections are projected to have the same levels of service during each peak hour for the No Build and Build alternatives. Although the delays are projected to increase slightly for the Build alternative, the increased delays are not expected to affect the levels of service in either peak hour. The assumed signal cycle length was 135 seconds for each intersection. During the AM peak hour, the Honoapiilani Highway/Lahainaluna Road intersection is projected to continue to operate at LOS E. The Honoapiilani Highway/Dickenson Street intersection is projected to operate at LOS C. During the PM peak hour, both signalized intersections are projected to operate at LOS D.

For both the AM and PM peak hours, the Mill Street/Alika Place and Lahainaluna Road/Mill Street intersections are projected to operate at an overall LOS A. The northbound approach of Lahainaluna Road/Mill Street is projected to experience changes in LOS during both peak hours for the Build alternative. Likewise, the eastbound approach of Mill Street/Alika Place is projected to experience a change of LOS A to LOS B in the PM peak hour. The levels of service changes are due to the increases in traffic volumes of these movements.

Table 4

Year 2000 Conditions Peak Hour Levels of Service

Comparison of No Build and Build Alternatives

Intersection	No Build		Build	
	AM (delay)	PM (delay)	AM (delay)	PM (delay)
Signalized Intersections				
Honoapiilani Highway/Lahainaluna Road	**E (47.1)**	**D (35.1)**	**E (48.9)**	**D (35.8)**
EB Approach	E (55.0)	D (36.9)	E (55.0)	D (37.3)
WB Approach	E (56.7)	D (37.1)	E (57.2)	D (37.7)
NB Approach	E (56.5)	D (39.8)	E (56.5)	D (39.8)
SB Approach	D (32.9)	D (31.2)	D (37.6)	D (32.4)
Honoapiilani Highway/Dickenson Street	**C (17.1)**	**D (25.9)**	**C (17.5)**	**D (28.8)**
EB Approach	D (35.3)	D (34.6)	D (35.3)	D (33.7)
WB Approach	D (37.9)	D (36.1)	D (37.9)	D (38.0)
NB Approach	D (29.3)	E (50.9)	D (30.3)	E (57.8)
SB Approach	B (5.1)	B (8.5)	B (5.1)	B (8.8)
Unsignalized Intersections				
Mill Street/Alika Place	**A (0.5)**	**A (0.2)**	**A (0.8)**	**A (1.3)**
EB Approach	A (3.4)	A (3.7)	A (3.8)	B (5.0)
NB Approach	A (0.3)	A (0.1)	A (0.5)	A (0.2)
Lahainaluna Road/Mill Street	**A (1.1)**	**A (1.3)**	**A (1.8)**	**A (2.9)**
NB Approach	D (26.2)	B (8.4)	E (40.8)	C (15.8)
SB Approach	E (34.6)	B (7.9)	E (35.6)	B (8.3)
EB Approach	A (0.0)	A (0.0)	A (0.0)	A (0.0)
WB Approach	A (0.1)	A (0.2)	A (0.1)	A (0.3)

Note: NB- northbound, SB- southbound, EB- eastbound, WB- westbound
AM peak hour (7:15-8:15 AM); PM peak hour (4:00-5:00 PM)
Delay is expressed as seconds per vehicle.

F. SUMMARY OF RESULTS

The results of the intersection analysis indicate that the intersections on Honoapiilani Highway with Lahainaluna Road and Dickenson Street will not change in performance levels as a result of the proposed development. The new traffic signal to be installed at the

Dickenson Street intersection will improve access into the Mill Street area by providing an alternative to the Honoapiilani Highway/Lahainaluna Road intersection.

The intersection of Lahainaluna Road and Mill Street is not projected to experience an overall change in level of service, but the Mill Street approach to the intersection is projected to experience a decrease in level of service. The increase in average vehicle delay is 14.6 and 7.4 seconds in the AM and PM, respectively, and is attributed to the slight increase in traffic on the Mill Street approach and growth in volumes on Lahainaluna Road.

The intersection of Alika Place and Mill Street is projected to maintain LOS A operation. The Alika Place intersection approach is projected to decrease from a level of service A to B in the PM peak hour with a projected increase in average vehicle delay of 1.3 seconds.

Within both peak hours, the overall intersection levels of service are the same for the No Build and Build alternatives. The traffic forecast and analysis indicate that traffic entering and exiting the study area will experience minimal increases in delay at the unsignalized intersections, and the signalized intersections are projected to operate at existing levels of service with minimal delay increases during both peak hours. Although delays slightly increase for the Build alternative, the results indicate that the traffic generated by the Mango Manor Commercial Complex will not adversely affect the overall operation of the intersections.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSION

It is concluded that the traffic generated by the proposed Mango Manor Commercial Complex can be accommodated by the surrounding roadway system. Operational analyses of the study area intersections project that the intersections will operate at the same overall levels of service with or without the proposed project. Some increases in average vehicle delays are *forecasted*, but Hawaii State Department of Transportation roadway improvements at the Honoapiilani Highway/Dickenson Street intersection are currently underway and will help minimize the increases in delay.

The Honoapiilani Highway/Lahainaluna Road intersection currently operates at levels of service E and D in the AM and PM respectively. The proposed development is not projected to change these levels of service, and the overall impact of the proposed development to the adjacent intersections is minimal.

B. RECOMMENDATIONS

The following recommendations identify specific improvements that help to enhance traffic operations related to access for the proposed Mango Tree Manor development.

Alika Place/Mill Street Intersection

The proposed access to the site will be via Alika Place. Existing Alika Place is a paved surface with width varying from 17 to 20 feet. The condition of the paved surface is fractured in spots, and there are no pavement markings.

As part of the Mango Tree Manor development, it is recommended to add roadway edge lines along Alika Place and a stop line at Mill Street. A pavement overlay of Alika Place may be warranted. If it is, then Mango Tree Manor would participate in their fair share of its cost.

Mill Street/Lahainaluna Road Intersection

The overall intersection is projected to operate well, but the Mill Street approach is projected to experience an increase in delay due to the added traffic volumes. A traffic

signal is not warranted for the intersection. To help peak hour conditions at this intersection, directional guide signs that direct traffic to the intersection of Honoapiilani Highway and Dickenson Street will be implemented at the intersection of Alika Place and Mill Street.

APPENDIX

Appendix A Traffic Count Data

Parsons Brinckerhoff
Pacific Tower, Suite 3000
1001 Bishop Street
Honolulu, HI 96813

Site Code : 00000000
Start Date: 07/02/98
File I.D. : LLAM
Page : 1

Movement 1

Start	Honoapiilani Highway From North				Lahainaluna Road From East				Honoapiilani Highway From South				Lahainaluna Road From West					
Time	Left	Thru	Rght	Other	Left	Thru	Rght	Other	Left	Thru	Rght	Other	Left	Thru	Rght	Other	Total-	Other=
6:30	19	87	9	0	6	13	7	0	12	131	12	0	15	24	45	0	380	0 380
6:45	26	113	18	0	6	9	5	0	15	189	5	0	20	13	44	0	463	0 463
Total	45	200	27	0	12	22	12	0	27	320	17	0	35	37	89	0	843	0 843
7:00am	33	146	17	0	4	12	5	0	6	168	6	0	13	21	61	0	492	0 492
7:15	38	151	9	0	11	23	8	0	23	169	7	0	31	29	78	0	577	0 577
7:30	50	146	14	0	11	29	16	0	16	181	8	0	28	22	91	0	612	0 612
7:45	48	167	34	0	10	28	12	0	24	193	12	0	31	36	71	0	666	0 666
Hour Total	169	610	74	0	36	92	41	0	69	711	33	0	103	108	301	0	2347	0 2347
7:15-8:15 Tot	183	631	77	0	*41	*103	*49	0	97	699	39	0	109	108	285	0	2411	0
8:00am	47	167	20	0	9	23	13	0	24	156	12	0	19	21	45	0	556	0 556
8:15	27	169	18	0	6	14	14	0	15	98	7	0	19	18	53	0	458	0 458
8:30	43	144	19	0	11	14	15	0	25	148	14	0	25	25	61	0	544	0 544
8:45	58	213	30	0	7	16	20	0	22	133	8	0	27	31	52	0	617	0 617
Hour Total	175	693	87	0	33	67	62	0	86	535	41	0	90	95	211	0	2175	0 2175
Grand	389	1503	188	0	81	181	115	0	182	1566	91	0	228	240	601	0	5365	0 5365
% of Total	7.3%	28.0%	3.5%	0.0%	1.5%	3.4%	2.1%	0.0%	3.4%	29.2%	1.7%	0.0%	4.2%	4.5%	11.2%	0.0%		0.0%100.0%
Apprch %	38.8%				7.0%				34.3%				19.9%					
% of Apprch	18.7%	72.3%	9.0%	0.0%	21.5%	48.0%	30.5%	0.0%	9.9%	85.2%	4.9%	0.0%	21.3%	22.5%	56.2%	0.0%		

* Machine error; factor applied using adjacent intersection (MillSt/LahainalunaRd) counts.

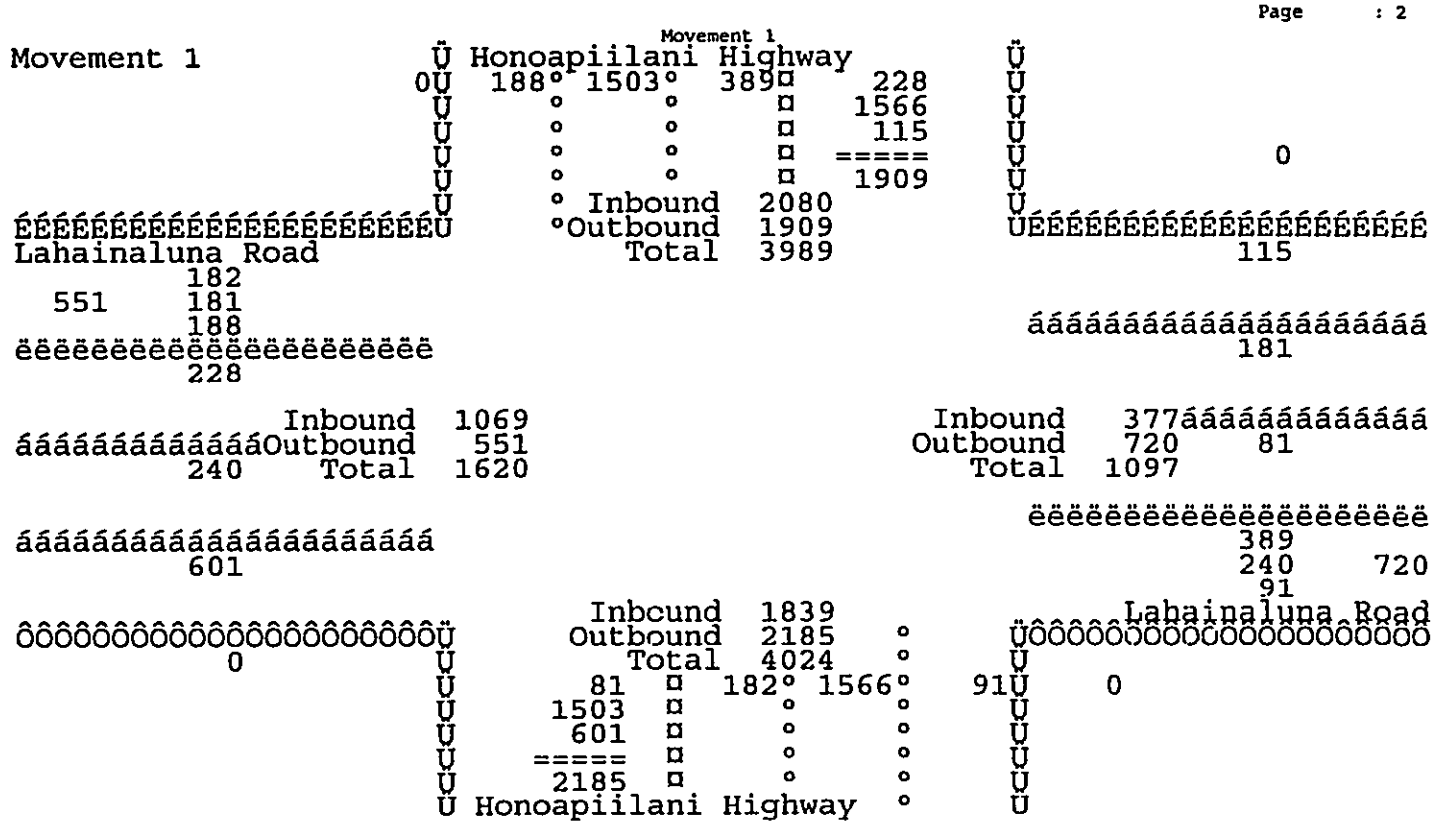
adj tot. 535 / cur tot. 193 = 2.77

L- 41 ⇒ 114
Th- 103 ⇒ 285
Rt- 49 ⇒ 136

Note that some movements were also adjusted for the school year; see report text.

Parsons Brinckerhoff
Pacific Tower, Suite 3000
1001 Bishop Street
Honolulu, HI 96813

Site Code : 00000000
Start Date: 07/02/98
File I.D. : LLAM



Parsons Brinckerhoff
Pacific Tower, Suite 3000
1001 Bishop Street
Honolulu, HI 96813

Site Code : 00000000
Start Date: 07/02/98
File I.D. : LLAM
Page : 3

Peak Hour Analysis By Entire Intersection for the Period: 06:30am to 08:45am on 07/02/98

Direction	Street Name	Start Peak Hour	Peak Hr Factor	..... Volumes ..... Left	Thru	Rght	Total	..... Percentages ..... Left	Thru	Rght
From North	Honoapiilani Highway	07:15am	.895	183	631	77	891	20.5	70.8	8.6
From East	Lahainaluna Road		.862	114 ~~41~~	~~103~~ 285	~~57~~ 136	193	21.2	53.3	25.3
From South	Honoapiilani Highway		.901	87	699	39	825	10.5	84.7	4.7
From West	Lahainaluna Road		.890	109	108	285	502	21.7	21.5	56.7

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Pacific Tower, Suite 3000
1001 Bishop Street
Honolulu, HI 96813

Site Code : 00000000
Start Date: 07/01/98
File I.D. : LLPM
Page : 1

Movement 1

	Honoapiilani Highway From North				Lahainaluna Road From East				Honoapiilani Highway From South				Lahainaluna Road From West					
Start Time	Left	Thru	Rght	Other	Left	Thru	Rght	Other	Left	Thru	Rght	Other	Left	Thru	Rght	Other	Total-	Other=
3:00pm	20	103	5	0	31	113	33	0	24	202	3	0	28	26	28	0	616	0 616
3:15	69	251	6	0	34	34	36	0	30	164	12	0	15	20	36	0	707	0 707
3:30	55	129	7	0	8	17	11	0	20	150	11	0	28	26	56	0	518	0 518
3:45	66	177	18	0	18	39	28	0	23	178	8	0	38	34	63	0	690	0 690
Hour Total	210	660	36	0	91	203	108	0	97	694	34	0	109	106	183	0	2531	0 2531
4:00pm	58	240	28	0	34	36	23	0	28	178	4	0	32	16	69	0	746	0 746
4:15	75	246	15	0	19	34	32	0	34	173	5	0	33	36	55	0	757	0 757
4:30	75	280	10	0	21	37	31	0	24	192	13	0	23	30	66	0	802	0 802
4:45	76	212	19	0	26	38	39	0	15	193	5	0	22	25	69	0	739	0 739
Hour Total	284	978	72	0	*~~100~~ 115	~~145~~ 167	~~125~~ 144	0	101	736	27	0	110	107	259	0	3044	0 3044
5:00pm	87	205	13	0	18	40	32	0	22	165	7	0	34	31	52	0	706	0 706
5:15	0	0	0	0	0	0	0	0	44	193	5	0	16	18	43	0	319	0 319
5:30	0	0	0	0	0	0	0	0	13	112	4	0	19	10	25	0	182	0 182
Total	87	205	13	0	18	40	32	0	79	470	16	0	68	59	120	0	1207	0 1207
Grand	581	1843	121	0	209	388	265	0	277	1900	77	0	287	272	562	0	6782	0 6782
% of Total	8.6%	27.2%	1.8%	0.0%	3.1%	5.7%	3.9%	0.0%	4.1%	28.0%	1.1%	0.0%	4.2%	4.0%	8.3%	0.0%		0.0%100.0%
Apprch %	37.5%				12.7%				33.2%				16.5%					
% of Apprch	22.8%	72.4%	4.8%	0.0%	24.2%	45.0%	30.7%	0.0%	12,3%	84.3%	3.4%	0.0%	25.6%	24.3%	50.1%	0.0%		

* Machine error; factor applied using adjacent intersection (Mill St./Lahainaluna) Counts.

adj tot. 425 / cur. tot 370 = 1.15

L- 100 ⇒ 115
Th- 145 ⇒ 167
Rt- 125 ⇒ 144

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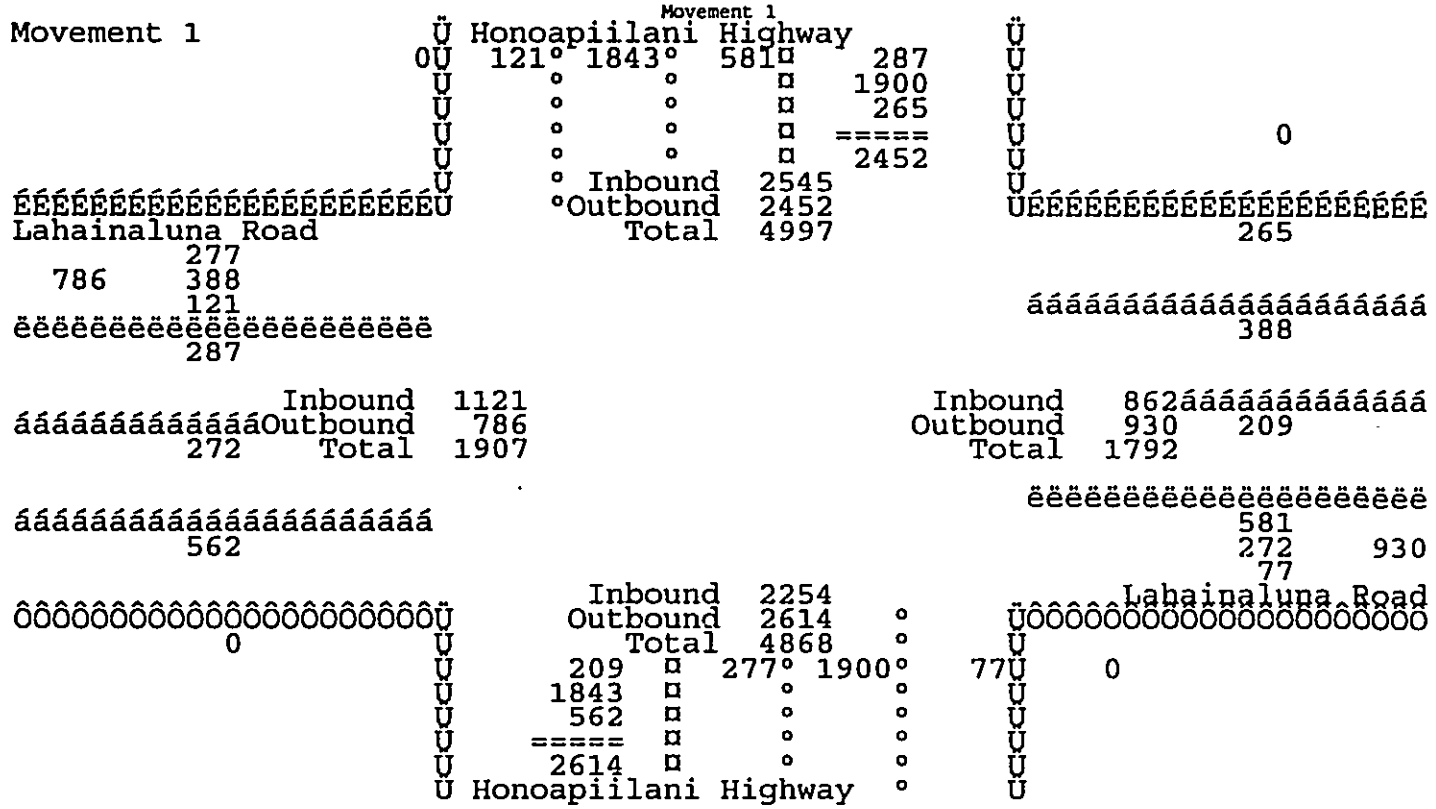


Parsons Brinckerhoff

Pacific Tower, Suite 3000
1001 Bishop Street
Honolulu, HI 96813

Site Code : 00000000
Start Date: 07/01/98
File I.D. : LLPM

Peak Hour Analysis By Entire Intersection for the Period: 03:00pm to 05:30pm on 07/01/98

Direction	Street Name	Start Peak Hour	Peak Hr Factor	..... Volumes ..... Left	Thru	Rght	Total	..... Percentages ..... Left	Thru	Rght
From North	Honoapiilani Highway	04:00pm	.914	284	978	72	1334	21.2	73.3	5.3
From East	Lahainaluna Road		.898	115 ~~100~~	~~145~~167	~~126~~144	370	27.0	39.1	33.7
From South	Honoapiilani Highway		.943	101	736	27	864	11.6	85.1	3.1
From West	Lahainaluna Road		.960	110	107	259	476	23.1	22.4	54.4

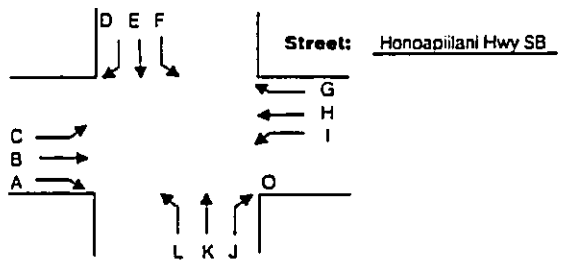
AM COUNT SHEET

Intersection: Dickenson St/Honoapiilani Hwy

Date: 7/2/98

By: Brenda Cordy (Aloha)

Weather: Clear and Sunny



Street Dickenson St WB

TIME	D	A	L	J	G	I							Total Mvmt	Total Hour
6:30 - 6:45	4	9	4	5	6	2							30	190
6:45 - 7:00	5	23	2	15	14	6							66	220
7:00 - 7:15	1	7	0	4	4	2							18	197
7:15 - 7:30	16	15	7	7	23	8							76	247
7:30 - 7:45	4	18	13	6	15	4							60	224
7:45 - 8:00	9	12	4	3	10	5							43	201
8:00 - 8:15	11	12	8	9	22	6							68	197
8:15 - 8:30	14	15	4	3	11	6							53	
8:30 - 8:45	5	7	2	4	18	1							37	
8:45 - 9:00	5	4	1	2	25	2							39	
Phf	0.625	0.792	0.615	0.694	0.761	0.719							Peak	Phf
7:15 - 8:15	40	57	32	25	70	23							247	0.813

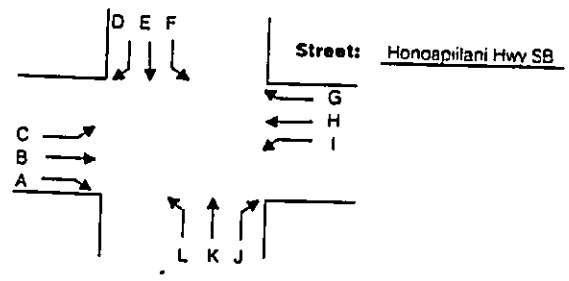
PM COUNT SHEET

Intersection: Dickenson St/Honoapiilani Hwy

Date: 7/1/98

By: Brenda Cordy (Aloha)

Weather: Clear and Sunny



TIME	D	A	L	J	G	I							Total Mvmt	Total Hour
3:00 - 3:15	6	12	0	0	5	4							27	191
3:15 - 3:30	16	1	4	1	0	3							25	274
3:30 - 3:45	15	24	4	7	35	6							93	354
3:45 - 4:00	9	12	8	2	13	2							46	376
4:00 - 4:15	28	27	13	5	22	15							110	423
4:15 - 4:30	23	20	17	3	17	25							105	378
4:30 - 4:45	14	43	7	3	26	22							115	326
4:45 - 5:00	26	20	11	3	18	15							93	
5:00 - 5:15	21	15	10	3	11	5							65	
5:15 - 5:30	18	14	1	2	10	8							53	
Phf	0.813	0.640	0.706	0.700	0.798	0.770							Peak	Phf
4:00 - 5:00	91	110	48	14	83	77							423	0.920

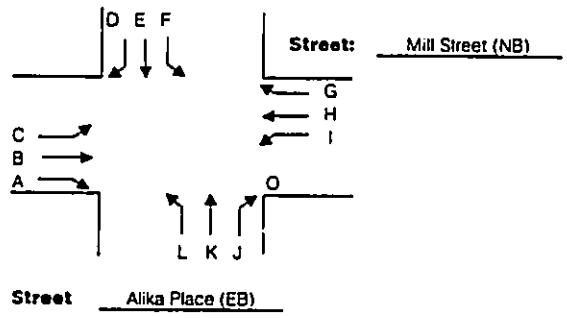
AM COUNT SHEET

Intersection: Alika Pl/ Mill St

Date: 7/2/98

By:

Weather: Clear and Sunny



TIME	L	J	B	A	I	H							Total Mvmt	Total Hour
6:30 - 6:45	1	0	7	0	0	12							20	63
6:45 - 7:00	1	1	3	0	0	12							17	55
7:00 - 7:15	0	0	5	0	0	7							12	66
7:15 - 7:30	2	0	3	0	0	9							14	72
7:30 - 7:45	0	0	7	0	0	5							12	74
7:45 - 8:00	2	0	15	0	0	11							28	66
8:00 - 8:15	1	0	5	1	0	11							18	54
8:15 - 8:30	0	0	9	0	0	7							16	
8:30 - 8:45	0	0	2	0	0	2							4	
8:45 - 9:00	1	2	4	1	2	6							16	
Phf	0.625	#DIV/0!	0.500	0.250	#DIV/0!	0.818							Peak	Phf
7:15 - 8:15	5	0	30	1	0	36							72	0.643

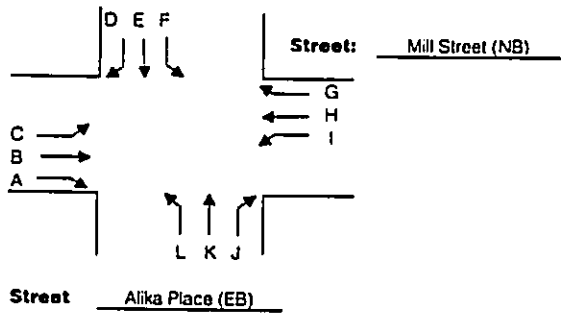
PM COUNT SHEET

Intersection: Alika Pl/ Mill St

Date: 7/1/98

By: 0

Weather: Clear and Sunny



TIME	L	J	B	A	I	H							Total Mvmt	Total Hour
3:00 - 3:15	2	3	7	1	3	22							38	126
3:15 - 3:30	0	1	7	2	0	19							29	136
3:30 - 3:45	0	0	6	1	2	37							46	163
3:45 - 4:00	2	1	5	0	0	5							13	168
4:00 - 4:15	2	0	15	0	0	31							48	215
4:15 - 4:30	0	0	13	0	0	43							56	198
4:30 - 4:45	1	1	10	0	1	38							51	177
4:45 - 5:00	0	1	12	3	1	43							60	
5:00 - 5:15	2	0	9	3	0	17							31	
5:15 - 5:30	2	0	8	0	4	21							35	
Phf	0.375	0.500	0.833	0.250	0.500	0.901							Peak	Phf
4:00 - 5:00	3	2	50	3	2	155							215	0.896

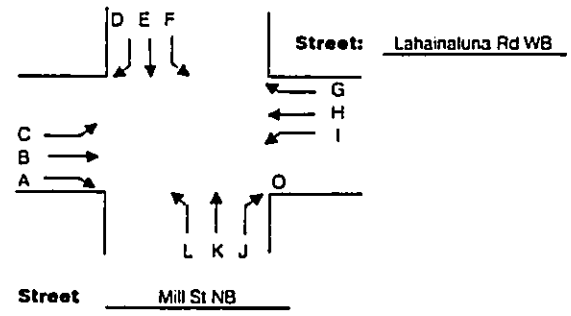
AM COUNT SHEET

Intersection: Lahainaluna Rd/ Mill St

Date: 7/2/98

By: Laura DeCrausaz (Aloha)

Weather: Clear and Sunny



TIME	*B	*H	A	I	L	K	J						Total Mvmt	Total Hour
6:30 - 6:45	29	81	3	2	3	1	8						127	661
6:45 - 7:00	46	71	0	5	2	1	9						134	778
7:00 - 7:15	55	103	3	2	5	0	6						174	902
7:15 - 7:30	68	147	1	2	2	0	6						226	932
7:30 - 7:45	72	153	0	9	4	1	5						244	857
7:45 - 8:00	93	137	1	9	1	1	16						258	803
8:00 - 8:15	84	99	1	7	6	0	7						204	750
8:15 - 8:30	41	87	2	8	3	0	10						151	
8:30 - 8:45	59	112	2	6	4	0	7						190	
8:45 - 9:00	62	124	6	1	4	0	8						205	
Phf	*0.852	*0.876	0.750	0.750	0.542	0.500	0.531						Peak	Phf
7:15 - 8:15	*317	*536	3	27	13	2	34						932	0.903

* Adjusted for school-year

B = 317 → 567 factor of 1.79

H = 536 ⇒ 955 factor of 1.78

$$Phf = \frac{567}{4(1.79 \times 93)} = 0.85$$

$$Phf = \frac{955}{4(1.78 \times 153)} = 0.88$$

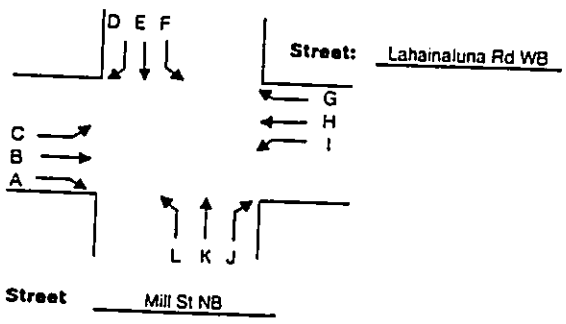
PM COUNT SHEET

Intersection: Lahainaluna Rd/ Mill St

Date: 7/1/98

By: Laura DeCrausaz (Aloha)

Weather: Clear and Sunny



TIME	B	H	A	I	L	K	J	F	E	D			Total Mvmt	Total Hour
3:00 - 3:15	33	28	2	0	2	0	8	2	0	2			77	737
3:15 - 3:30	100	104	6	3	5	0	12	2	0	2			234	913
3:30 - 3:45	68	71	2	1	1	0	10	0	0	1			154	978
3:45 - 4:00	106	136	5	3	5	0	16	0	1	0			272	1030
4:00 - 4:15	103	100	2	11	5	0	30	0	1	1			253	1012
4:15 - 4:30	134	118	1	1	10	0	35	0	0	0			299	1010
4:30 - 4:45	75	83	5	8	7	0	26	0	0	2			206	884
4:45 - 5:00	106	107	6	12	6	0	16	0	0	1			254	
5:00 - 5:15	128	95	3	4	3	0	18	0	0	0			251	
5:15 - 5:30	80	64	0	6	2	0	19	2	0	0			173	
Phf	0.780	0.864	0.583	0.667	0.700	#DIV/0!	0.764	#DIV/0!	0.250	0.500			Peak	Phf
4:00 - 5:00	418	408	14	32	28	0	107	0	1	4			1012	0.846

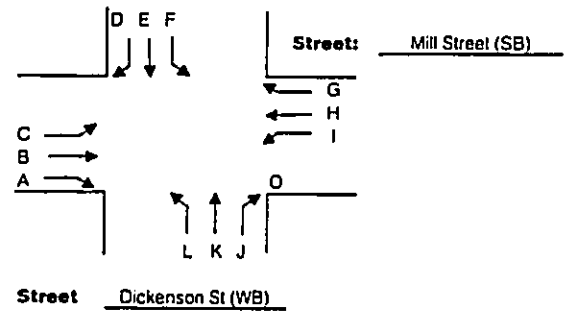
AM COUNT SHEET

Intersection: Mill Street/Dickenson Street

Date: 7/2/98

By:

Weather: Clear and Sunny



TIME	F	G											Total Mvmt	Total Hour
6:30 - 6:45	2	5											7	25
6:45 - 7:00	4	4											8	33
7:00 - 7:15	5	4											9	32
7:15 - 7:30	0	1											1	37
7:30 - 7:45	11	4											15	52
7:45 - 8:00	3	4											7	44
8:00 - 8:15	8	6											14	40
8:15 - 8:30	10	6											16	
8:30 - 8:45	5	2											7	
8:45 - 9:00	0	3											3	
Phf	0.500	0.625											Peak	Phf
7:15 - 8:15	22	15											37	0.617

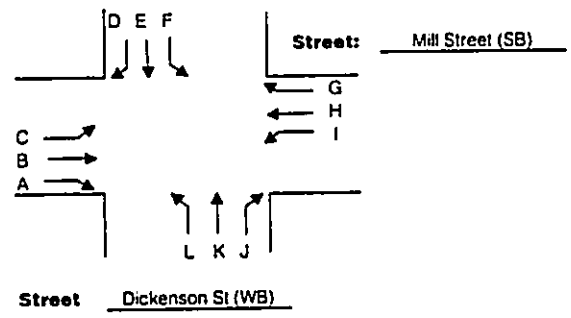
PM COUNT SHEET

Intersection: Mill Street/Dickenson Street

Date: 7/1/98

By: 0

Weather: Clear and Sunny



TIME	F	G	0	0	0	0							Total Mvmt	Total Hour
3:00 - 3:15	12	4											16	64
3:15 - 3:30	10	5											15	93
3:30 - 3:45	5	1											6	116
3:45 - 4:00	18	9											27	157
4:00 - 4:15	32	13											45	166
4:15 - 4:30	31	7											38	143
4:30 - 4:45	39	8											47	121
4:45 - 5:00	26	10											36	
5:00 - 5:15	15	7											22	
5:15 - 5:30	12	4											16	
Phf	0.821	0.731											Peak	Phf
4:00 - 5:00	128	38											166	0.883

Appendix B Levels of Service Definitions

The *Highway Capacity Manual* defines six Levels of Service (LOS), labeled A through F, from best to worst conditions. Levels of Service for signalized and unsignalized intersections are defined in terms of average user delays. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

For unsignalized intersections, the *Highway Capacity Manual* evaluates gaps in the major street traffic flow and calculates available gaps for left-turns across oncoming traffic and for the left and right-turns onto the major roadway from the minor street.

LEVEL-OF-SERVICE A: Little or no delay.

LEVEL-OF-SERVICE B: Short traffic delays.

LEVEL-OF-SERVICE C: Average traffic delays.

LEVEL-OF-SERVICE D: Long traffic delays.

LEVEL-OF-SERVICE E: Very long traffic delays.

LEVEL-OF-SERVICE F: Demand volume exceeds capacity, resulting in extreme delays with queuing that may cause severe congestion and affect other movements at the intersection.

Appendix C Intersection Capacity Analysis Worksheets

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 07-14-1998

Parsons Brinckerhoff Quade & Douglas

Streets: (E-W) Lahainaluna Road (N-S) Honoapiilani Highway
Analyst: Graves File Name: LLHPAM.HC9
Area Type: Other 7-13-98 AM Peak
Comment: Existing AM Peak Hour (7:15-8:15 AM)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	1	0	> 1	1	1	2	< 0	1	2	< 0
Volumes	109	108	285	132	285	555	87	699	39	433	631	77
PHF or PK15	0.89	0.89	0.89	0.86	0.86	0.86	0.90	0.90	0.90	0.90	0.90	0.90
Lane W (ft)		12.0	12.0		12.0	12.0	11.0	12.0		11.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	1	1	1	1	1	1	5	5	5	5	5	5
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			10			0			10			10
Ped Button	(Y/N)	Y	17.3 s	(Y/N)	N		(Y/N)	Y	11.5 s	(Y/N)	Y	11.5
Arr Type		3	3		3	3	3	3		3	3	
RTOR Vols			87			433			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												38

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		*			NB Left *			
Thru		*			Thru		*	
Right		*			Right		*	
Peds		*			Peds		*	
WB Left	*				SB Left *		*	
Thru	*				Thru		*	*
Right	*				Right		*	*
Peds					Peds		*	*
NB Right					EB Right			
SB Right					WB Right			
Green	31.0A	18.0A			Green	8.0A	23.0A	30.0A
Yellow/AR	5.0	5.0			Yellow/AR	5.0	5.0	5.0

Cycle Length: 135 secs Phase combination order: #1 #2 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LT	272	1835	0.894	0.148	56.7	E	62.0	F
	R	236	1590	0.942	0.148	67.8	F		
WB	LT	453	1852	1.069	0.244	87.4	F	73.9	F
	R	391	1599	0.363	0.244	27.6	D		
NB	L	123	1662	0.788	0.074	58.2	E	59.7	E
	TR	851	3590	1.012	0.237	59.9	E		
SB	L	468	1662	1.028	0.281	71.2	F	37.4	D
	TR	1581	3558	0.522	0.444	17.8	C		

Intersection Delay = 54.0 sec/veh Intersection LOS = E

Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 1.021

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 07-14-1998
Parsons Brinckerhoff Quade & Douglas

Streets: (E-W) Lahainaluna Road (N-S) Honoapiilani Highway
Analyst: Graves File Name: LLHPPM.HC9
Area Type: Other 7-13-98 PM Peak
Comment: Existing PM Peak Hour (4:00-5:00 PM)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	1	0	> 1	1	1	2	< 0	1	2	< 0
Volumes	110	107	259	115	167	144	101	736	27	284	978	72
PHF or PK15	0.96	0.96	0.96	0.90	0.90	0.90	0.94	0.94	0.94	0.91	0.91	0.91
Lane W (ft)		12.0	12.0		12.0	12.0	11.0	12.0		11.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	1	1	1	1	1	1	2	2	2	2	2	2
Parking	N		N	N		N	N		N	N		N
Bus Stops			0			0			0			0
Con. Peds			10			0			10			10
Ped Button	(Y/N)	Y	17.3 s	(Y/N)	N		(Y/N)	Y	11.5 s	(Y/N)	Y	11.5
Arr Type		3	3		3	3		3	3		3	3
RTOR Vols			101			144			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left		*			NB	Left	*			
	Thru		*				Thru			*	
	Right		*				Right			*	
	Peds		*				Peds			*	
WB	Left	*				SB	Left	*	*		
	Thru	*					Thru		*	*	
	Right	*					Right		*	*	
	Peds						Peds		*	*	
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		30.0A	21.0A			Green		13.0A	12.0A	34.0A	
Yellow/AR		5.0	5.0			Yellow/AR		5.0	5.0	5.0	

Cycle Length: 135 secs Phase combination order: #1 #2 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LT	313	1835	0.723	0.170	39.7	D	38.2	D
	R	271	1590	0.609	0.170	36.3	D		
WB	LT	437	1844	0.719	0.237	34.5	D	34.5	D
	R	446	1881	0.000	0.237	0.0	A		
NB	L	190	1711	0.563	0.111	39.6	D	36.5	D
	TR	988	3705	0.863	0.267	36.1	D		
SB	L	405	1711	0.769	0.237	37.0	D	29.2	D
	TR	1447	3686	0.838	0.393	27.2	D		

Intersection Delay = 33.0 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.775

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Streets: (N-S) Honapiilani Highway (E-W) Dickenson Street
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... Graves
Date of Analysis..... 7/13/98
Other Information.....Existing AM Peak (7:15-8:15 AM)
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	1	2	< 0	0	0	1	0	> 0	< 0
Stop/Yield			N			N						
Volumes		800	57	23	882	70			40	32		25
PHF		.9	.9	.9	.9	.9			.82	.7		.7
Grade		0			0			0			0	
MC's (%)				0					0	0		0
SU/RV's (%)				0					0	0		0
CV's (%)				5					1	1		1
PCE's				1.05					1.01	1.01		1.01

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	920	529
Potential Capacity: (pcph)	473	747
Movement Capacity: (pcph)	473	747
Prob. of Queue-Free State:	0.92	0.93

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	952	
Potential Capacity: (pcph)	603	
Movement Capacity: (pcph)	603	
Prob. of Queue-Free State:	0.96	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1926	
Potential Capacity: (pcph)	81	
Major LT, Minor TH Impedance Factor:	0.96	
Adjusted Impedance Factor:	0.96	
Capacity Adjustment Factor due to Impeding Movements	0.89	
Movement Capacity: (pcph)	72	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB R	49	747		5.2	0.1	B	5.2
WB L	46	72 >	115	86.0	3.2	F	86.0
WB R	36	473 >					
SB L	27	603		6.2	0.0	B	0.1

Intersection Delay = 2.7 sec/veh

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Streets: (N-S) Honapiilani Highway (E-W) Dickenson Street
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... Graves
Date of Analysis..... 7/13/98
Other Information.....Existing PM Peak (4:00-5:00 PM)
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	1	2	< 0	0	0	1	0	> 0	< 0
Stop/Yield			N			N						
Volumes		850	110	77	1192	83			91	48		14
PHF		.94	.94	.91	.91	.91			.9	.83		.83
Grade		0			0			0			0	
MC's (%)				0					0	0		0
SU/RV's (%)				0					0	0		0
CV's (%)				2					1	1		1
PCE's				1.02					1.01	1.01		1.01

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	962	700
Potential Capacity: (pcph)	451	612
Movement Capacity: (pcph)	451	612
Prob. of Queue-Free State:	0.96	0.83

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	1021	
Potential Capacity: (pcph)	559	
Movement Capacity: (pcph)	559	
Prob. of Queue-Free State:	0.84	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	2358	
Potential Capacity: (pcph)	46	
Major LT, Minor TH Impedance Factor:	0.84	
Adjusted Impedance Factor:	0.84	
Capacity Adjustment Factor due to Impeding Movements	0.70	
Movement Capacity: (pcph)	32	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB R	102	612		7.1	0.6	B	7.1
WB L	59	32 >	40	635.9	6.2	F	~~*635.9~~ 90.0
WB R	17	451 >					
SB L	87	559		7.6	0.6	B	0.4

Intersection Delay = 16.5 sec/veh

* Adjusted delay based on field observations.

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Streets: (N-S) Mill Street (E-W) Alika Place
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... Graves
Date of Analysis..... 7/13/98
Other Information.....Existing AM Peak (7:15-8:15 AM)
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1	< 0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes	0	36			30	1	5		0			
PHF	.82	.82			.7	.7	.63		.63			
Grade		0			0			0				
MC's (%)	0						0		0			
SU/RV's (%)	0						0		0			
CV's (%)	1						1		1			
PCE's	1.01						1.01		1.01			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		44
Potential Capacity: (pcph)		1315
Movement Capacity: (pcph)		1315
Prob. of Queue-Free State:		1.00

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		44
Potential Capacity: (pcph)		1633
Movement Capacity: (pcph)		1633
Prob. of Queue-Free State:		1.00
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		1.00

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		88
Potential Capacity: (pcph)		942
Major LT, Minor TH Impedance Factor:		1.00
Adjusted Impedance Factor:		1.00
Capacity Adjustment Factor due to Impeding Movements		1.00
Movement Capacity: (pcph)		942

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	8	942 >	942	3.9	0.0	A	3.9
EB R	0	1315 >					
NB L	0	1633		2.2	0.0	A	0.0

Intersection Delay = 0.3 sec/veh

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Streets: (N-S) Mill Street (E-W) Alika Place
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... Graves
Date of Analysis..... 7/13/98
Other Information.....Existing PM Peak (4:00-5:00 PM)
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1	< 0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes	2	132			50	3	3		2			
PHF	.9	.9			.83	.83	.75		.75			
Grade		0			0			0				
MC's (%)	0						0		0			
SU/RV's (%)	0						0		0			
CV's (%)	1						1		1			
PCE's	1.01						1.01		1.01			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		62
Potential Capacity: (pcph)		1288
Movement Capacity: (pcph)		1288
Prob. of Queue-Free State:		1.00

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		64
Potential Capacity: (pcph)		1598
Movement Capacity: (pcph)		1598
Prob. of Queue-Free State:		1.00
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		1.00

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		211
Potential Capacity: (pcph)		799
Major LT, Minor TH Impedance Factor:		1.00
Adjusted Impedance Factor:		1.00
Capacity Adjustment Factor due to Impeding Movements		1.00
Movement Capacity: (pcph)		798

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB	L	4	798 >	953	3.8	0.0	A	3.8
EB	R	3	1288 >					
NB	L	2	1598		2.3	0.0	A	0.0

Intersection Delay = 0.1 sec/veh

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Streets: (N-S) Mill Street (E-W) Lahainaluna Road
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... Graves
Date of Analysis..... 7/13/98
Other Information.....Existing AM Peak (7:15-8:15 AM)
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 < 0		0 > 1		0	0 > 0		< 0	0	0	0
Stop/Yield			N			N						
Volumes		567	3	27	955		13		34			
PHF		.89	.89	.86	.86		.82		.82			
Grade		0			0			0				
MC's (%)				0			0		0			
SU/RV's (%)				0			0		0			
CV's (%)				1			1		1			
PCE's				1.01			1.01		1.01			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	638	
Potential Capacity: (pcph)	658	
Movement Capacity: (pcph)	658	
Prob. of Queue-Free State:	0.94	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	640	
Potential Capacity: (pcph)	849	
Movement Capacity: (pcph)	849	
Prob. of Queue-Free State:	0.96	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.89	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1780	
Potential Capacity: (pcph)	99	
Major LT, Minor TH Impedance Factor:	0.89	
Adjusted Impedance Factor:	0.89	
Capacity Adjustment Factor due to Impeding Movements	0.89	
Movement Capacity: (pcph)	89	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	16	89 >	235	20.2	0.9	D	20.2
NB R	41	658 >					
WB L	31	849		4.4	0.0	A	0.1

Intersection Delay = 0.7 sec/veh

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Streets: (N-S) Mill Street (E-W) Lahainaluna Road
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... Graves
Date of Analysis..... 7/13/98
Other Information.....Existing PM Peak (4:00-5:00 PM)
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 < 0		0	> 1	0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes		418	14	32	408		28		107			
PHF		.96	.96	.9	.9		.9		.9			
Grade		0			0			0				
MC's (%)				0			0		0			
SU/RV's (%)				0			0		0			
CV's (%)				1			1		1			
PCE's				1.01			1.01		1.01			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	442	
Potential Capacity: (pcph)	827	
Movement Capacity: (pcph)	827	
Prob. of Queue-Free State:	0.85	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	450	
Potential Capacity: (pcph)	1046	
Movement Capacity: (pcph)	1046	
Prob. of Queue-Free State:	0.97	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.95	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	932	
Potential Capacity: (pcph)	306	
Major LT, Minor TH Impedance Factor:	0.95	
Adjusted Impedance Factor:	0.95	
Capacity Adjustment Factor due to Impeding Movements	0.95	
Movement Capacity: (pcph)	292	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	31	292 >	601	8.0	1.1	B	8.0
NB R	120	827 >					
WB L	36	1046		3.6	0.0	A	0.3

Intersection Delay = 1.2 sec/veh

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 07-15-1998
Parsons Brinckerhoff Quade & Douglas

Streets: (E-W) Lahainaluna Road (N-S) Honoapiilani Highway
Analyst: Graves File Name: LLHPNBAM.HC9
Area Type: Other 7-13-98 AM Peak
Comment: Future Year 2000, AM Peak Hour (7:15-8:15 AM)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	1	0	> 1	1	1	2	< 0	1	2	< 0
Volumes	125	110	320	130	285	555	110	730	40	435	645	100
PHF or PK15	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Lane W (ft)		12.0	12.0		12.0	12.0	11.0	12.0		11.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	1	1	1	1	1	1	5	5	5	5	5	5
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			10			0			10			10
Ped Button	(Y/N)	Y	17.3 s	(Y/N)	N		(Y/N)	Y	11.5 s	(Y/N)	Y	11.5
Arr Type		3	3		3	3	3	3		3	3	
RTOR Vols			110			435			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												38

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		*						
Thru		*						
Right		*						
Peds		*						
WB Left	*							
Thru	*							
Right	*							
Peds								
NB Right								
SB Right								
Green	30.0A	19.0A			10.0A	21.0A	30.0A	
Yellow/AR	5.0	5.0			5.0	5.0	5.0	

Cycle Length: 135 secs Phase combination order: #1 #2 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LT	285	1832	0.870	0.156	52.5	E	55.0	E
	R	247	1590	0.894	0.156	57.7	E		
WB	LT	439	1852	0.995	0.237	65.1	F	56.7	E
	R	379	1599	0.332	0.237	27.8	D		
NB	L	148	1662	0.785	0.089	54.6	E	56.5	E
	TR	851	3590	0.999	0.237	56.7	E		
SB	L	468	1662	0.979	0.281	58.2	E	32.9	D
	TR	1523	3544	0.541	0.430	18.8	C		

Intersection Delay = 47.1 sec/veh Intersection LOS = E
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.974

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 07-15-1998
Parsons Brinckerhoff Quade & Douglas

Streets: (E-W) Lahainaluna Road (N-S) Honoapiilani Highway
Analyst: Graves File Name: LLHPNBPM.HC9
Area Type: Other 7-13-98 PM Peak
Comment: Future Year 2000 PM Peak Hour (4:00-5:00 PM)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	1	0	> 1	1	1	2	< 0	1	2	< 0
Volumes	125	105	295	115	165	145	125	790	25	285	1060	85
PHF or PK15	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Lane W (ft)		12.0	12.0		12.0	12.0	11.0	12.0		11.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	1	1	1	1	1	1	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			10			0			10			10
Ped Button	(Y/N)	Y	17.3 s	(Y/N)	N		(Y/N)	Y	11.5 s	(Y/N)	Y	11.5
Arr Type		3	3		3	3	3	3		3	3	
RTOR Vols			125			145			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		*			NB Left *			
Thru		*			Thru		*	
Right		*			Right		*	
Peds		*			Peds		*	
WB Left	*				SB Left *	*		
Thru	*				Thru	*	*	
Right	*				Right	*	*	
Peds					Peds	*	*	
NB Right					EB Right			
SB Right					WB Right			
Green	27.0A	23.0A			Green	15.0A	11.0A	34.0A
Yellow/AR	5.0	5.0			Yellow/AR	5.0	5.0	5.0

Cycle Length: 135 secs Phase combination order: #1 #2 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LT	339	1831	0.716	0.185	38.2	D	36.9	D
	R	294	1590	0.608	0.185	35.2	D		
WB	LT	396	1843	0.745	0.215	37.1	D	37.1	D
	R	404	1881	0.000	0.215	0.0	A		
NB	L	215	1711	0.613	0.126	39.7	D	39.8	D
	TR	989	3708	0.911	0.267	39.8	D		
SB	L	418	1711	0.717	0.244	34.2	D	31.2	D
	TR	1419	3683	0.892	0.385	30.5	D		

Intersection Delay = 35.1 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.783

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 07-15-1998
Parsons Brinckerhoff Quade & Douglas

Streets: (E-W) Dickenson Road (N-S) Honoapiilani Highway
Analyst: Graves File Name: HPDNBAM.HC9
Area Type: Other 7-13-98 AM Peak
Comment: Future Year 2000, AM Peak Hour (7:15-8:15 AM)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	1	1	< 0	1	2	< 0
Volumes	5	5	40	30	5	25	5	855	55	25	1000	70
PHF or PK15	0.82	0.82	0.82	0.70	0.70	0.70	0.90	0.90	0.90	0.90	0.90	0.90
Lane W (ft)		11.0			12.0		11.0	12.0		11.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	1	1	1	1	1	1	5	5	5	5	5	5
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			10			0			0
Ped Button	(Y/N)	N		(Y/N)	Y	14.3 s	(Y/N)	N		(Y/N)	N	
Arr Type		3			3		3	3		3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												38

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	*				NB Left	*		
Thru	*				Thru		*	
Right	*				Right		*	
Peds					Peds		*	
WB Left	*				SB Left	*	*	
Thru	*				Thru		*	*
Right	*				Right		*	*
Peds	*				Peds		*	*
NB Right					EB Right			
SB Right					WB Right			
Green	15.0A				Green	7.0A	15.0A	78.0A
Yellow/AR	5.0				Yellow/AR	5.0	5.0	5.0

Cycle Length: 135 secs Phase combination order: #1 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LTR	176	1399	0.346	0.126	35.3	D	35.3	D
WB	LTR	167	1323	0.516	0.126	37.9	D	37.9	D
NB	L	111	1662	0.054	0.067	38.1	D	29.3	D
	TR	1063	1793	0.951	0.593	29.2	D		
SB	L	357	1662	0.078	0.215	27.3	D	5.1	B
	TR	2654	3583	0.470	0.741	4.6	A		

Intersection Delay = 17.1 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.692

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 07-17-1998
Parsons Brinckerhoff Quade & Douglas

Streets: (E-W) Dickenson Road (N-S) Honoapiilani Highway
Analyst: Graves File Name: HPDNBPM.HC9
Area Type: Other 7-13-98 PM Peak
Comment: Future Year 2000, PM Peak Hour (4:00-5:00 PM)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	1	1	< 0	1	2	< 0
Volumes	5	5	90	50	5	15	5	925	110	75	1310	85
PHF or PK15	0.90	0.90	0.90	0.83	0.83	0.83	0.94	0.94	0.94	0.91	0.91	0.91
Lane W (ft)		11.0			12.0		11.0	12.0		11.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	1	1	1	1	1	1	5	5	5	5	5	5
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			10			0			0
Ped Button	(Y/N)	N		(Y/N)	Y	14.3 s	(Y/N)	N		(Y/N)	N	
Arr Type		3			3		3	3		3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												38

Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	*				NB Left	*		
	Thru	*				Thru		*	
	Right	*				Right		*	
	Peds					Peds		*	
WB	Left	*				SB Left	*	*	
	Thru	*				Thru		*	*
	Right	*				Right		*	*
	Peds	*				Peds		*	*
NB	Right					EB Right			
SB	Right					WB Right			
Green		20.0A				Green	7.0A	10.0A	78.0A
Yellow/AR		5.0				Yellow/AR	5.0	5.0	5.0

Cycle Length: 135 secs Phase combination order: #1 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LTR	228	1398	0.492	0.163	34.6	D	34.6	D
WB	LTR	158	969	0.532	0.163	36.1	D	36.1	D
NB	L	111	1662	0.045	0.067	38.1	D	50.9	E
	TR	1055	1781	1.043	0.593	51.0	E		
SB	L	295	1662	0.278	0.178	31.1	D	8.5	B
	TR	2524	3586	0.638	0.704	7.3	B		

Intersection Delay = 25.9 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.808

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Ph: (808) 531-7094

Streets: (N-S) Mill Street (E-W) Alika Place
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... Graves
Date of Analysis..... 7/13/98
Other Information..... Future Year 2000, AM Peak (7:15-8:15 AM)
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1	< 0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes	5	35		30	5		5		5			
PHF	.82	.82		.7	.7		.63		.63			
Grade		0		0				0				
MC's (%)	0						0		0			
SU/RV's (%)	0						0		0			
CV's (%)	1						1		1			
PCE's	1.01						1.01		1.01			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		46
Potential Capacity: (pcph)		1312
Movement Capacity: (pcph)		1312
Prob. of Queue-Free State:		0.99

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		50
Potential Capacity: (pcph)		1623
Movement Capacity: (pcph)		1623
Prob. of Queue-Free State:		1.00
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		1.00

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		96
Potential Capacity: (pcph)		932
Major LT, Minor TH Impedance Factor:		1.00
Adjusted Impedance Factor:		1.00
Capacity Adjustment Factor due to Impeding Movements		1.00
Movement Capacity: (pcph)		928

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	8	928 >	1087	3.4	0.0	A	3.4
EB R	8	1312 >					
NB L	6	1623		2.2	0.0	A	0.3

Intersection Delay = 0.5 sec/veh

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Streets: (N-S) Mill Street (E-W) Alika Place
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... Graves
Date of Analysis..... 7/13/98
Other Information..... Future Year 2000, PM Peak (4:00-5:00 PM)
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1	< 0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes	5	130			50	5	5		5			
PHF	.9	.9			.83	.83	.75		.75			
Grade		0			0			0				
MC's (%)	0						0		0			
SU/RV's (%)	0						0		0			
CV's (%)	1						1		1			
PCE's	1.01						1.01		1.01			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		63
Potential Capacity: (pcph)		1286
Movement Capacity: (pcph)		1286
Prob. of Queue-Free State:		0.99

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		66
Potential Capacity: (pcph)		1595
Movement Capacity: (pcph)		1595
Prob. of Queue-Free State:		1.00
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		1.00

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		213
Potential Capacity: (pcph)		797
Major LT, Minor TH Impedance Factor:		1.00
Adjusted Impedance Factor:		1.00
Capacity Adjustment Factor due to Impeding Movements		1.00
Movement Capacity: (pcph)		794

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	7	794 >	982	3.7	0.0	A	3.7
EB R	7	1286 >					
NB L	6	1595		2.3	0.0	A	0.1

Intersection Delay = 0.2 sec/veh

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Honolulu, HI 96813-
Ph: (808) 531-7094

Streets: (N-S) Mill Street (E-W) Lahainaluna Road
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... Graves
Date of Analysis..... 7/13/98
Other Information..... Future Year 2000, AM Peak (7:15-8:15 AM)
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	0	565	5	25	955	0	15	5	35	0	5	0
PHF	.89	.89	.89	.86	.86	.86	.82	.82	.82	.5	.5	.5
Grade		0			0			0			0	
MC's (%)	0			0			0	0	0	0	0	0
SU/RV's (%)	0			0			0	0	0	0	0	0
CV's (%)	1			1			1	1	1	1	1	1
PCE's	1.01			1.01			1.01	1.01	1.01	1.01	1.01	1.01

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	638	1110
Potential Capacity: (pcph)	658	379
Movement Capacity: (pcph)	658	379
Prob. of Queue-Free State:	0.93	1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	641	1110
Potential Capacity: (pcph)	848	507
Movement Capacity: (pcph)	848	507
Prob. of Queue-Free State:	0.97	1.00
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.90	1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	1777	1780
Potential Capacity: (pcph)	127	127
Capacity Adjustment Factor due to Impeding Movements	0.90	0.90
Movement Capacity: (pcph)	114	114
Prob. of Queue-Free State:	0.95	0.91

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1782	1802
Potential Capacity: (pcph)	98	96
Major LT, Minor TH Impedance Factor:	0.82	0.85
Adjusted Impedance Factor:	0.86	0.89
Capacity Adjustment Factor due to Impeding Movements	0.86	0.83
Movement Capacity: (pcph)	85	80

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	18	85 >					
NB	T	6	114 >	203	26.2	1.3	D	26.2
NB	R	43	658 >					
SB	L	0	80 >					
SB	T	10	114 >	114	34.6	0.2	E	34.6
SB	R	0	379 >					
EB	L	0	507		7.1	0.0	B	0.0
WB	L	29	848		4.4	0.0	A	0.1

Intersection Delay = 1.1 sec/veh

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Honolulu, HI 96813-
Ph: (808) 531-7094

Streets: (N-S) Mill Street (E-W) Lahainaluna Road
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... Graves
Date of Analysis..... 7/13/98
Other Information..... Future Year 2000, PM Peak (4:00-5:00 PM)

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	0	420	15	30	410	0	30	0	105	0	5	5
PHF	.96	.96	.96	.9	.9	.9	.9	.9	.9	.625	.625	.625
Grade		0			0			0			0	
MC's (%)	0			0			0	0	0	0	0	0
SU/RV's (%)	0			0			0	0	0	0	0	0
CV's (%)	1			1			1	1	1	1	1	1
PCE's	1.01			1.01			1.01	1.01	1.01	1.01	1.01	1.01

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	446	456
Potential Capacity: (pcph)	823	813
Movement Capacity: (pcph)	823	813
Prob. of Queue-Free State:	0.86	0.99
Step 2: LT from Major Street	**WB**	**EB**
Conflicting Flows: (vph)	454	456
Potential Capacity: (pcph)	1042	1039
Movement Capacity: (pcph)	1042	1039
Prob. of Queue-Free State:	0.97	1.00
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.96	1.00
Step 3: TH from Minor Street	**NB**	**SB**
Conflicting Flows: (vph)	935	943
Potential Capacity: (pcph)	352	349
Capacity Adjustment Factor due to Impeding Movements	0.96	0.96
Movement Capacity: (pcph)	337	334
Prob. of Queue-Free State:	1.00	0.98
Step 4: LT from Minor Street	**NB**	**SB**
Conflicting Flows: (vph)	943	994
Potential Capacity: (pcph)	301	281
Major LT, Minor TH Impedance Factor:	0.93	0.96
Adjusted Impedance Factor:	0.95	0.97
Capacity Adjustment Factor due to Impeding Movements	0.94	0.83
Movement Capacity: (pcph)	283	233

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	33	283 >					
NB	T	0	337 >	581	8.4	1.1	B	8.4
NB	R	118	823 >					
SB	L	0	233 >					
SB	T	8	334 >	473	7.9	0.0	B	7.9
SB	R	8	813 >					
EB	L	0	1039		3.5	0.0	A	0.0
WB	L	33	1042		3.6	0.0	A	0.2

Intersection Delay = 1.3 sec/veh

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 07-16-1998

Parsons Brinckerhoff Quade & Douglas

Streets: (E-W) Lahainaluna Road (N-S) Honoapiilani Highway
Analyst: Graves File Name: LLHPBAM.HC9
Area Type: Other 7-13-98 AM Peak
Comment: Year 2000 Build, AM Peak Hour (7:15-8:15 AM)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	1	0	> 1	1	1	2	< 0	1	2	< 0
Volumes	125	110	320	130	285	565	110	730	40	455	645	100
PHF or PK15	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Lane W (ft)		12.0	12.0		12.0	12.0	11.0	12.0		11.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	1	1	1	1	1	1	5	5	5	5	5	5
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			10			0			10			10
Ped Button	(Y/N)	Y	17.3 s	(Y/N)	N		(Y/N)	Y	11.5 s	(Y/N)	Y	11.5
Arr Type		3	3		3	3	3	3		3	3	
RTOR Vols			110			455			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												38

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		*						
Thru		*						
Right		*						
Peds		*						
WB Left	*							
Thru	*							
Right	*							
Peds								
NB Right								
SB Right								
Green	30.0A	19.0A			10.0A	21.0A	30.0A	
Yellow/AR	5.0	5.0			5.0	5.0	5.0	

NB Left: * (5) NB Thru: * (7) NB Right: * (7) NB Peds: * (7)
SB Left: * (5), * (6) SB Thru: * (6), * (7) SB Right: * (6), * (7) SB Peds: * (6), * (7)

Cycle Length: 135 secs Phase combination order: #1 #2 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	Approach: LOS
EB	LT	285	1832	0.870	0.156	52.5	E	55.0	E
	R	247	1590	0.894	0.156	57.7	E		
WB	LT	439	1852	0.995	0.237	65.1	F	57.2	E
	R	379	1599	0.306	0.237	27.5	D		
NB	L	148	1662	0.785	0.089	54.6	E	56.5	E
	TR	851	3590	0.999	0.237	56.7	E		
SB	L	468	1662	1.024	0.281	69.9	F	37.6	D
	TR	1523	3544	0.541	0.430	18.8	C		

Intersection Delay = 48.9 sec/veh Intersection LOS = E

Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.988

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 07-16-1998
Parsons Brinckerhoff Quade & Douglas

Streets: (E-W) Lahainaluna Road (N-S) Honoapiilani Highway
Analyst: Graves File Name: LLHPBPM.HC9
Area Type: Other 7-13-98 PM Peak
Comment: Year 2000 Build, PM Peak Hour (4:00-5:00 PM)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	1	0	> 1	1	1	2	< 0	1	2	< 0
Volumes	125	110	295	115	170	195	125	790	25	325	1060	85
PHF or PK15	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Lane W (ft)		12.0	12.0		12.0	12.0	11.0	12.0		11.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	1	1	1	1	1	1	2	2	2	2	2	2
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			10			0			10			10
Ped Button	(Y/N)	Y	17.3 s	(Y/N)	N		(Y/N)	Y	11.5 s	(Y/N)	Y	11.5
Arr Type		3	3		3	3	3	3		3	3	
RTOR Vols			125			195			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left		*			NB Left	*			
Thru		*			Thru			*	
Right		*			Right			*	
Peds		*			Peds			*	
WB Left			*		SB Left	*		*	
Thru			*		Thru			*	*
Right			*		Right			*	*
Peds					Peds			*	*
NB Right					EB Right				
SB Right					WB Right				
Green		27.0A	23.0A		Green	15.0A	11.0A	34.0A	
Yellow/AR		5.0	5.0		Yellow/AR	5.0	5.0	5.0	

Cycle Length: 135 secs Phase combination order: #1 #2 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LT	339	1832	0.731	0.185	38.8	D	37.3	D
	R	294	1590	0.608	0.185	35.2	D		
WB	LT	396	1844	0.757	0.215	37.7	D	37.7	D
	R	404	1881	0.000	0.215	0.0	A		
NB	L	215	1711	0.613	0.126	39.7	D	39.8	D
	TR	989	3708	0.911	0.267	39.8	D		
SB	L	418	1711	0.818	0.244	39.4	D	32.4	D
	TR	1419	3683	0.892	0.385	30.5	D		

Intersection Delay = 35.8 sec/veh Intersection LOS = D

Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.813

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 07-16-1998

Parsons Brinckerhoff Quade & Douglas

Streets: (E-W) Dickenson Road (N-S) Honoapiilani Highway
Analyst: Graves File Name: HPDBAM.HC9
Area Type: Other 7-13-98 AM Peak
Comment: Year 2000 Build, Peak Hour (7:15-8:15 AM)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	1	1	< 0	1	2	< 0
Volumes	5	5	40	30	5	25	5	855	60	25	1000	70
PHF or PK15	0.82	0.82	0.82	0.70	0.70	0.70	0.90	0.90	0.90	0.90	0.90	0.90
Lane W (ft)		11.0			12.0		11.0	12.0		11.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	1	1	1	1	1	1	5	5	5	5	5	5
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			10			0			0
Ped Button	(Y/N)	N		(Y/N)	Y	14.3 s	(Y/N)	N		(Y/N)	N	
Arr Type		3			3		3	3		3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												38

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru			*	
	Right	*					Right			*	
	Peds						Peds			*	
WB	Left	*				SB	Left	*	*		
	Thru	*					Thru		*	*	
	Right	*					Right		*	*	
	Peds	*					Peds		*	*	
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		15.0A				Green		7.0A	15.0A	78.0A	
Yellow/AR		5.0				Yellow/AR		5.0	5.0	5.0	

Cycle Length: 135 secs Phase combination order: #1 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LTR	176	1399	0.346	0.126	35.3	D	35.3	D
WB	LTR	167	1323	0.516	0.126	37.9	D	37.9	D
NB	L	111	1662	0.054	0.067	38.1	D	30.3	D
	TR	1062	1792	0.958	0.593	30.3	D		
SB	L	357	1662	0.078	0.215	27.3	D	5.1	B
	TR	2654	3583	0.470	0.741	4.6	A		

Intersection Delay = 17.5 sec/veh Intersection LOS = C

Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.696

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4e 07-17-1998

Parsons Brinckerhoff Quade & Douglas

Streets: (E-W) Dickenson Road (N-S) Honoapiilani Highway
Analyst: Graves File Name: HPDBPM.HC9
Area Type: Other 7-13-98 PM Peak
Comment: Year 2000 Build, PM Peak Hour (4:00-5:00 PM)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	1	1	< 0	1	2	< 0
Volumes	5	5	90	60	5	15	5	925	115	75	1310	85
PHF or PK15	0.90	0.90	0.90	0.83	0.83	0.83	0.94	0.94	0.94	0.91	0.91	0.91
Lane W (ft)		11.0			12.0		11.0	12.0		11.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	1	1	1	1	1	1	5	5	5	5	5	5
Parking	N	N		N	N		N	N		N	N	
Bus Stops			0			0			0			0
Con. Peds			0			10			0			0
Ped Button	(Y/N)	N		(Y/N)	Y	14.3 s	(Y/N)	N		(Y/N)	N	
Arr Type		3			3		3	3		3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Prop. Share												
Prop. Prot.												38

Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	*							
	Thru	*							
	Right	*							
	Peds								
WB	Left	*							
	Thru	*							
	Right	*							
	Peds	*							
NB	Right								
SB	Right								
Green		21.0A				7.0A	10.0A	77.0A	
Yellow/AR		5.0				5.0	5.0	5.0	
NB	Left					*			
	Thru							*	
	Right							*	
	Peds							*	
SB	Left					*	*		
	Thru						*	*	
	Right						*	*	
	Peds						*	*	
EB	Right								
WB	Right								

Cycle Length: 135 secs Phase combination order: #1 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LTR	238	1396	0.471	0.170	33.7	D	33.7	D
WB	LTR	158	929	0.607	0.170	38.0	D	38.0	D
NB	L	111	1662	0.045	0.067	38.1	D	57.8	E
	TR	1041	1780	1.062	0.585	57.9	E		
SB	L	295	1662	0.278	0.178	31.1	D	8.8	B
	TR	2497	3586	0.645	0.696	7.7	B		

Intersection Delay = 28.8 sec/veh Intersection LOS = D

Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.829

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1001 Bishop Street
Honolulu, HI 96813-
Ph: (808) 531-7094

Streets: (N-S) Mill Street (E-W) Alika Place
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... Graves
Date of Analysis..... 7/13/98
Other Information..... Future Year 2000 Build, AM Peak (7:15-8:15 AM)

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1	< 0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes	10	35		30	25		15		5			
PHF	.82	.82		.7	.7		.63		.63			
Grade		0		0				0				
MC's (%)	0						0		0			
SU/RV's (%)	0						0		0			
CV's (%)	1						1		1			
PCE's	1.01						1.01		1.01			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		61
Potential Capacity: (pcph)		1290
Movement Capacity: (pcph)		1290
Prob. of Queue-Free State:		0.99

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		79
Potential Capacity: (pcph)		1572
Movement Capacity: (pcph)		1572
Prob. of Queue-Free State:		0.99
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		0.99

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		116
Potential Capacity: (pcph)		907
Major LT, Minor TH Impedance Factor:		0.99
Adjusted Impedance Factor:		0.99
Capacity Adjustment Factor due to Impeding Movements		0.99
Movement Capacity: (pcph)		900

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	24	900 >	974	3.8	0.0	A	3.8
EB R	8	1290 >					
NB L	12	1572		2.3	0.0	A	0.5

Intersection Delay = 0.8 sec/veh

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Streets: (N-S) Mill Street (E-W) Alika Place
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... Graves
Date of Analysis..... 7/13/98
Other Information.....Year 2000 Build, PM Peak (4:00-5:00 PM)
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1	< 0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes	10	130			50	55	60		15			
PHF	.9	.9			.83	.83	.75		.75			
Grade		0			0			0				
MC's (%)	0						0		0			
SU/RV's (%)	0						0		0			
CV's (%)	1						1		1			
PCE's	1.01						1.01		1.01			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		93
Potential Capacity: (pcph)		1242
Movement Capacity: (pcph)		1242
Prob. of Queue-Free State:		0.98

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		126
Potential Capacity: (pcph)		1493
Movement Capacity: (pcph)		1493
Prob. of Queue-Free State:		0.99
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		0.99

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		248
Potential Capacity: (pcph)		761
Major LT, Minor TH Impedance Factor:		0.99
Adjusted Impedance Factor:		0.99
Capacity Adjustment Factor due to Impeding Movements		0.99
Movement Capacity: (pcph)		755

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	81	755 >	819	5.0	0.4	B	5.0
EB R	20	1242 >					
NB L	11	1493		2.4	0.0	A	0.2

Intersection Delay = 1.3 sec/veh

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Streets: (N-S) Mill Street (E-W) Lahainaluna Road
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... Graves
Date of Analysis..... 7/13/98
Other Information.....Year 2000 Build, AM Peak (7:15-8:15 AM)
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	0	565	25	25	955	0	25	5	35	0	5	0
PHF	.89	.89	.89	.86	.86	.86	.82	.82	.82	.5	.5	.5
Grade		0			0			0			0	
MC's (%)	0			0			0	0	0	0	0	0
SU/RV's (%)	0			0			0	0	0	0	0	0
CV's (%)	1			1			1	1	1	1	1	1
PCE's	1.01			1.01			1.01	1.01	1.01	1.01	1.01	1.01

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	649	1110
Potential Capacity: (pcph)	649	379
Movement Capacity: (pcph)	649	379
Prob. of Queue-Free State:	0.93	1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	663	1110
Potential Capacity: (pcph)	828	507
Movement Capacity: (pcph)	828	507
Prob. of Queue-Free State:	0.96	1.00
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.90	1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	1788	1802
Potential Capacity: (pcph)	126	124
Capacity Adjustment Factor due to Impeding Movements	0.90	0.90
Movement Capacity: (pcph)	113	111
Prob. of Queue-Free State:	0.95	0.91

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1793	1812
Potential Capacity: (pcph)	97	95
Major LT, Minor TH Impedance Factor:	0.82	0.85
Adjusted Impedance Factor:	0.86	0.89
Capacity Adjustment Factor due to Impeding Movements	0.86	0.83
Movement Capacity: (pcph)	83	79

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)		Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	30	83	>					
NB	T	6	113	>	164	40.8	2.1	E	40.8
NB	R	43	649	>					
SB	L	0	79	>					
SB	T	10	111	>	111	35.6	0.2	E	35.6
SB	R	0	379	>					
EB	L	0	507			7.1	0.0	B	0.0
WB	L	29	828			4.5	0.0	A	0.1

Intersection Delay = 1.8 sec/veh

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Streets: (N-S) Mill Street (E-W) Lahainaluna Road
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... Graves
Date of Analysis..... 7/13/98
Other Information.....Year 2000 Build, PM Peak (4:00-5:00 PM)
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	0	420	60	35	410	0	80	0	110	0	5	5
PHF	.96	.96	.96	.9	.9	.9	.9	.9	.9	.625	.625	.625
Grade		0			0			0			0	
MC's (%)	0			0			0	0	0	0	0	0
SU/RV's (%)	0			0			0	0	0	0	0	0
CV's (%)	1			1			1	1	1	1	1	1
PCE's	1.01			1.01			1.01	1.01	1.01	1.01	1.01	1.01

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	470	456
Potential Capacity: (pcph)	800	813
Movement Capacity: (pcph)	800	813
Prob. of Queue-Free State:	0.85	0.99
Step 2: LT from Major Street	**WB**	**EB**
Conflicting Flows: (vph)	501	456
Potential Capacity: (pcph)	989	1039
Movement Capacity: (pcph)	989	1039
Prob. of Queue-Free State:	0.96	1.00
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.95	1.00
Step 3: TH from Minor Street	**NB**	**SB**
Conflicting Flows: (vph)	964	996
Potential Capacity: (pcph)	340	327
Capacity Adjustment Factor due to Impeding Movements	0.95	0.95
Movement Capacity: (pcph)	322	309
Prob. of Queue-Free State:	1.00	0.97
Step 4: LT from Minor Street	**NB**	**SB**
Conflicting Flows: (vph)	972	1026
Potential Capacity: (pcph)	290	270
Major LT, Minor TH Impedance Factor:	0.92	0.95
Adjusted Impedance Factor:	0.94	0.96
Capacity Adjustment Factor due to Impeding Movements	0.93	0.81
Movement Capacity: (pcph)	270	219

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	90	270 >					
NB	T	0	322 >	437	15.8	2.6	C	15.8
NB	R	123	800 >					
SB	L	0	219 >					
SB	T	8	309 >	448	8.3	0.0	B	8.3
SB	R	8	813 >					
EB	L	0	1039		3.5	0.0	A	0.0
WB	L	39	989		3.8	0.0	A	0.3

Intersection Delay = 2.9 sec/veh

Appendix C

Planning Department Report
to the Maui Planning Commission
October 13, 1998 Meeting

BEFORE THE MAUI PLANNING COMMISSION

COUNTY OF MAUI

STATE OF HAWAII

In The Matter Of The Application Of Christopher L. Hart on Behalf of Barry L. Brown and David B. Rosen To Obtain A Change In Zoning From R-2 Residential To B-2 Community Business To Construct Two Two- Story Commercial Buildings And Off- Street Parking On Approximately 23,907 Square Feet Of Land At 270 Lahainaluna Road At Maui Tax Map Key 4-6-10: 25, 26, and 32 in Lahaina, Maui, Hawaii	DOCKET NO. CIZ980011 **(Christopher L. Hart on Behalf of** ***Barry L. Brown and David B. Rosen)*** (JMH)

MAUI PLANNING DEPARTMENT'S REPORT
TO THE MAUI PLANNING COMMISSION
OCTOBER 13, 1998 MEETING

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

CHANGE IN ZONING
(CIZ980011)

BEFORE THE MAUI PLANNING COMMISSION

COUNTY OF MAUI

STATE OF HAWAII

In The Matter Of The Application Of Christopher L. Hart on Behalf of Barry L. Brown and David B. Rosen To Obtain A Change In Zoning From R-2 Residential To B-2 Community Business To Construct Two Two- Story Commercial Buildings And Off- Street Parking On Approximately 23,907 Square Feet Of Land At 270 Lahainaluna Road At Maui Tax Map Key 4-6-10: 25, 26, and 32 in Lahaina, Maui, Hawaii.	DOCKET NO. CIZ980011 **(Christopher L. Hart on Behalf of Barry L. Brown and David B. Rosen)** *(JMH)*

THE APPLICATION

This matter arises from application for a Change in Zoning filed on April 14, 1998, and certified as complete and ready for processing by the Department of Public Works and Waste Management on April 16, 1998. The application was filed pursuant to Chapter 201, Rules of Practice and Procedures of the Maui Planning Commission, and Title 19 of the Maui County Code; by Christopher L. Hart on behalf of Barry L. Brown and David B. Rosen ("Applicants"); on 23,907 square feet of land, situate at 270 Lahainaluna Road, Island of Maui, and County of Maui, identified as Maui Tax Map Key Number 4-6-10: 25, 26, and 32 ("Property"). (*Exhibit 1 and 1A, Location Maps*)

PURPOSE OF THE APPLICATION

The Applicants are requesting a Change in Zoning from R-2 Residential District to B-2 Business District in order to construct two two-story commercial structures and off-street parking. (*Exhibit 2*, Application)

APPLICABLE REGULATIONS

Pursuant to Title 19, Chapter 19.510, Section 19.510.040 Change in Zoning of the Maui County Code, the appropriate planning commission shall hold a public hearing on all applications for zoning changes and make a recommendation to the County Council. The County Council may grant a change in zoning if all the following criteria are met:

1. The proposed request meets the intent of the general plan and the objectives and policies of the community plans of the county;

2. The proposed request is consistent with the applicable community plan land use map of the county;

3. The proposed request meets the intent and purpose of the district being requested;

4. The application, if granted, would not adversely affect or interfere with public or private schools, parks, playgrounds, water systems, sewage and solid waste disposal, drainage, roadway and transportation systems, or other public requirements, conveniences and improvements;

5. The application, if granted, would not adversely impact the social, cultural, economic, environmental, and ecological character and quality of the surrounding area; and

6. If the application change in zoning involves the establishment of an agricultural district with a minimum lot size of two acres, an agricultural feasibility study shall be required and reviewed by the Department of Agriculture and the United States Soil and Conservation Service.

Pursuant to Title 19, Chapter 19.510, Section 19.510.050 Conditional zoning of the Maui County Code, the County Council may impose conditions upon the Applicants' use of the property. The conditions shall be imposed if the Council finds them necessary to prevent circumstances which may be adverse to the public health, safety and welfare. The conditions shall be reasonably conceived to mitigate the impacts emanating from the proposed land and shall meet the following criteria:

1. That the public shall be protected from the potentially deleterious

effects of the proposed use; and

2. That the need for public services created by the proposed use shall be fulfilled.

PROCEDURAL MATTERS

1. On April 13, 1998, the Applicants mailed a "Notice of Application" to all owners and recorded lessees within 500 ft. of the subject property notifying them of the applicants' intent to file the application with the County of Maui. A copy of the "Notice of Application" is on file in the Maui Planning Department.

2. On August 14, 1998, 59 days prior to the hearing, the Maui Planning Department mailed a notice to the applicants and appropriate state and county agencies notifying them of the scheduled public hearing.

3. On September 9, 1998, the applicants mailed a letter of notification and location map to all owners and recorded lessees within 500 ft. of the subject property describing the application(s) and notifying them of the scheduled hearing date, time and place by either certified or registered mail receipt (Return receipt requested for land use amendments). Copies of the letter, location map, list of owners and recorded lessees, certified and registered mail receipts and return receipts are on file in the Planning Department.

4. On September 22 and 29, and October 6, 1998, the applicants published a Notice and location map in the Maui News once a week for three consecutive weeks prior to the date of the hearing.

5. On September 11, 1998, a notice of hearing on the application was published in the Maui News by the Maui Planning Department.

GENERAL DESCRIPTION

Description of the Property

1. The Property which is approximately 23,907 square feet is located at 270 Lahainaluna Road at Maui Tax Map Key 4-6-10: 25, 26 and 32, Lahaina, Island of Maui, Hawaii. (*Exhibit 3*)

2. Land Use Designations --

a. State Land Use District -- Urban

b. West Maui Community Plan -- Business (*Exhibit 4*)

c. County Zoning -- R-2 Residential (*Exhibit 5*)

d. Other -- National Historic Landmark District.

3. Surrounding Uses --

North -- Across Lahainaluna Road is the Texaco gas station and Pioneer Mill. County zoning is M-2 Industrial District. West Maui Community Plan designation is Business and Heavy Industrial.

East -- Abutting the eastern boundary of the subject property is the First Assembly of God Church and across Mill Street is the Pioneer Mill power plant. County zoning is R-2 Residential and M-2 Industrial districts. West Maui Community Plan designation is Business and Heavy Industrial.

South -- Bordering the property's southern boundary is the Hawaii Housing Authority's multi-family housing project, and Texaco Gas and Mini-mart. County zoning is R-2 Residential and B-2 Community Business District.

West -- Honoapiilani Highway, and across the highway are various business uses (Union 76 Gas Station, Lahaina Town Antiques), as well as single family and multi-family properties. County zoning is B-2 Community Business District, R-2 Residential District, A-1 Apartment District, and Historic District No. 1. West Maui Community Plan designation is Multi-Family and Business.

4. The subject property consists of three parcels and is located on the southeast corner of Honoapiilani Highway and Lahainaluna Road intersection. The property is accessed via Alika Place and has a total area of approximately 23,907 square feet. An application to consolidate the three lots into one parcel has been filed with the Department of Public Works and Waste Management. (*Exhibit 6*)

The property has been in residential use for more than 60 years. Existing structures consist of three residential dwellings and associated ancillary structures. Two of the residential structures were built in 1938-39 and both are 1,448 square

feet in size. The third residential structure was built in 1966 and is 500 square feet in area. (*Exhibit 6*)

5. **Climate.** The climate in the Lahaina region is influenced by the persistent north-northeasterly trade winds. Lahaina Town is located in the dry leeward portion of West Maui. Average annual temperature in Lahaina is about 75 degrees Fahrenheit. Average monthly temperatures vary by about nine degrees between the coolest and warmest months. Rainfall at the project site averages approximately 1 inches per year.

6. **Topography and Soils.** The project site gently slopes to the southwest. Site topography has been modified to accommodate existing building structures and parking areas. The subject project is about two feet below grade of Honoapiilani Highway and Lahainaluna Road. The lot is relatively flat with an elevation difference of about one foot between the makai boundary (Honoapiilani Highway frontage) and the mauka boundary approximately 100 feet away.

The soil type specific to the project site is the Ewa silty clay loam, 0 to 3 percent slopes (EaA). EaA soils consist of well-drained soils in basins and on alluvial fans. These soils developed in alluvium derived from basic igneous rock. Runoff is very slow and the erosion hazard is no more than slight.

7. **Flood and Tsunami Hazard.** The project site is designated Zone "C" by the Flood Insurance Rate Map for this region. Zone "C" defines an area of minimal flood hazard potential. (*Exhibit 7*) The Department of Land and Natural Resources, Engineering Branch confirmed that the proposed project is located in Zone C, an area of minimal flooding. (*Exhibit 7A*)

Existing Services

1. **Water** -- The subject property is currently serviced by Kahana Stream and a water well near Lahainaluna School. This system is also reinforced by the Alaeloa Source with a 16-inch transmission line along Lower Honoapiilani Road and Honoapiilani Highway to Lahaina Town. The site is serviced by two 5/8-inch water meters from a 3-8nch line running from Panaewa Place. There is an 8-inch waterline located along the north side of Lahainaluna Road and a 12-inch waterline located on the mauka side of Honoapiilani Highway. Fire protection for the subject property is provided by existing fire hydrants on Lahainaluna Road and on Mill Street at Alika Place.

2. **Sewers** -- The subject property is serviced by an 8-inch County sewer line which crosses the Honoapiilani Highway and the subject property through a 12-

foot easement. There is an additional 8-inch sewer line located on the northern side of Lahainaluna Road. The sewage from the property is transported to the pump station at Mala Wharf and pumped to the wastewater treatment plant at Honokowai.

3. **Drainage** -- Lahaina Town is located within three major drainage basins. Fortunately, the potential for major flooding of low areas has been lessened due to interceptor ditches constructed by Pioneer Mill Company within the sugar cane fields mauka of the town. These ditches divert runoff and thereby reduce flooding in Lahaina Town. Rainfall within Lahaina Town does cause flooding within low lying areas and streets. Major flooding could occur due to a long duration storm. According to the Applicants' Preliminary Drainage Report, the current total runoff volume is estimated to be 1,291 cubic feet for a 50-year 1-hour storm. The preliminary runoff computation for developed conditions based on 23,907 square feet lot area and 18,300 square feet roofed and paved area provides a total runoff volume estimated at about 3,200 cubic feet.

There is no existing on or off-site storm drainage system serving this property.

4. **Roadways, Curbs, Gutters and Sidewalks** -- Access to the project site is from Alika Place. Alika Place is about 150 feet long, a paved surface roadway with widths varying from 17 to 20 feet. There are no curbs, gutters, or sidewalks on Alika Place. Alika Place intersects with Mill Street which also has no curbs, gutters, or sidewalks.

Mill Street is a north-south, two-lane roadway which is parallel to Honoapiilani Highway. In addition to the intersection with Lahainaluna Road, the roadway forms an unsignalized, two-way stop intersection with Alika Place. The posted speed limit is 20 mph.

Lahainaluna Road is less than 250 feet from Mill Street and Alika Place. There is an existing sidewalk on Lahainaluna Road fronting the property. Lahainaluna Road is a two-lane roadway which runs in the east-west (mauka-makai) direction. The roadway provides access to Lahainaluna High School, Lahaina Intermediate School and Princess Nahienaena Elementary School. At the signalized intersection with Honoapiilani Highway, the Lahainaluna Road approaches provide shared left/through lanes and channelized right-turn lanes. There are no curbs, gutters or sidewalks on northerly side of Lahainaluna Road. The roadway forms an unsignalized intersection with Mill Street. The posted limit is 20 mph.

At the intersection of Lahainaluna Road and Mill Street, an unpaved cane

haul road runs parallel to Mill Street and then forms the north leg of the intersection. The roadway provides access to the Pioneer Sugar Mill.

At the makai or west side of the property is Honoapiilani Highway. Honoapiilani Highway is a four-lane, undivided State Highway which runs parallel to the coastline and to Mill Street. It has no curbs, gutters, and sidewalks. The Highway forms a signalized intersection with Lahainaluna Road, providing exclusive left-turn lanes. The Highway also forms an unsignalized intersection with Dickenson Street about 500 feet from the project site. There are no right turn lanes onto Lahainaluna Road. The posted speed limit is 40 miles per hour (mph) on Honoapiilani Highway. (*Exhibit 8, Figure 3, Existing Lane Configurations*)

Dickenson Street is a two-lane roadway that runs in the east-west direction. At the unsignalized intersection with Honoapiilani Highway, Dickenson Street to the east provides a channelized right-turn lane onto the highway. As shown in Figure 3 (*Exhibit* 8), the west leg of the intersection is limited to right-turns to and from Dickenson Street, and the east leg, at the highway, does not provide a through movement and ends at Mill Street. A Texaco Service Station and mini-mart are located at this intersection. The posted speed limit is 20 mph.

5. **Electrical and Telephone** -- Overhead/underground electrical and telephone services are available to the site.

6. **Parks** -- The West Maui Recreational Center park is located a half mile south of the subject property, on the north side of Shaw Street on Honoapiilani Highway. This park site includes the Lahaina Aquatic Center. The closest beach park is Kamehameha Iki, a County-owned park. State and county beach parks in the Lahaina District include the Honolua-Mokuleia Marine Life Conservation District, the D.T. Fleming Park, Honokowai Beach Park, Wahikuli State Wayside, Malu'uulu o Lele Park, Puamana Beach Park, Launiupoko State Wayside, Ukumehame Beach Park, and Papalaua State Wayside.

7. **Schools** -- The Lahaina region is served by Kamehameha III and Princess Nahienaena Elementary Schools, Lahaina Intermediate School, and Lahainaluna High School. These four public schools are located about a mile above the project site. The Sacred Hearts School is a private school for grades kindergarten through twelve located on Dickenson Street about a half mile west of the project site.

8. **Solid Waste** -- There are only two municipal landfills on the island of Maui. The nearest landfill site is the Central Maui Sanitary Landfill in Puunene. Single-family residential solid waste collection is provided by the County and taken

to the Central Maui Landfill, which also accepts waste from private refuse collection companies. A convenience station is located in Olowalu to service West Maui residents. Solid waste is transported from this convenience station to the Central Maui Landfill.

9. **Public Services** - Fire protection is from the Lahaina Fire Station in the Lahaina Civic and Recreation Center. The Lahaina Fire Station, built in 1972, is staffed by 30 firefighters. There are three shifts with ten men on each shift. The station has two fire trucks.

The Lahaina District Station of the Maui County Police Department has provided police protection for the district since 1974. The station is located behind the Lahaina Civic Center in Wahikuli. Police protection in the Front Street improvement area is supplemented by the Front Street "Koban" (substation) which is the base for Lahaina's three police bicycle patrol officers.

The Lahaina Public Library is on Front Street next to the Pioneer Inn Hotel and is located less than a mile from the project site.

The nearest hospital is Maui Memorial Hospital located in Wailuku providing acute, general and emergency care services from its 185-bed facility.

DESCRIPTION OF THE PROJECT

The Applicants are requesting a change in zoning from R-2 Residential to B-2 Community Business District on Tax Map Key 4-6-10: 25; 26, and 32. The Applicants propose to remove three existing single-family structures and associated ancillary structures. The Applicants are currently consolidating the three parcels totaling 23,907 square feet in order to construct two (2), two-story office/retail buildings. Total rentable area of 13,115 square feet with 27 parking stalls where 26 is required, and two loading spaces. The front setbacks on Honoapiilani Highway and Lahainaluna Road will be fifteen (15) feet as required by the State Department of Transportation. The rear and south sides of the property are abutting residential districts and the yard setback requirements are six (6) feet for a one story building and ten (10) feet for a two-story building. (*Exhibits 9, 9A - 9C*)

REVIEWING AGENCIES

The table below provides a summary of comments received from the reviewing agencies.

AGENCIES	COMMENTS RECEIVED	COMMENTS
1. Office of Planning - DBEDT		no response
2. Dept. Of Land and Natural Resources - Engineering Division	6/3/98	Engineering Branch - Confirmed that site is located in Zone C, area of minimal flooding. (Exhibit 7A)
3. DLNR - State Historic Preservation Division (SHPD)	9/1/98	Located within the Lahaina Historic District and seems likely to have once been the location of pre-contact agricultural fields, perhaps w/ scattered housing; 20th Century residential construction has altered the landscape making it unlikely that any historic sites remain intact and find a proposed project to have "no effect" on historic sites. In an event unrecorded historic remains are inadvertently uncovered during construction along the road, all work should cease in the vicinity and contractor should contact SHPD. (Exhibit 10)
4. Office of Hawaiian Affairs	5/20/98	No concerns at this time. (Exhibit 11)
5. Board of Water Supply	9/21/98	Using State water consumption standards of 140 gallons per 1,000 square feet, they estimate that the new development at 13,720 square feet of retail and/or office space will consume approximately 1,518 gallons per day (gpd); this project likely to require water system improvements including but not limited to installation of a fire hydrant; recommend applicant utilize Best Management Practices (BMP's) designed to minimize infiltration and runoff from all construction and vehicle operations; applicant should consider conservation water resource measures. (Exhibit 12)
6. Dept. Of Land and Natural Resources Commission on Water Resource Management	6/24/98	Commission on Water Resource Management - Strongly promotes efficient use of water resources, recommend coordination with the County government to incorporate this project into the Water Use and Development Plan; Project's water supply infrastructure impacts are discussed in term of delivery capacity, not source capacity; no estimates of demand are given. Consequently, there is no basis for determining whether the request can be accommodated with the existing system. (Exhibit 13)

AGENCIES	COMMENTS RECEIVED	COMMENTS
7. Dept. of Public Works & Waste Management	5/29/98	1) A road widening lot be provided for adjoining half of Alika Place for future 56-foot wide right-of-way and improved to county standards and the lot shall be dedicated to the county; 2) Alika Place and Mill Street shall be improved to County standards; 3) detailed & final drainage report and BMP shall be submitted with grading plans prior to issuance of grading permits; 4) traffic report needed to discuss impacts to Lahainaluna/ Mill Street intersection and other impacts generated by the increased traffic; 5) the developer be informed that the Wastewater Reclamation Division cannot insure wastewater system capacity will be available; 6) wastewater contribution calculations required before a bldg permit issued; developer required to fund off-site improvements to collection system and pump station; 7) off-street parking, loading spaces, and landscaping per MCC Chapter 19.36; 8) a yard setback of 10 feet from R-2 zoned parcels; 9) Preliminary approval granted 4/13/98 for consolidation. (Exhibit 14)
8. Dept. Of Transportation	9/29/98	Storm water run-off attributable to the proposed development will not be permitted on the State highway right-of-way; and plans for construction work within the State highway right-of-way must be submitted to their Highways Division for review and approval. (Exhibit 28)
9. Department of Police	6/18/98	Potential traffic related problems. All roads surrounding the proposed site are adequate throughout most of the day except three notable "peak" times when traffic slows down and considerable traffic. School traffic both lanes between 7 to 8 a.m.; 12:45 to 3:00 tourist traffic coinciding with airport mainland departure times and school traffic on Lahainaluna Road; and 4:30 to 6:00 p.m. after work local traffic. Left turn and right turn lanes onto upper Lahainaluna Road not adequate to handle vehicles making these turns and spill into oncoming lanes causing traffic safety hazard.

AGENCIES	COMMENTS RECEIVED	COMMENTS
9. Department of Police (cont)		During the demolishment stage, traffic would definitely be affected when active trucking and construction equipment transportation vehicles will be affected and airborne dust increases. Construction vehicles will face frustration when exiting and entering the site. After construction, the site is limited to 30 vehicles, and traffic may be minimal. To ease load at "peak" hours recommend inclusion of *longer turn lanes from the Honoapiilani* Highway onto Lahainaluna Road and from Lahainaluna Road onto the Highway. As added measure, hiring of traffic control and site traffic personnel during the demolition and construction phase is recommended. (Exhibit 15)
10. Maui Electric	5/21/98	No objection; encourage electrical consultant to meet with them as soon as practical. (Exhibit 16)
11. Dept. of Parks & Recreation	5/27/98	No objection. (Exhibit 17)
12. Dept. Of Fire Control	5/12/98	No objections. (Exhibit 18)
13. Dept. Of Housing & Human Concerns	6/8/98	Are the existing residential units occupied and if so what relocation assistance will be made by the applicant? Will any type of financial assistance be provided? (Exhibit 19)
14. Department of Health -Maui District Office	5/28/98	Concern with noise related to construction; Compliance to Chapter 11-46, Hawaii Administrative Rules (HAR) and a noise permit may be required depending on noise levels. (Exhibit 20)
15. DLNR - Honolulu	6/3/98	Land Division - No comment to offer at this time. (Exhibit 21)

ANALYSIS

LAND USE

1. Chapter 205, Hawaii Revised Statutes, 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 in the State Urban District. The proposed uses are consistent with the Urban designation of the property.

2. The Maui County General Plan (1991) 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 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 objective and policies:

> *II. ECONOMIC ACTIVITY*
>
> ***Objective 1.*** *To provide an economic climate which will encourage controlled expansion and diversification of the County's economic base.*
>
> ***Policies***
>
> *a. Maintain a diversified economic environment compatible with acceptable and consistent employment.*
>
> *b. Support programs, services and institutions which provide economic diversification.*
>
> *III. B. URBAN DESIGN*
>
> ***Objective 1.*** *To see that all developments are well designed and are in harmony with their surroundings.*
>
> ***Policies***
>
> *a. Require that appropriate principles of urban design be observed in the planning of all new developments.*
>
> *b. Encourage expansion in the process to require all nonsingle family development to be reviewed by the Urban Design Review Board.*
>
> *IV. A. TRANSPORTATION*
>
> ***Objective 2.*** *To develop a program for anticipating and enlarging the local street and highway systems in a timely response to planned growth.*

3. According to the West Maui Community Plan the property is identified for "Business/Commercial" and is consistent with the land use map of the Community Plan. The proposed action is in keeping with the following Community plan recommendations:

III.B. *LAND USE Goal: An attractive, well-planned community with a mixture of compatible land uses in appropriate areas to accommodate the future needs of residents and visitors in a manner that provides for the stable social and economic well-being of residents and the preservation and enhancement of the region's open space areas and natural environmental resources.*

Objectives and Policies:

2. Preserve and enhance the mountain and coastal scenic vistas and the open space areas of the region.

4. Establish an appropriate supply of urban land within the region to meet the needs of the community over the next 20 years. The Community Plan and its map shall define the urban growth limits for the region and all zoning requests and/or proposed land uses and developments shall be consistent with the West Maui Community Plan and its land use map.

III. B. ENVIRONMENT Goal: A clean and attractive physical, natural and marine environment in which manmade developments on or alterations to the natural and marine environment are based on sound environmental and ecological practices, and important scenic and open space resources are preserved and protected for public use and enjoyment.

Objectives and Policies

13. Promote the planting of trees and other landscape planting to enhance streetscapes and the built environment.

III. B. ECONOMIC ACTIVITY Goal: A diversified economy that provides a range of stable employment opportunities for residents, allows for desired commercial services for the community, and supports the existing visitor and agricultural industries, all in a manner that will enhance both the community's quality of life and the environment.

Objectives and Policies:

1. Promote a diversified economic base which offers long term employment to West Maui residents, and maintains overall stability in economic activity in the areas of:

b. Visitor-related service/commercial services.

d. Resident-related service/commercial services

III. B. URBAN DESIGN Goal: An attractive and functionally integrated urban environment that enhances neighborhood character, promotes quality design at the resort destinations of Kaanapali and Kapalua, defines a unified landscape planting and beautification theme along major public roads and highways, watercourses, and at major public facilities, and recognizes the historic importance and traditions of the region.

Objectives and Policies of the West Maui Region in General.

1. Enhance the appearance of major public roads and highways in the region.

8. Maintain shrubs and trees at street intersections for adequate sight distance.

9. Save and incorporate healthy mature trees in the landscape planting plans of subdivisions, roads or any other construction or development.

10. Incorporate drought-tolerant plant species in future landscape planting.

14. Require all future subdivisions, construction projects and developments to comply with the Maui County Planting Plan.

15. Emphasize contrasting earth-tone color schemes for buildings and avoid bright or garish colors.

III. B. INFRASTRUCTURE Goal: Timely and environmentally sound planning, development, and maintenance of infrastructure systems which serve to protect and preserve the safety and health of the region's residents, commuters, and visitors through the provision of clean water, effective waste disposal and efficient transportation systems which meets the needs of the community.

Transportation Objectives and Policies

3. Support improvements for the safe and convenient movement of people and goods, pedestrians and bicyclists in the Lahaina region particularly along Honoapiilani Highway, Front Street and Lower Honoapiilani Road and seek to establish a regional network of bikeways and pedestrian paths.

Implementing Actions

2. Construct left turn lanes on the Lahainaluna Road at its intersection with Honoapiilani Highway.

6. Redesign mauka-makai streets in Lahaina town to enhance pedestrian and bicycle movement to include enhanced sidewalk-mall facilities, bicycle lanes,

and street furniture with particular attention to Lahainaluna Road.

Water and Utilities Objectives and Policies

8. Promote water conservation and education programs.

III. C. Planning Standards

1. LAND USE STANDARDS

a. All zoning and land use approvals shall be consistent with the West Maui Community Plan and its land use policies.

3. BUILDING STANDARDS

a. Insure that new buildings and renovations in areas within or adjacent to the Historic District respect the massing, scale, texture and appearance of old Lahaina and a maximum building height of two stories or 35 feet.

b. Review projects for consistency with the design guidelines specified in the Community Plan or as otherwise may be adopted.

4. LANDSCAPE PLANTING STANDARDS

a. Buffer public and quasi-public facilities and light-heavy industrial/commercial type facilities from adjacent uses with appropriate landscape planting.

b. Save and incorporate healthy mature trees in the landscape planting plans of subdivisions, roads or any other construction or development.

c. Incorporate the use of drought-tolerant plant species in future landscape planting.

d. Require all future subdivisions, construction projects and developments to comply with the Maui County Planting Plan.

6. ENVIRONMENTAL ASPECTS

b. Promote the planting of trees and other landscape planting to enhance streetscapes and the built-environment.

d. Insure that new developments will not result in adverse soil erosion or flooding conditions for downstream properties.

The Applicants are proposing to develop two two-story commercial building where six stories are permitted in the B-2 Business zoning district. The Community Plan's Planning Standards *states that "Insure that new buildings and renovations in areas within or adjacent to the Historic District respect the massing, scale, texture*

and appearance of old Lahaina and a maximum building height of two stories or 35 feet." Other than the two story height standard, there are no specific measurements provided in Chapter 19.18 of the Maui County Code (MCC) and two stories could be higher than 35 feet.

The project site is located in the National Historic Landmark District. Therefore, at the time of development the Applicants have to comply with Chapter 343, "Environmental Impact Statements," Hawaii Revised Statutes. The proposed site is not adjacent to any County Historic Districts except that Historic District No. 1, is located at Dickenson Street and Honoapiilani Highway, about 250 feet southwest of the project site. In addition, the Community Plan's boundary description which includes Honoapiilani Highway as the western edge of Lahaina Town is not clear on whether both sides of Honoapiilani Highway are included in the 35-foot height restriction. Based upon the boundary description of Lahaina Town in the Community Plan, Pioneer Mill, a historic site was not included. The significance and impact of structures higher than 35 feet on the eastern (mauka) side of Honoapiilani Highway and the vistas and view plane which are part of historic Lahaina (Town) was not addressed in the Community Plan. For these reasons discussed above, if the zoning is approved for B-2, the approval should be conditioned to limit the height to 35 feet.

Due to traffic concerns by the Planning, Police, Public Works and Waste Management Departments, the Applicants are agreeable to limiting the type of uses to low intensity uses. There are already three gas stations with convenience/retail type operations at the intersections of Lahainaluna and Honoapiilani Highway and at Dickenson and Honoapiilani Highway. The Applicants stated that they would not be utilizing the subject property for this type of use and are agreeable to limiting the type of uses on the property. If the B-2 zoning is approved, the approval should be conditioned to limit the uses to those uses that generate low traffic counts.

The Community Plan policies and objectives would also be met if the Applicants provide the 15-foot planting areas fronting Honoapiilani Highway and Lahainaluna Road as indicated on the Applicants' concept plan and as required by the State Department of Transportation. The Applicants are already required by Title 19 of the Maui County Code to provide a six-foot yard setback for one story and ten-foot yard setback if the commercial zoned lot is adjacent to residential zoned lots. The Applicants have stated that a wall adjacent to the Hawaii Housing Authority's multi-family housing area will be installed. This wall is not shown on the concept plan. (*Exhibit 9B*) Pursuant to Chapter 19.36, Off-Street Parking and Loading provisions of the Maui County Code relating to fences and landscaping, the Applicants are required to provide a five-foot high wood or concrete masonry fence along the property line abutting the properties zoned residential or duplex. The

Applicants, however, should be required to submit to the Planning Department a landscape planting and irrigation plan for the 15-foot setback areas along Honoapiilani Highway and Lahainaluna Road along with its landscape planting and irrigation plan for the off-street parking.

The Department of Public Works and Waste Management, in their letter of May 28, 1998, stated that preliminary approval was granted on April 13, 1998 for the Panaewa Tract - LUCA File No. 4.739, which proposes to consolidate the subject parcels into one lot. (*Exhibit* 14)

AGRICULTURE

1. Agricultural resources could be affected by the proposed development which is located across the Pioneer Mill sugar processing plant. A private cane haul road is located immediately adjacent to Mill Street. Mill Street is the access for the proposed development from Alika Place. Mill Street is only about 150 feet from Lahainaluna Road intersection and the cane haul road intersection. Lahainaluna Road is a heavily traveled road with school, residential, and commercial traffic. The traffic on the private cane haul road crossing Lahainaluna Road at the same intersection as Mill Street could be affected by any increase in traffic on Lahainaluna Road. The effect on traffic is further discussed in the roadways and traffic section of this report.

ARCHAEOLOGICAL, HISTORIC AND CULTURAL RESOURCES

1. The subject property has been previously cleared and graded for use as the existing residential use. The two main dwellings were built in 1938 and 1939 receptively. As such, the structures could be considered "Historic," since they are more than 50 years old. Historic Resources Inventories have been completed and forwarded to the State Historic Preservation Division (SHPD), Department of Lands and Natural Resources, Honolulu, together with color photographs. The Applicants stated that the SHPD responded that the structures were more than 50 years old but were not significant historical structures.

2. The SHPD has reviewed the application and commented in their letter of May 28, 1998 that the subject property seems likely to have once been the location of pre-Contact agricultural fields, perhaps scattered housing. Twentieth century residential construction has since altered the landscape, however, making it unlikely that any historic sites remain intact. They therefore find the proposed construction project to have "no effect" on historic sites. They also noted that the subject property was within the Historic District, however, it is not in the Historic District. However, the subject property is not located in the Historic District but is

located in the National Historic Landmark District. (*Exhibit 10*)

The Applicants stated that they will comply with the SHPD's request that in the event that sub-surface historic/cultural remains (i.e., subsurface pavings, artifacts, or human bones) are inadvertently uncovered during construction along the road, all work will cease in the vicinity and the contractor will immediately contact the SHPD.

3. As noted in the Land Use section of this report, the subject property is located in the National Historic Landmark District. However, since the County has not adopted an ordinance to include this area within the historic district, there are no specific regulations applicable to this site relating to historic preservation or design. The Applicants, however, are required to comply with Chapter 343, HRS as noted above.

4. The Office of Hawaiian Affairs, in their letter of May 14, 1998 stated that the change in zoning would not disrupt current land use and that the complex itself apparently bears no adverse impacts on either nearby residential areas or upon existing utility structures. (*Exhibit 11*)

INFRASTRUCTURE AND PUBLIC FACILITIES AND SERVICES

1. Water -- The Applicants stated that in discussion with the personnel for the Department of Water Supply, they concurred that the two 5/8-inch water meters will be sufficient to supply the water needs for the proposed project. The Department of Water Supply in their letter of September 15, 1998, stated that using State water consumption standards of 140 gallons per 1,000 square feet, they anticipate that the new development will consume approximately 1,518 gallons per day (GPD). They further stated that the Applicants should note that this project is likely to require water system improvements including but not limited to installation of a fire hydrant. Domestic, fire, and irrigation calculations will be reviewed in detail during the development process. (*Exhibit* 12)

The Department of Land and Natural Resources, in their letter of June 22, 1998, commented that their Commission on Water Resource Management recommends coordination with the County government to incorporate this project into the County's Water Use and Development Plan. They further stated that the project's water supply infrastructure impacts are discussed in terms of delivery capacity, not source capacity, and that no estimates of demand are given. Consequently there is no basis for determining whether the request can be accommodated with the existing system. (*Exhibit 13*)

2. Sewers -- In their application, the Applicants stated that in their discussion with the Department of Public Works and Waste Management (DPWWM), the personnel at the Wastewater Division, concurred that the present 8-inch sewer line would be sufficient to handle the proposed commercial project's wastewater. In their letter of May 28, 1998, the DPWWM stated that the developer should be informed that the Wastewater Reclamation Division cannot insure that wastewater system capacity will be available for the project. In addition wastewater contribution calculations are required before a building permit is issued. The developer will be required to fund any necessary off-site improvements to the collection system and wastewater pump stations. (*Exhibit 14*)

3. **Drainage** -- The Applicants stated that once the project is completed, the new total runoff volume for a 50-year 1 hour storm is estimated at 3,200 cubic feet for a net increase of approximately 1,600 cubic feet. A drainage system will be installed onsite to collect runoff from impervious rooftops, walkways, parking areas, as well as the landscaped areas and direct it into a subsurface detention system. Onsite runoff will be stored under the parking lot in an area of approximately 60 feet by 60 feet. According to the Applicants, a coarse aggregate envelope encased within a geotextile can be used for this project. The depth of the coarse aggregate envelope shall be at least 4 feet thick. The volume of water contained within the retention basin is 3,200 cubic feet.

The Applicants stated that the building finished floor elevation will be constructed higher than the surrounding area to assure that no flooding occurs within the building. The proposed project will not change the general drainage patterns through the lot. Storm discharge from off-site properties will be allowed to pass through the site by overland swales to makai of the property. A swale along the western boundary will be graded to allow off-site water to go around the main building and through the property. The swale can be constructed with a flat grade to allow maximum infiltration and reduction of sediments. The Applicants stated that the proposed development will not significantly alter existing drainage patterns and will not negatively impact adjoining or downstream properties.

The DPWWM, in their letter of May 28, 1998, stated that a detailed and final drainage report and a Best Management Practices Plan (BMP) shall be submitted with the grading plans for review and approval prior to issuance of grading permits. The BMP Plan should include details on hydrologic and hydraulic calculations, schemes for disposal of runoff waters, verification that grading and runoff water generated by the project will not have an adverse effect on adjacent and downstream properties, and the Plan shall show the location and details of structural and non-structural measures to control erosion and sedimentation to the maximum extent practicable. The Plan must comply with the provisions of the

"Rules and Design of Storm Drainage Facilities in the County of Maui." (*Exhibit 14*)

The Department of Transportation stated in a telephone conversation on September 25, 1998 that they will be mailing a letter. They indicated that one of their comments is that no storm water run-off attributable to the proposed development will be permitted on the State Highway right-of-way. Storm run-off from the property is unlikely because the subject property is about two to three feet below grade of Honoapiilani Highway and Lahainaluna Road.

Since there are no drainage systems serving this project and none are proposed, as a condition of approval the proposed development should retain all runoff from its development on-site.

4. **Roadways, Curbs, Gutters and Sidewalks** -- The Applicants stated in their application that the anticipated trip generation by the proposed commercial project is considered insignificant given existing levels of traffic on Honoapiilani Highway and Lahainaluna Road. The Applicants further stated that Lahainaluna Road/Honoapiilani Highway intersection is signalized and will provide for gaps in traffic on Lahainaluna Road to allow ingress/egress of project-generated traffic to and from Mill Street. Exhibit 8 in this report identifies the existing lane configurations.

The Police Department commented in their letter of June 18, 1998, that all roads surrounding the proposed site are adequate enough to handle traffic throughout most of the day except for three notable peak times. These times are from 7:00 to 8:00 a.m. school traffic going up and down Lahainaluna Road; from 12:45 to 3:00 p.m. tourist traffic leaving Lahaina Town (coinciding with airport mainland departure times) and school traffic coming down Lahainaluna Road; and from 4:30 p.m. to 6:00 p.m. after work local traffic. The Police Department indicated that left turn and right turn lanes onto upper Lahainaluna Road are not adequate to handle the number of vehicles making these turns. Vehicles crowd the turn lanes to a point where they sometimes spill into the oncoming lanes causing a traffic safety hazard. (*Exhibit* 15)

The Police Department further noted that traffic would definitely be affected when active trucking and construction equipment transportation begins during the demolishment of the existing structures. Most affected would be the construction vehicles as they exit and enter the site onto Honoapiilani Highway.

The Police Department further stated that after the project is open for business, there would probably be an increase in traffic flow on Lahainaluna Road, Mill Street and Honoapiilani Highway but it should be minimal since only a modest

amount (30) of parking will be provided. It should be pointed out that the 30 parking stalls is not the only factor used in determining traffic impact since a convenience or fast food store, or banking facilities with 30 parking stalls could generate higher traffic volumes than a real estate or law office due to the movement of vehicles. Table 3 below shows the difference between trip generation for general office at 6,875 square feet and shopping center for the same amount of space increasing at the peak PM hours exiting the site as high as 56 vehicles for shopping centers as opposed to only 9 for general office use.

To ease the load on the peak hours, the Police Department recommends longer turn lanes from the highway onto Lahainaluna Road and from Lahainaluna Road onto the highway. They further recommend hiring traffic control and site traffic personnel to aid in the smooth flow of traffic in and around the demolition and construction phase.

As a result of concerns raised by the Planning Department and the Police Department, the Applicants were informed that a Traffic Impact Assessment Report should be completed and submitted to the Department of Public Works and Waste Management and to the State Department of Transportation. On August 14, 1998, the Department received a Traffic Impact Analysis Report (TIAR), July 1998. The report identified the existing roadway system, existing traffic volumes, existing intersection operations, Year 2000 traffic conditions, and conclusions and recommendations.

The Applicants' traffic report prepared by Parsons Brinckerhoff noted that the traffic counts were conducted when schools were not in session, therefore the traffic volumes depicted were lower than they would have been during the school year, however an adjustment was made based upon the 1997 Hawaii State Department of Transportation Traffic Counts conducted when schools were in session. They found morning and afternoon peak hours to occur from 7:15 to 8:15 a.m. and 4:00 to 5:00 p.m. Manual turning movement traffic counts were conducted during the afternoon peak periods on Wednesday, July 1, 1998, and during the morning peak periods on Thursday, July 2, 1998 at the following four intersections:

1. Honoapiilani Highway and Lahainaluna Road
2. Honoapiilani Highway and Dickenson Road
3. Lahainaluna Road and Mill Street, and
4. Mill Street and Alika Place

Based on the operational (signalized intersections) analysis of the Honoapiilani/Lahainaluna Road intersection, the overall intersection operates at

Level of Service (LOS) E in the AM peak hour, experiencing traffic delays. The eastbound and westbound approaches of Lahainaluna Road encounter the most delay operating at LOS F. During the PM peak hour, the intersection operations improve to LOS D for each approach, and the approach delays notably decrease for most movements. (*Exhibit 23, Table 1, Parsons Brinckerhoff*)

At the unsignalized intersection of Honoapiilani Highway and Dickenson Street, operates acceptably in both peak hours (LOS A and LOS C), although westbound Dickenson Street experiences notable delays. The volume of traffic on Honoapiilani Highway limits the number of acceptable gaps in traffic entering from Dickenson Street. Eastbound Dickenson Street and southbound Honoapiilani Highway operate at LOS B with minimal delays. (*Exhibit 23*)

The Mill Street/Alika Place and Mill Street/Lahainaluna Road intersections operate very well in both peak hours. For the Mill Street/Alika Place intersection, the approach delays are less than 3.9 seconds/vehicle. Although the Mill Street/ Lahainaluna Road intersection operates well overall, northbound Mill Street experiences, LOS D and a delay of 29.2 seconds/vehicle in the AM peak. The volumes on Lahainaluna Road limit the number of available gaps in traffic for Mill Street traffic to enter the main traffic flow. In the PM peak hour, the volumes along Lahainaluna Road decrease, and the delay for northbound Mill Street decreases to 8.0 seconds/vehicle.

The TIAR assumed the year 2000 to be the year of completion for the proposed development. The roadway conditions were assumed to be the same as the existing roadway conditions with the exception of the Honoapiilani Highway/Dickenson Street intersection. According to the Department of Transportation, this intersection will be signalized by the Year 2000; therefore, the intersection was analyzed as a signalized intersection for future conditions. As a signalized intersection, all movements will be accommodated. The westbound and eastbound approaches at Dickenson Street will be modified to a single left/through/right lane, and an exclusive left-turn lane will be added to the southbound approach of Honoapiilani Highway.

The TIAR estimated the traffic volumes based upon the total floor area of the proposed development to be split equally for retail and office space. Table 3 below from the TIAR shows the number of vehicular trips generated by the project in the Year 2000. Exhibit 24 shows Figure 4, Existing Peak Hour Traffic Volumes and Exhibit 25 shows Figure 5, Site Generated Traffic Volumes.

Table 3

Trip Generation

Landuse	Intensity	AM Peak Hour 7:15-8:15 AM		PM Peak Hour 4:00-5:00 PM	
		Enter	Exit	Enter	Exit
General Office Building (ITE 710)	6,875 sq.ft.	9	1	2	9
Shopping Center (ITE 820)	6,875 sq.ft.	20	13	51	56
TOTAL	**13,720 sq. ft.**	**29**	**14**	**53**	**65**

Source: Institute of Transportation Engineers (ITE), *Trip Generation, Sixth Edition*, 1997

As shown in Table 4 of the TIAR below, the Honoapiilani Highway/ Lahainaluna Road and Honoapiilani Highway/Dickenson Street intersections are projected to have the same levels of service during each peak hour for the no Build and Build alternatives. Although the delays are projected to increase slightly for the Build alternative, the increased delays are not expected to affect the levels of service in either peak hour. During the AM peak hour, the Honoapiilani Highway/ Lahainaluna Road intersection is projected to continue to operate at LOS E. The Honoapiilani Highway/Dickenson Street intersection is projected to operated at LOS C. During the PM peak hours, both signalized intersections are projected to operate at LOS D.

For both the AM and PM peak hours, the Mill Street/Alika Place and Lahainaluna Road/Mill Street intersections are projected to operate at an overall LOS A. The northbound approach of Lahainaluna Road/Mill Street is projected to experience changes in LOS during both peak hours for the Build alternative. Likewise, the eastbound approach of Mill Street/Alika Place is projected to experience a change of LOS A to LOS B in the PM peak hour. The levels of service changes are due to the increases in traffic volumes of these movements. Exhibit 26 shows Figure 6, Year 2000 No Build Peak Hour Traffic Volumes, and Exhibit 27 shows Figure 7, Year 2000 Build Peak Hour Traffic Volumes.

Table 4

Year 2000 Conditions Peak Hour Levels of Service

Comparison of No Build and Build Alternatives

Intersection	No Build		Build	
	AM (delay)	PM (delay)	AM (delay)	PM (delay)
Signalized Intersections				
Honoapiilani Highway/Lahainaluna Road	**E (47.1)**	**D (35.1)**	**E (48.9)**	**D (35.8)**
EB Approach	E (55.0)	D (36.9)	E (55.0)	D (37.3)
WB Approach	E (56.7)	D (37.1)	E (57.2)	D (37.7)
NB Approach	E (56.5)	D (39.8)	E (56.5)	D (39.8)
SB Approach	D (32.9)	D (31.2)	D (37.6)	D (32.4)
Honoapiilani Highway/Dickenson Street	**C (17.1)**	**D (25.9)**	**C (17.5)**	**D (28.8)**
EB Approach	D (35.3)	D (34.6)	D (35.3)	D (33.7)
WB Approach	D (37.9)	D (36.1)	D (37.9)	D (38.0)
NB Approach	D (29.3)	E (50.9)	D (30.3)	E (57.8)
SB Approach	B (5.1)	B (8.5)	B (5.1)	B (8.8)
Unsignalized Intersections				
Mill Street/Alika Place	**A (0.5)**	**A (0.2)**	**A (0.8)**	**A (1.3)**
EB Approach	A (3.4)	A (3.7)	A (3.8)	B (5.0)
NB Approach	A (0.3)	A (0.1)	A (0.5)	A (0.2)
Lahainaluna Road/Mill Street	**A (1.1)**	**A (1.3)**	**A (1.8)**	**A (2.9)**
NB Approach	D (26.2)	B (8.4)	E (40.8)	C (15.8)
SB Approach	E (34.6)	B (7.9)	E (35.6)	B (8.3)
EB Approach	A (0.0)	A (0.0)	A (0.0)	A (0.0)
WB Approach	A (0.1)	A (0.2)	A (0.1)	A (0.3)

Note: NB- northbound, SB- southbound, EB- eastbound, WB- westbound
AM peak hour (7:15-8:15 AM); PM peak hour (4:00-5:00 PM)
Delay is expressed as seconds per vehicle.

The TIAR concludes that the traffic generated by the proposed development can be accommodated by the surrounding roadway system. The TIAR recommends that the proposed access to the site will be via Alika Place. Existing Alika Place is a paved surface with widths varying from 17 to 20 feet. The condition of the paved surface is fractured in spots, and there are no pavement markings. Roadway edge lines along Alika Place and a stop line at Mill Street is recommended as part of the proposed development. A pavement overlay of Alika Place also may be warranted and if it is, the proposed development could participate in their fair share of its cost.

The TIAR states that the overall intersection of Mill Street/Lahainaluna Road is projected to operate well, but the Mill Street approach is projected to experience an increase in delay due to the added traffic volumes. A traffic signal is not warranted for the intersection. To help peak hour conditions at this intersection, directional guide signs that direct traffic to the intersection of Honoapiilani Highway and Dickenson Street will be implemented at the intersection of Alika Place and Mill Street.

The State Department of Transportation and the Department of Public Works and Waste Management did not comment on the TIAR. However, the Director of Public Works and Waste Management in a meeting with the Director of Planning requested that the uses within the project be restricted to low traffic generating uses. It should also be noted that the TIAR did not address the future projections beyond the Year 2000 and the effect the proposed Lahaina Bypass on Lahainaluna Road. Lahainaluna Road will be a major collector with the Lahaina Bypass. The TIAR also did not address the traffic on the cane haul road.

The State Department of Transportation stated by telephone on September 25, 1998, that they will be responding in writing noting that plans for construction work within the State highway right-of-way must be submitted to their Highways Division for review and approval.

There are no curbs, gutters, and sidewalks on Alika Place, Mill Street, Honoapiilani Highway. No improvements or provisions for them are proposed. Gutter improvements are tied to the drainage improvements and as noted in the drainage section of this report, there is no public drainage system serving this project.

If the B-2 Business District Zoning is approved, it should be conditioned on the basis that the uses be limited to low intensity office and commercial uses that generate low traffic volumes.

5. **Electrical and Telephone** -- Services are currently provided and available to the project site. No impacts are anticipated as a result of this project. Maui Electric Company, in their letter of May 21, 1998, had no objections to the subject project. They encouraged the developer's electrical consultant to meet with them as soon as practical to verify the project's electrical requirements so that service can be provided on a timely basis. (*Exhibit 16*)

6. **Parks and Recreational Facilities** -- The Applicants stated that Lahaina has a reputation as a recreational destination, particularly for ocean related activities. There should not be any increase in the population and use of the facilities as a result of this small commercial development. The proposed project is not anticipated to adversely affect the recreational facilities. The Department of Parks and Recreation in their letter of May 20, 1998 stated that they have no objections to the proposed action. (*Exhibit* 17)

7. **Schools** -- The proposed project is a small commercial project and would not be significantly increasing the employment base. The employees would probably be from the existing employment pool and there would probably be no increase in population in the area as a result of this project.

8. **Solid Waste** -- The Applicants stated that the solid waste collection for the proposed development will be provided by private companies. The existing structures will be demolished and debris will be properly disposed. The DPWWM did not comment on this subject matter.

9. **Public Services** -- No adverse impacts on fire protection services, and medical services are anticipated. As noted in the roadways and environmental sections of this report, the Police Department was concerned about the traffic and airborne dust which could affect their services. (*Exhibit 15*)

The Fire Department commented in their letter of May 11, 1998 that they had no objections to granting the applicants' request for a change in zoning. (*Exhibit 18*)

SOCIOECONOMIC IMPACTS

The Applicants stated that the Change in Zoning would allow for subsequent development of an approximately 13,700 square foot commercial complex. This represents a relatively small increase in commercial space when compared to the existing inventory in West Maui. There will be no direct impact to local population levels. The potential for population growth, due to increase job opportunities are not considered significant due to the relatively small size of the anticipated project.

On a short term basis, the project will support construction and construction related employment. On a long term basis, the project will provide employment and business opportunities. The Applicants stated that the proposed project is located on the corner of a busy intersection and is considered ideally situated for commercia/business use. The proposed project should have a positive impact upon local employment levels, although the impact is considered insignificant when compared to existing employment levels in West Maui.

The Department of Housing and Human Concerns had the following comments in their letter of May 19, 1998:

1. Are the existing residential units occupied, and if so, what arrangements have been or will be made by the applicants to assist the tenant(s) in locating new units?

2. Will any type of financial assistance be provided to the tenant(s) for moving and relocation expenses?

The Applicants did not respond to the questions raised by the Department of Housing and Human Concerns. In any case, at the minimum, the Applicants have to comply with the requirements of the State Landlord Tenant Code. (Exhibit 19)

ENVIRONMENTAL IMPACTS

Noise and Air Quality. The Police Department commented that in addition to the construction traffic problem, another factor in the demolition stage is the airborne dust increase if no measures are taken to reduce the dust. (*Exhibit 15*)

The Department of Health, Maui District Health Office, in their letter of May 26, 1998, had the following comments:

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

2. HAR, Chapter 11-46, "Community Noise Control" also sets maximum allowable levels for noise, compressors, and generators. The attenuation of noise from these potential sources should be considered during the design phase of the project. (*Exhibit 20*)

There will be short term noise and air quality impacts during the construction

phases of the project. Best management practices should be incorporated into the project in accordance with Federal, State and County standards.

The Applicants stated that air quality in the Lahaina region is considered relatively good. The relatively high quality of air can be attributed to the region's constant exposure to winds which quickly disperse concentrations of emissions. This rapid dispersion is evident during burning of sugar cane in fields located in West Maui. Air quality impacts attributed to the proposed project could include dust generated by short term, construction-related activities. The Applicants stated that dust control measures such as regular watering, and sprinkling will be implemented to minimize the potential impact from wind-blown emissions. On a long term basis, the Applicant stated that the project would result in a slight increase in vehicles at the site and therefore, could result in a slight increase in vehicle emissions. However, this amount is considered insignificant given the existing traffic levels on Honoapiilani Highway.

Flora and Fauna. The Applicants stated that there are no known significant habitats of rare, endangered or threatened species of flora and fauna located on the project site. The project site is currently used for residential purposes and has been substantially improved. Landscape improvements existing on the property include ample amount of mature shade trees as well as various tropical plants and hedges including mango, shower, lemon, plumeria and palm trees, hedges, and various grasses. Animal life in the project vicinity similarly reflects the urban character of the region. Avifauna typically found in Lahaina Town includes the common myna, several species of dove, cardinal, house finch, and house sparrow. Mammals common to this area include cats, dogs, rodents, and mongoose.

The Applicants stated that proposed landscape improvements will result in the removal of some of the mature mango trees, but the new landscape planting plan is intended to enhance the subject property's setting. The proposed project will not have a significant impact upon the flora, fauna, and animal life found within the subject property.

Visual Resources/ Urban Design. The Applicants stated that the site is not part of a scenic or unique scenic corridor, nor does it provide valuation vantage points to scenic resources. Although the subject property is not located within the Historic District, the proposed project design is consistent with the historic architectural character of Lahaina Town in terms of scale, massing and architectural style. The Applicants stated that since their recent purchase in 1997, they have improved the condition of the structures and site considerably. Given the age of the structures and dilapidated condition of the existing structures on the property, the Applicants stated that the proposed project is anticipated to improve the

character of the existing intersection from an urban design perspective.

The Applicants propose buildings to be no more than two stories where six stories are permitted in the B-2 Business District. In addition six to ten feet of yard setbacks and landscaping are proposed on all sides depending on the height of the buildings.

The Department of Land and Natural Resources, Land Division had no comment to offer at this time. (*Exhibit 21*)

OTHER GOVERNMENTAL APPROVALS

The Department of Public Works and Waste Management, in their letter of May 28, 1998, stated that preliminary approval was granted on April 13, 1998 for the Panaewa Tract - LUCA File No. 4.739, which proposes to consolidate the subject parcels into one lot. (*Exhibit 14*)

Since the project site is located in the National Historic Landmark District, compliance to Chapter 343, Environmental Impact Statements, Hawaii Revised Statutes is required.

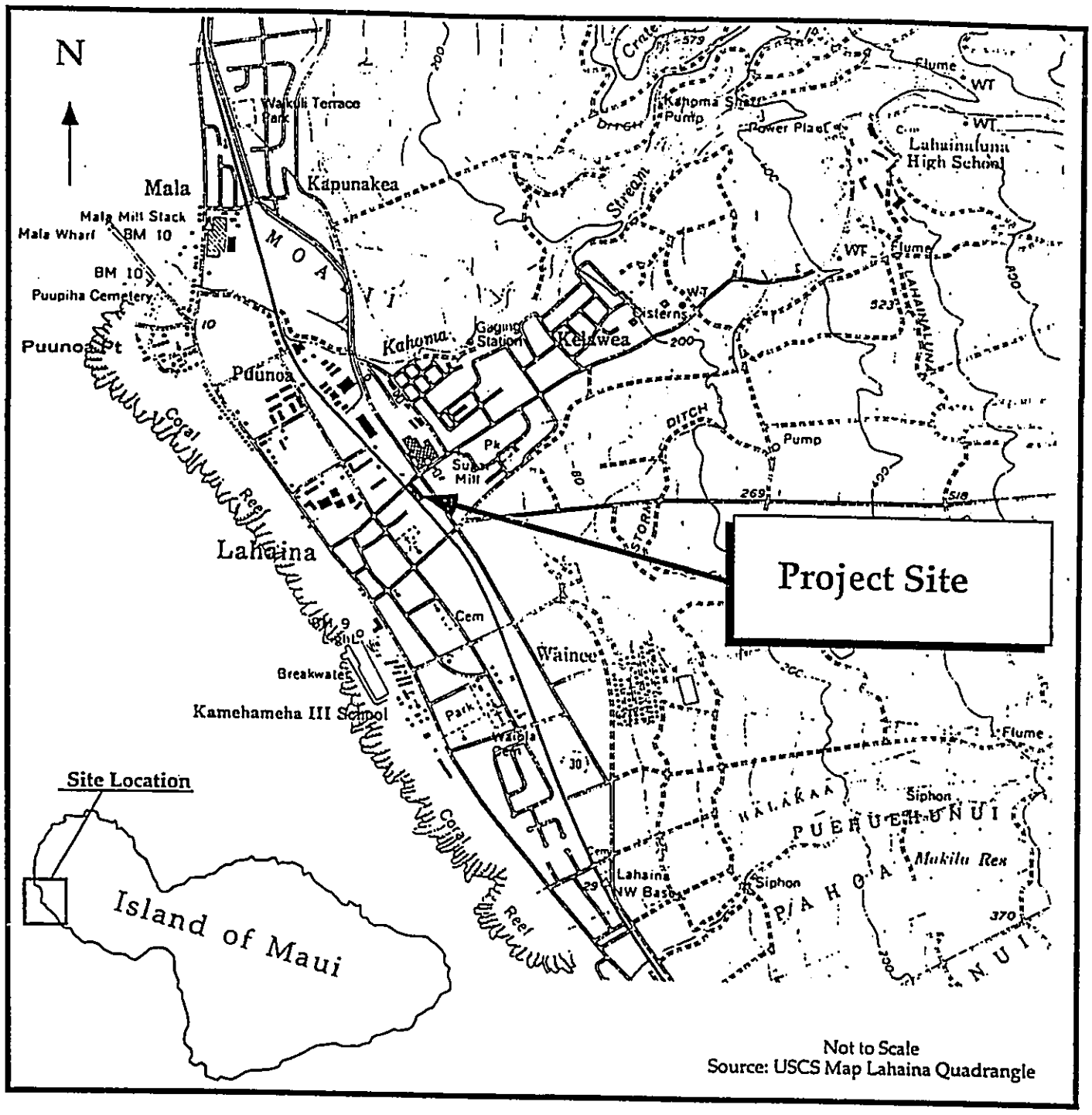
TESTIMONY

As of September 28, 1998, the Planning Department has received one letter from the First Assembly of God dated August 9, 1997 in support of the zoning change as specified in the Community Plan. (*Exhibit 22*)

APPROVED:

Lisa M. Nuyen

LISA M. NUYEN
Planning Director



Regional Location Map

Mango Manor Commercial Complex
Lahaina, Maui, Hawai`i
TMK 4-6-10: 25; 26 & 32

CHRIS HART & PARTNERS

EXHIBIT 1

COUNTY OF MAUI
DEPARTMENT OF PLANNING
250 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793
TELEPHONE: (808) 243-7735; FAX (808) 243-7634

CHANGE IN ZONING APPLICATION

DATE: _____

PERMIT TYPE: Change in Zoning PROJECT NAME: Mango Manor Commercial Complex

PROPOSED DEVELOPMENT: To remove the existing residential structures and construct two (2) two-story commercial structures and on-site parking.

TAX MAP KEY NO: 4-6-10:25, 26, & 32 HPR NO.: 0000

PROPERTY ADDRESS: 270 Lahainaluna Rd., Lahaina, Maui, Hawaii

OWNER: Mr. Barry L. Brown and Mr. David B. Rosen PHONE: (808)661-1800

ADDRESS: P.O. Box 11782

CITY: Lahaina STATE: Hawaii ZIP CODE: 96761

SIGNATURE: (See Letter of Authorization)

APPLICANT: Chris Hart & Partners

ADDRESS: 1955 Main Street, Suite 200

CITY: Wailuku STATE: Hawaii ZIP CODE: 96793

PHONE (HOME): N/A PHONE (BUSINESS): (808)242-1955 FAX: (808)242-1956

SIGNATURE: Christopher L. Hart, ASLA

CONTACT: RORY FRAMPTON

ADDRESS: 1955 Main Street, Suite 200

CITY: Wailuku, STATE: Hawaii ZIP CODE: 96793

PHONE (HOME): _____ PHONE (BUSINESS): _____ FAX: _____

EXISTING USE OF PROPERTY: There are three residential structures presently on site

CURRENT STATE LAND USE DISTRICT BOUNDARY DESIGNATION: Urban

COMMUNITY PLAN DESIGNATION: Business

MAUI COUNTY ZONING DESIGNATION: R-2 Residential

OTHER SPECIAL DESIGNATIONS: None (NATIONAL HISTORIC LANDMARK DISTRICT)

EXHIBIT 2

P. O. Box 11782
Lahaina, Hawaii 96761
March 18, 1998

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

Re: Application for Change in Zoning Application from "R-2, Residential" to "B-2, Commercial" District for the proposed Mango Manor Commercial Complex, located at 270 Lahainaluna Road, Lahaina, Maui, Hawaii (TMK 4-6-010: 25; 26 & 32).

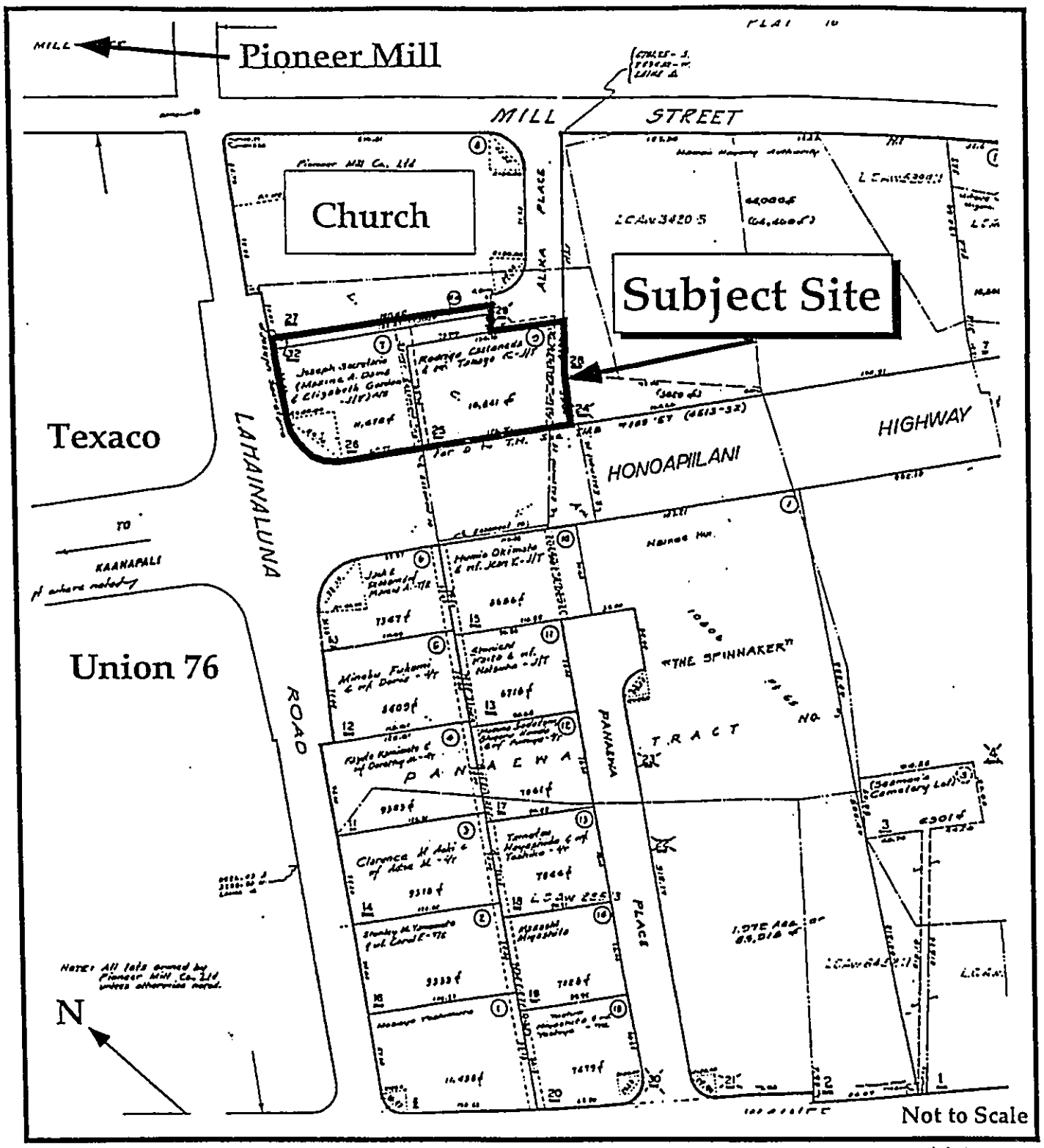
Dear Mr. Blane:

This letter authorizes Chris Hart & Partners to submit a Change in Zoning Application from "R-2, Residential" to "B-2, Commercial" District for the proposed Mango Manor Commercial Complex, located at 270 Lahainaluna Road, Lahaina, Maui, Hawaii (TMK 4-6-010: 25; 26 & 32).

Very truly yours,

Barry L. Brown
Owner

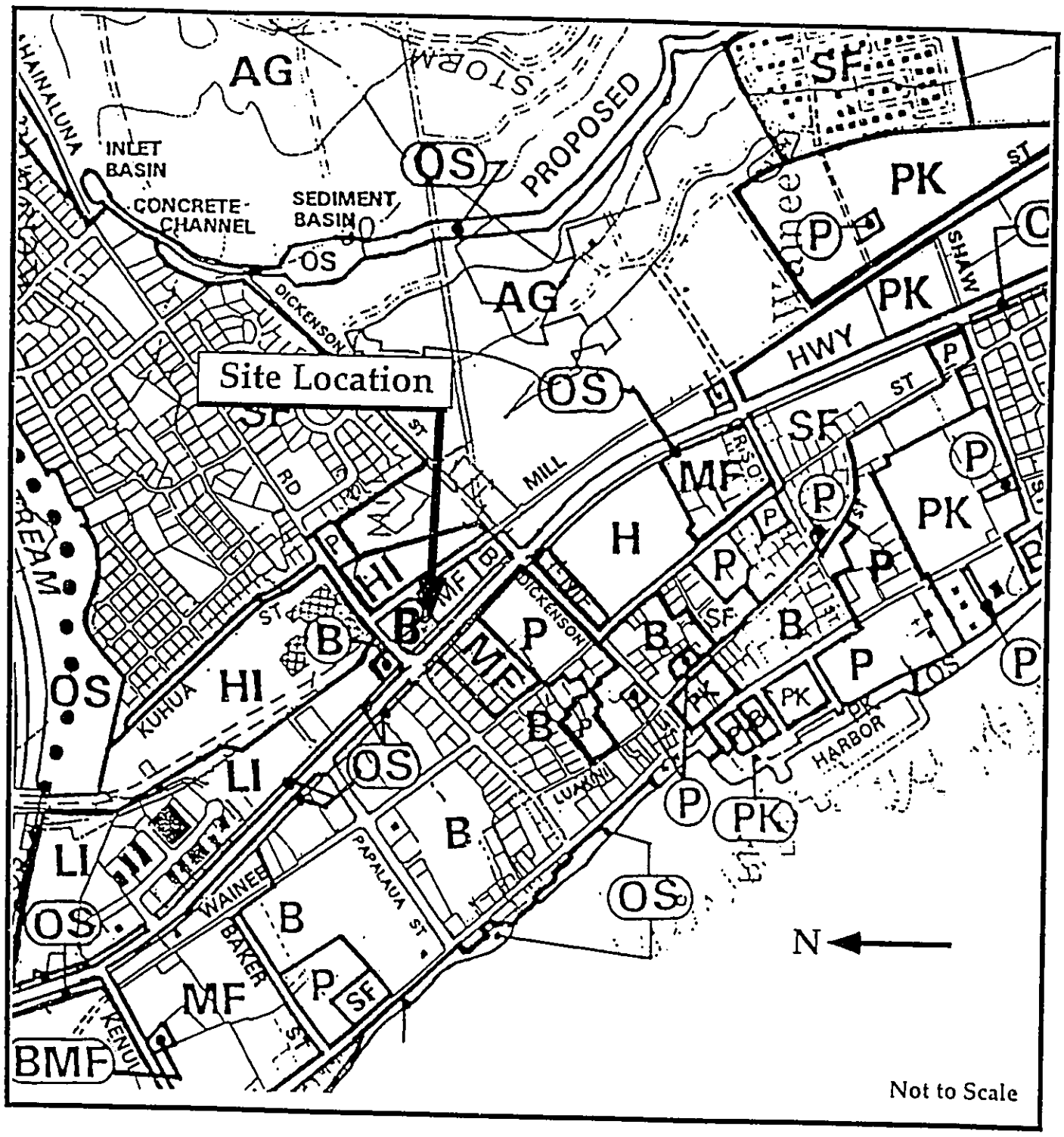
David B. Rosen
Owner



Tax Map Key Plat 4-6-10
Mango Manor Commercial Complex
Lahaina, Maui, Hawai`i
TMK 4-6-10: 25; 26 & 32

CHRIS HART & PARTNERS

EXHIBIT 3

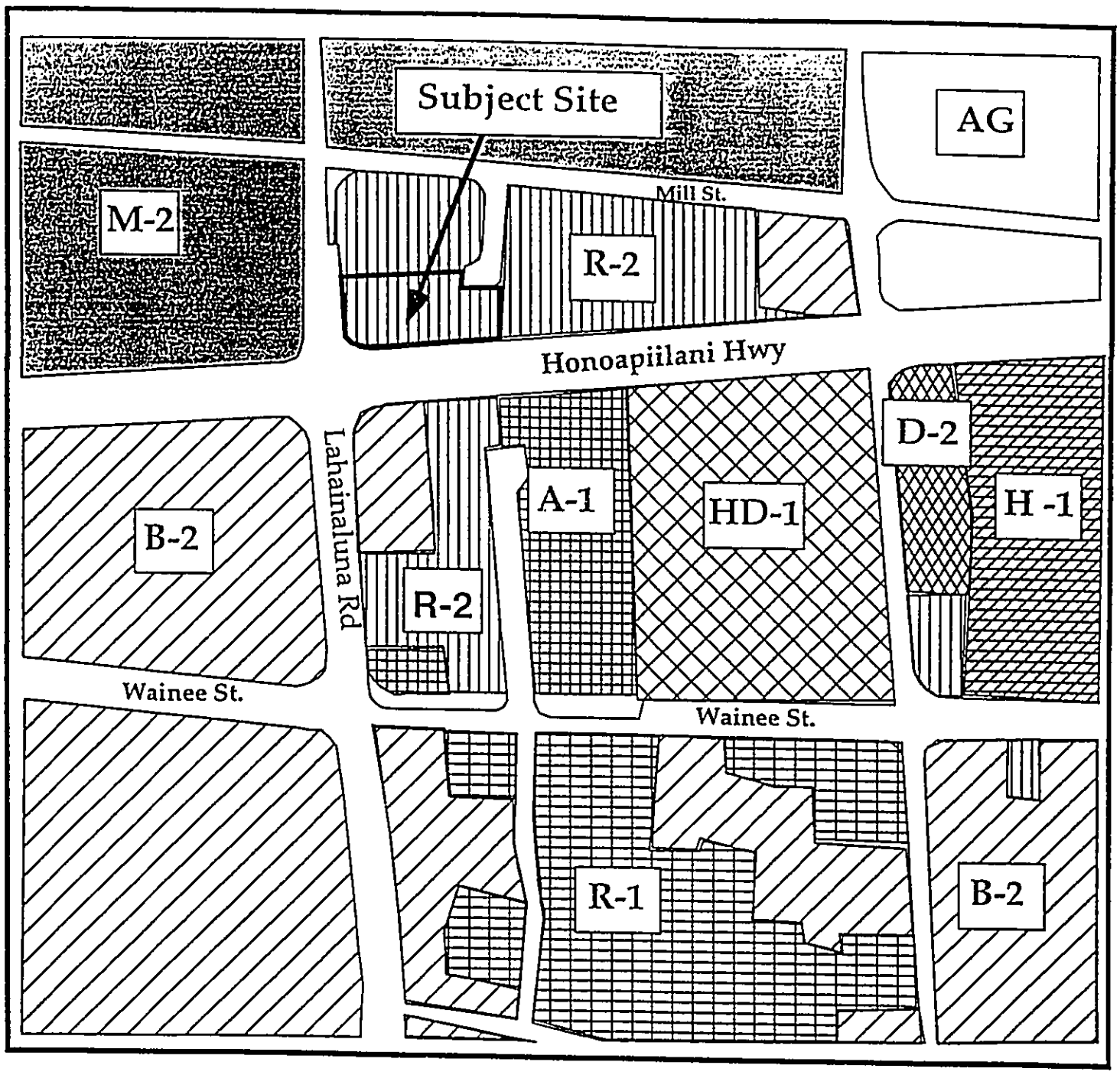


Not to Scale

West Maui Community Plan
Mango Manor Commercial Complex
Lahaina, Maui, Hawai`i
TMK 4-6-10: 25; 26 & 32

CHRIS HART & PARTNERS

EXHIBIT 4



Maui County Zoning
Mango Manor Commercial Complex
Lahaina, Maui, Hawai`i

CHRIS HART & PARTNERS

EXHIBIT 5

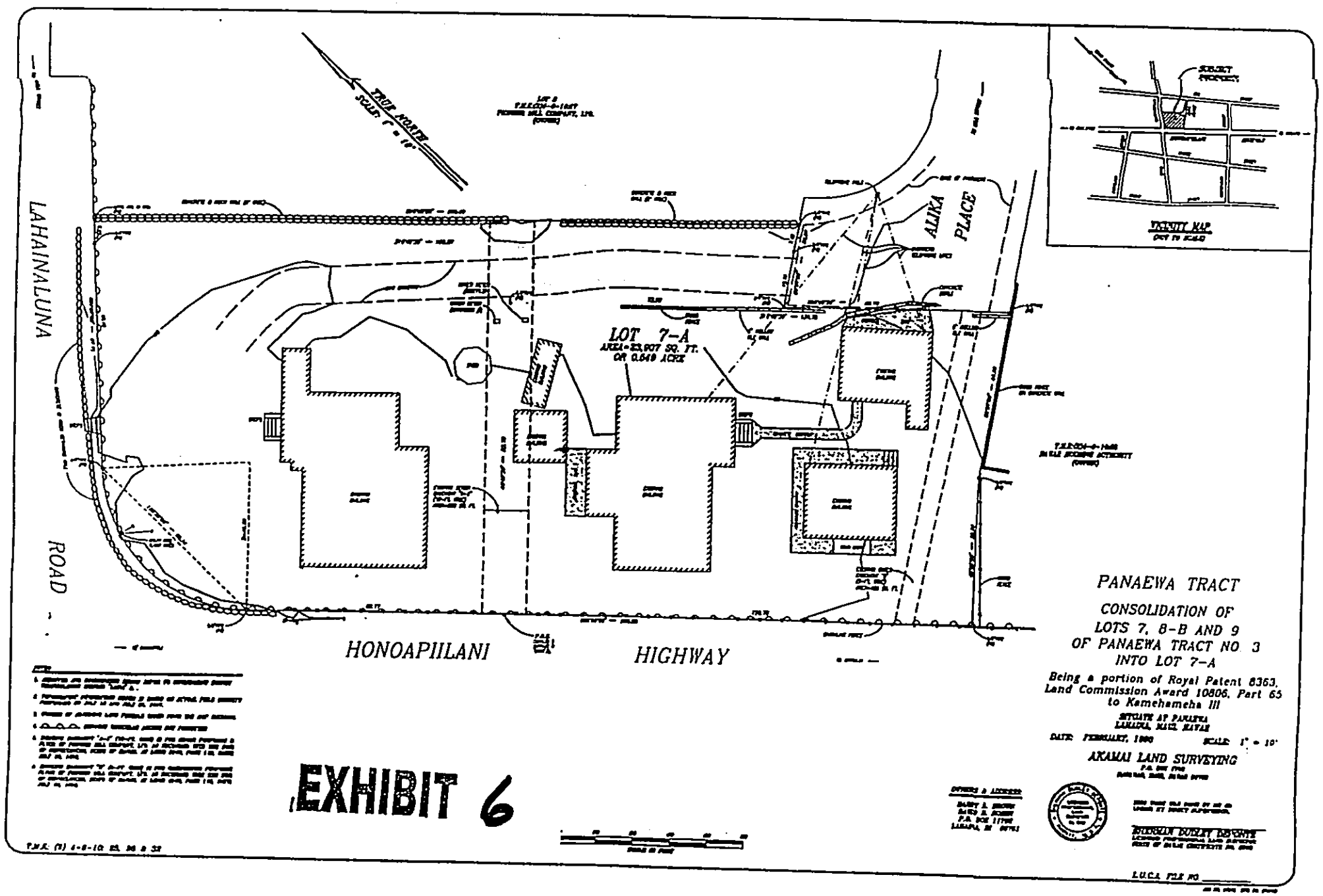
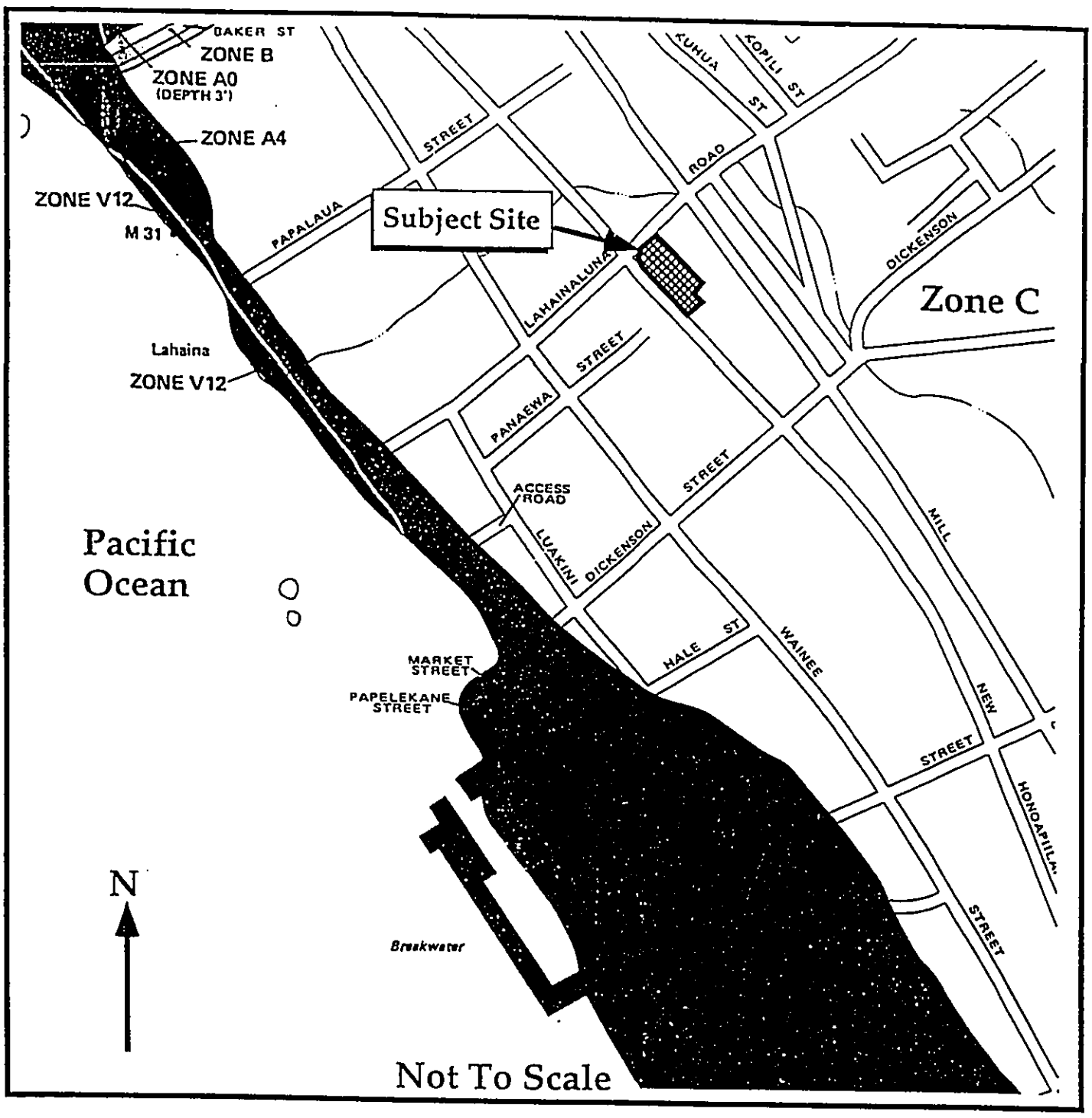

TRUE NORTH
SCALE: 1" = 10'
LAHAINALUNA
ROAD
HONOAPIILANI
HIGHWAY
ALIKA
PLACE
LOT 7-A
AREA=23,907 SQ. FT.
OR 0.549 ACRE
VICINITY MAP
PANAEWA TRACT
CONSOLIDATION OF
LOTS 7, 8-B AND 9
OF PANAEWA TRACT NO 3
INTO LOT 7-A
Being a portion of Royal Patent 8363,
Land Commission Award 10806, Part 65
to Kamehameha III
SITUATE AT PANAEWA
LAHAINA, MAUI, HAWAII
DATE: FEBRUARY, 1990
SCALE: 1" = 10'
AKAMAI LAND SURVEYING
P.O. BOX 11796
LAHAINA, HI 96761

EXHIBIT 6



Flood Insurance Rate Map
Panel No. 150003 163 B
Mango Manor Commercial Complex
Lahaina, Maui, Hawai`i

CHRIS HART &PARTNERS

EXHIBIT 7

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

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

'98 JUN -8 P1:18

June 4, 1998

LD-NAV
Ref.:2CIZ9801.1RC

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

Dear Mr. Blane:

SUBJECT: Review : Application for Change in Zoning
I.D. No. : CIZ 980011
Project : Mango Manor Commercial Complex
Applicant: Chris Hart and Partners
Location : Lahaina, Island of Maui, Hawaii
TMK : 2nd/ 4-6-10: 25, 26 and 32

This is a follow-up to our letter dated June 1, 1998, regarding the subject matter.

Our Engineering Branch has confirmed that the proposed project is located in Zone C. This is an area of minimal flooding.

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

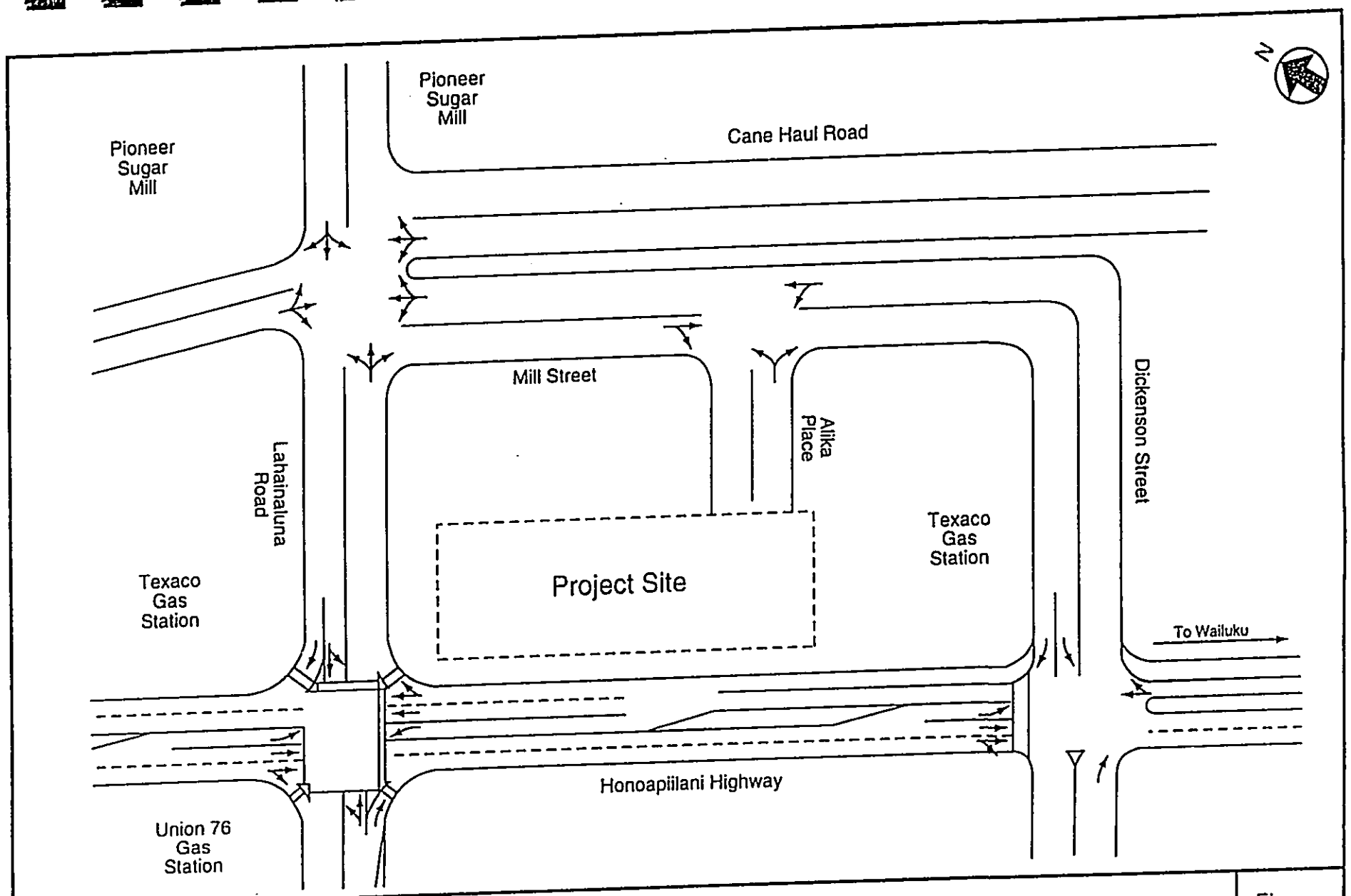
Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 1-808-587-0438.

Very truly yours,

DEAN Y. UCHIDA
Administrator

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

EXHIBIT 7A



PB 100 YEARS

EXHIBIT 8 EXISTING LANE CONFIGURATIONS

Figure 3

Perspective
from the Intersection of
Lahainaluna Road and Honoapiilani Highway
Mango Manner Commercial Complex
Lahaina, Maui, Hawaii

8/11/98

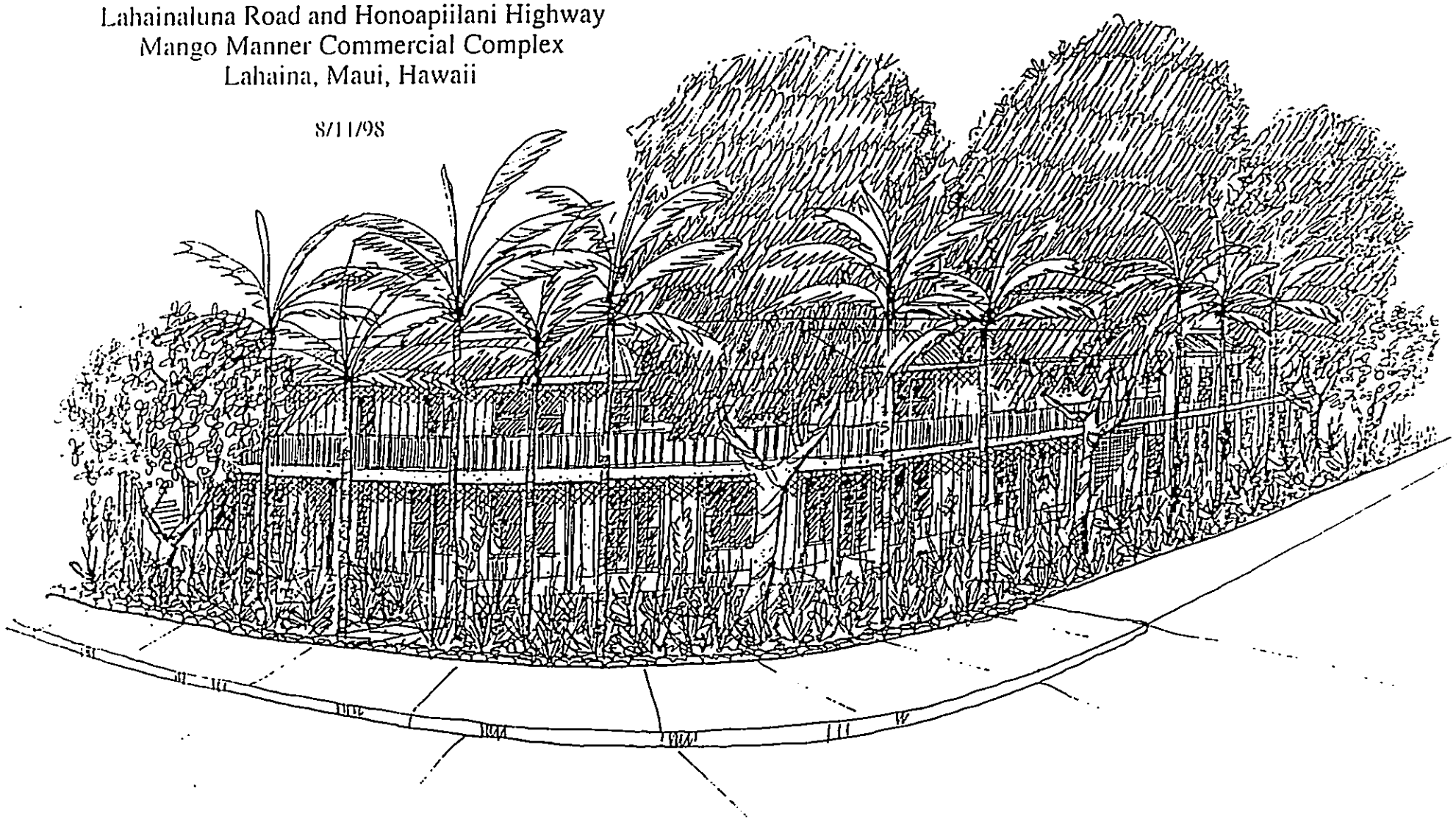
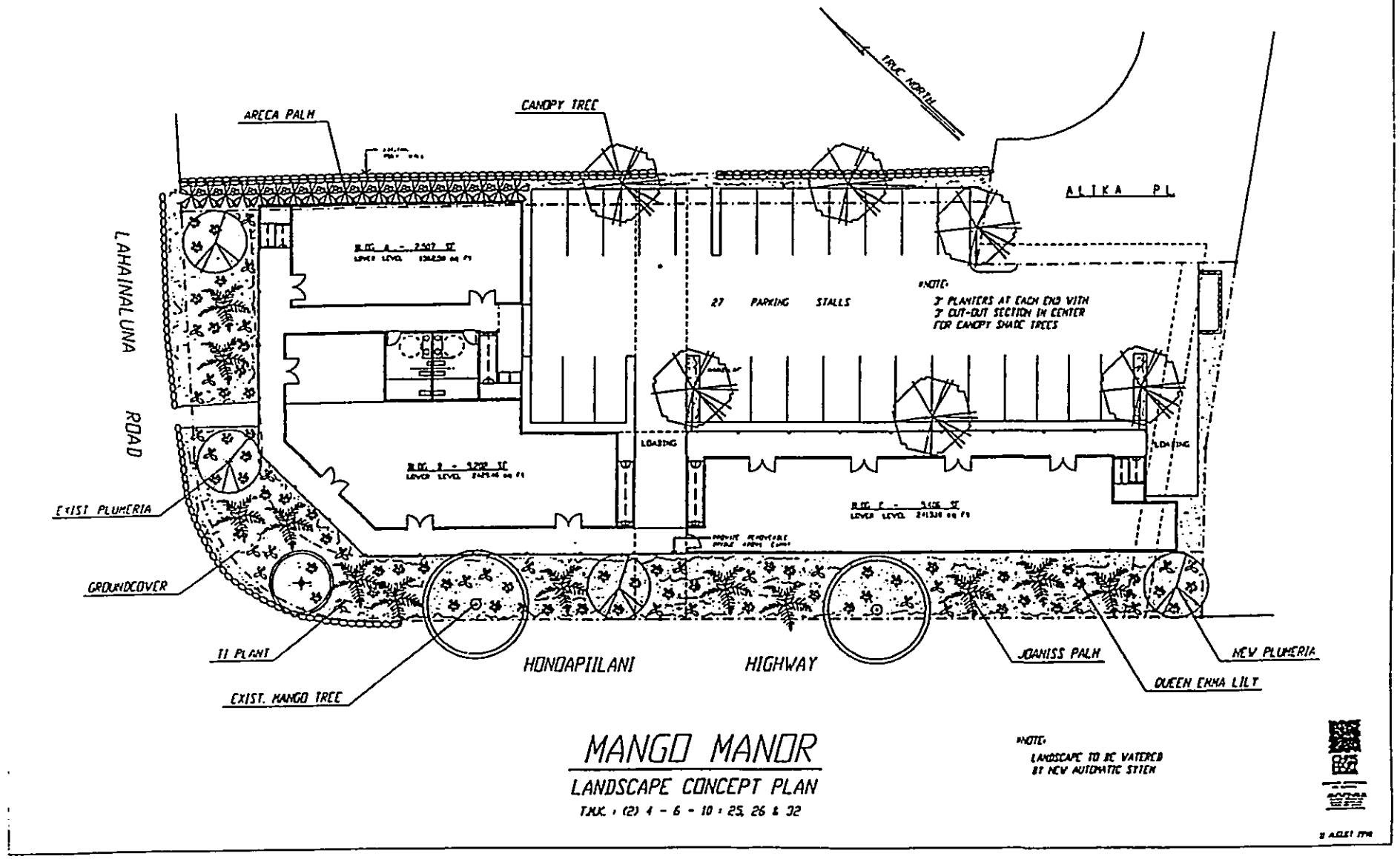


EXHIBIT a



MANGO MANOR

LANDSCAPE CONCEPT PLAN

TMK : (2) 4 - 6 - 10 : 25, 26 & 32

*NOTE:
LANDSCAPE TO BE WATERED
BY NEW AUTOMATIC SYSTEM

EXHIBIT 9A

Conceptual Site Plan
Mango Manner Commercial Complex
Lahaina, Maui, Hawaii

8/11/98

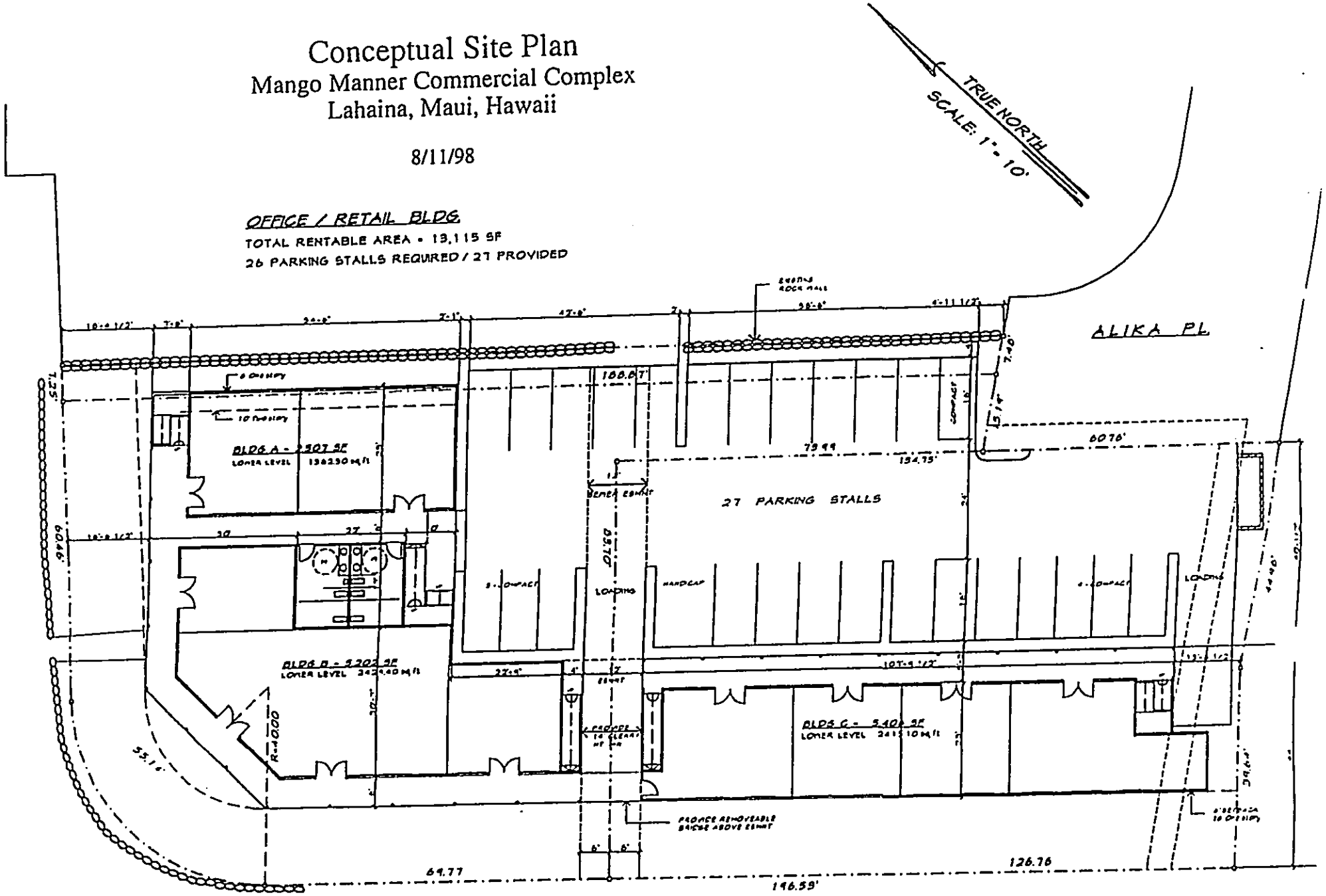
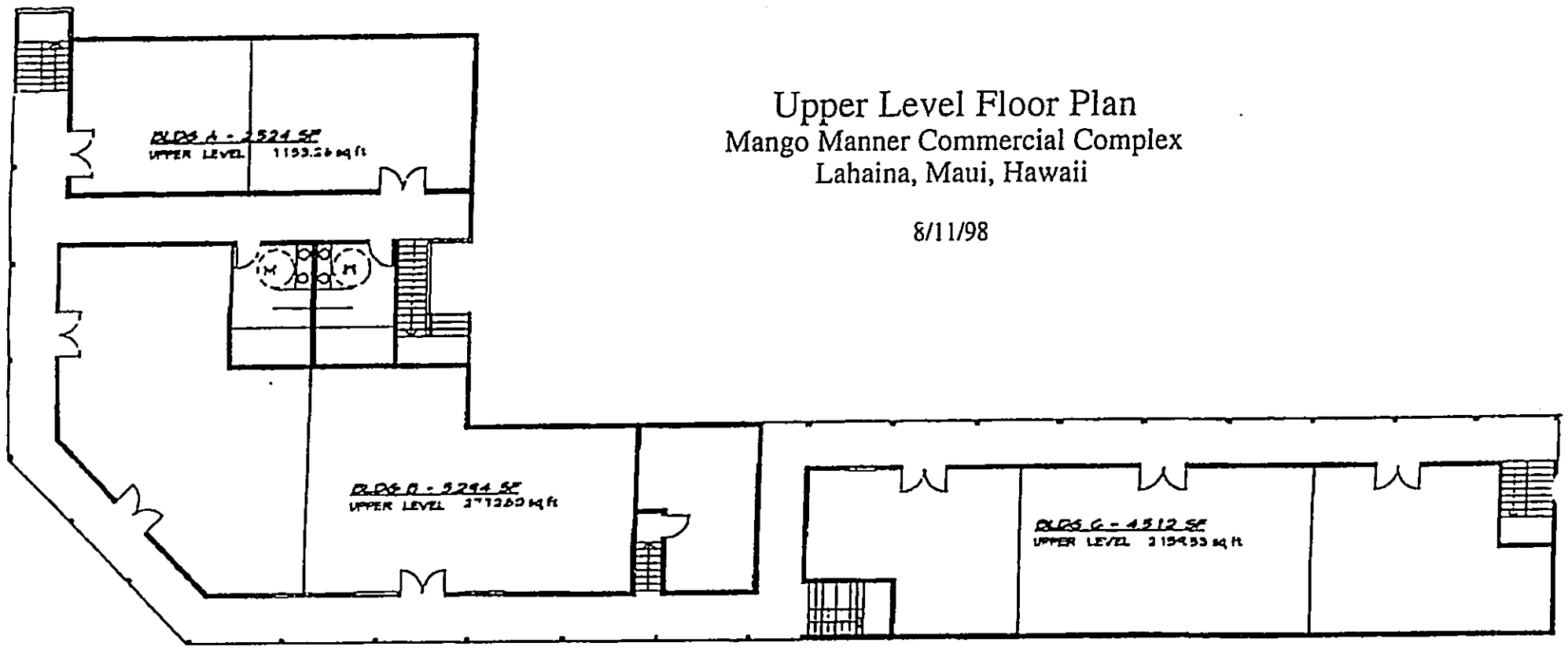


EXHIBIT 9B



Upper Level Floor Plan

Mango Manner Commercial Complex
Lahaina, Maui, Hawaii

8/11/98

EXHIBIT 9C

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

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

DEPUTIES

GILBERT COLOMA-AGARAN

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

'98 JUN -3 P1:03

RECEIVED

May 28, 1998

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

LOG NO: 21554 ✓
DOC NO: 9805BD15

Dear Mr. Blane:

SUBJECT: Chapter 6E-42 Historic Preservation Review of a CIZ for the Mango Manor Commercial Complex
Kuia Ahupua'a, Lahaina District, Island of Maui
TMK 4-6-10: 25, 26, and 32 (CIZ 980011)

This letter is a Historic Preservation review of a Change In Zoning application for the Mango Manor Commercial Complex located in Kuia Ahupua'a. Our review is based on reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field check was conducted of the subject property.

The subject property is located within the Lahaina Historic District (State Site 50-50-04-3001) and seems likely to have once been the location of pre-Contact agricultural fields, perhaps with scattered housing. Twentieth century residential construction has since altered the landscape, however, making in unlikely that any historic sites remain intact. We therefore find the proposed construction project to have "no effect" on historic sites.

In the event that unrecorded historic remains (i.e. subsurface pavings, artifacts, or human bones) are inadvertently uncovered during construction along the road, all work should cease in the vicinity and the contractor should immediately contact the State Historic Preservation Division.

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

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

BD:jen

EXHIBIT 10

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

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

'98 MAY 20 P3:59

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

May 14, 1998

Ms. Julie Higa
Department of Planning
County of Maui
250 S. High Street
Wailuku, Maui, HI 96793

Doc. Permit No. 70

Subject: Application for Change in Zoning for Mango Manor Commercial Complex, Lahaina, Island of Maui

Dear Ms. Higa:

Thank you for the opportunity to review the Application for Change in Zoning for Mango Manor Commercial Complex, Lahaina, Island of Maui. The applicant is seeking a change in zoning from "R-2 Residential" to "B-2 Commercial" for a business complex consisting of three parcels and located at 270 Lahainaluna Road. Existing structures consist of three residential dwellings and associated ancillary facilities.

The Office of Hawaiian Affairs (OHA) has reviewed the application and has no concerns at this time to the proposed complex. The complex, which has been in residential use for the last 60 days, is located in an area of ongoing commercial activity. Thus, the proposed change in zoning would not disrupt current land use. Furthermore, the complex itself apparently bears no adverse impacts on either nearby residential areas nor upon existing utility structures.

EXHIBIT 11

Please contact Colin Kippen (594-1938), LNR Officer, or Luis Manrique (594-1758), should you have any questions on this matter.

Sincerely yours,

Randall Ogata
Administrator

Colin Kippen
Officer,
Land and Natural
Resources Division

cc: Board of Trustees
CAC, Island of Maui
OEQC

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

'98 SEP 21 P4:14

September 15, 1998

Ms. Lisa Nuyen, Director
County of Maui
Planning Department
250 South High Street
Wailuku, Maui, Hawaii 96793

Re: I.D.: CIZ 980011
TMK: 4-6-01:025, 026 and 032
PROJECT NAME: Mango Manor Commercial Complex

Dear Ms. Nuyen,

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

Consumption

Upon review of your application we understand that you are proposing to replace the three existing residential buildings with a commercial complex consisting of approximately 13,720 square feet of retail and/or office space. Using State water consumption standards of 140 gallons per 1000 square feet, we anticipate that the new development will consume approximately 1,518 gallons per day (GPD).

Water System

The applicant should note that this project is likely to require water system improvements including but not limited to installation of a fire hydrant. Domestic, fire, and irrigation calculations will be reviewed in detail during the development process. In the interim, for a more detailed preliminary review please contact our engineering division at 243-7835 in order to submit calculations. BWS approved fire flow calculation methods can be found in: "Fire Flow" - Hawaii Insurance Bureau, 1991; and "Guide for Determination of Required Fire Flow" - Insurance Service Office, 1974.

Water Quality

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

EXHIBIT 12

Conservation

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

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

Look for Opportunities to Conserve Water: A few examples of these actions are as follows - When clearing driveways, etc. of debris, use a broom instead of a hose. When washing cars, use a hand-operated spray nozzle instead of an open hose. Additionally, check for leaks in faucets and toilet tanks.

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

Sincerely,

David Craddick
Director
sk

C: applicant, with attachments
1) "The Costly Drip"
2) Maui County Department of Water Supply, "Plant Zones."
3) Ordinance 2108 - "An ordinance amending Chapter 16.20 of the Maui County Code, pertaining to the plumbing code"
4) "XERISCAPE - Water Conservation through Creative Landscaping"
5) Selected BMPs from "Water Quality Best Management Practices Manual for Commercial and Industrial Businesses.", City of Seattle, Washington
6) Selected BMPs from "The Megamanual - Nonpoint Source Management Manual " Commonwealth of Massachusetts
7) References for Further Reading from "The Megamanual - Nonpoint Source Management Manual." Commonwealth of Massachusetts
8) Selected BMPs from "Guidance Specifying Management Measures For Sources of Nonpoint Pollution In Coastal Waters." U.S. EPA

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

'98 JUN 24 P12:07

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

June 22, 1998

LD-NAV
Ref.:CIZ98011.2RC

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

Dear Mr. Blane:

SUBJECT: Review : Application for Change in Zoning
I.D. No. : CIZ 980011
Project : Mango Manor Commercial Complex
Applicant: Chris Hart and Partners
Location : Lahaina, Island of Maui, Hawaii
TMK : 2nd/ 4-6-10: 25, 26 and 32

This is a follow-up to our letter dated June 1, 1998, (Ref.: CIZ98011.RCM), regarding the subject matter.

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

Should you have any questions, please feel free to contact Nicholas Vaccaro of the Land Division Support Services Branch at 1-808-587-0438 or Mr. Charley Ice of the Commission on Water Resource Management at 587-0251.

Very truly yours,

DEAN Y. UCHIDA
Administrator

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

EXHIBIT 13

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

MICHAEL D. WILSON
CHAIRPERSON

ROBERT G. GIRALD
DAVID A. NOBRIGA
LAWRENCE H. MIIKE
RICHARD H. COX
HERBERT M. RICHARDS.

TIMOTHY E. JOHNS
DEPUTY DIRECTOR

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

June 4, 1998

JUN 8 11 35 AM '98

TO: Mr. Dean Uchida, Administrator
Land Division

FROM: Timothy E. Johns, Deputy Director
Commission on Water Resource Management (CWRM)

SUBJECT: Mango Manor Commercial Complex

FILE NO.: CIZ98011.COM

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

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

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

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

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

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

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

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

[ ] If the proposed project performs any work within the bed and banks of a stream channel, the project may need to obtain a stream channel alteration permit and a petition to amend the interim instream flow standard for the affected stream(s)

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

[X] OTHER: The project's water supply infrastructure impacts are discussed in term of delivery capacity, not source capacity; no estimates of demand are given. Consequently, there is no basis for determining whether the request can be accommodated with the existing system.

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

LINDA LINGLE
Mayor

CHARLES JENCKS
Director

DAVID C. GOODE
Deputy Director

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

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

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

EASSIE MILLER, P.E.
Wastewater Reclamation Division

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

BRIAN HASHIRO, P.E.
Highways Division

Solid Waste Division

May 28, 1998

MEMO TO: DAVID W. BLANE, DIRECTOR OF PLANNING

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

SUBJECT: CHANGE IN ZONING
MANGO MANOR COMMERCIAL COMPLEX
TMK (2) 4-6-010:025, 026, 032
CIZ 98/011

We reviewed the subject submittal and have the following comments.

1. A road widening lot shall be provided for the adjoining half of Alika Place to provide future 56-foot wide right-of-way and improved to County standards to include, but not be limited to, pavement widening; construction of curb, gutter, and sidewalk; street lights; and relocation of utilities underground. Said lot shall be dedicated to the County upon completion of the improvements.

2. The existing Alika Place and Mill Street does not meet County standards based on roads located in urban commercial zoning and, therefore, shall be improved to County standards.

3. A detailed and final drainage report and a Best Management Practices Plan (BMP) shall be submitted with the grading plans for review and approval prior to issuance of grading permits. The drainage report shall include hydrologic and hydraulic calculations and the schemes for disposal of runoff waters. It must comply with the provisions of the "Rules and Design of Storm Drainage Facilities in the County of Maui" and must provide verification that the grading and runoff water generated by the project will not have an adverse effect on adjacent and downstream properties. The BMP plan shall show the location and details of structural and non-structural measures to control erosion and sedimentation to the maximum extent practicable.

EXHIBIT 14

4. A traffic report is needed to discuss impacts to the Lahainaluna/Mill Street intersection and other impacts generated by the increased traffic.

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

6. Wastewater contribution calculations are required before a building permit is issued. The developer will be required to fund any necessary off-site improvements to the collection system and wastewater pump stations.

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

8. The subject property abuts lands within the R-2 residential district. Therefore, a yard setback of 10 feet from R-2 zoned parcels shall be provided from the two-story buildings.

9. Preliminary approval was granted on April 13, 1998 for the Panaewa Tract - LUCA File No. 4.739, which proposes to consolidate the subject parcels into one lot.

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

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

LINDA LINGLE
MAYOR

OUR REFERENCE
at
YOUR REFERENCE

POLICE DEPARTMENT
COUNTY OF MAUI

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

'98 JUN 18 P4:03

THOMAS PHILLIPS
ACTING CHIEF OF POLI

June 18, 1998

MEMORANDUM

TO : DIRECTOR, PLANNING DEPARTMENT

FROM : THOMAS M. PHILLIPS, ACTING CHIEF OF POLICE

I.D.No.: CIZ 980011
TMK: 4-6-010:025, 26 and 32
Project Name: Mango Manor Commercial Complex
Applicant: Chris Hart and Partners

_____ No recommendation or special condition is necessary or desired.

__/__ Refer to attachment(s).

Assistant Chief Richie Nakashima
for: THOMAS M. PHILLIPS
Acting Chief of Police

EXHIBIT 15

TO : THOMAS PHILLIPS, ACTING CHIEF OF POLICE

VIA : CHANNELS

FROM : WILLIAM K. ENOS, POLICE OFFICER III, LAHAINA BICYCLE PATROL

SUBJECT : MANGO MANOR COMPLEX ZONE CHANGE REQUEST

Dear Sir, I have been assigned to submit a response regarding an application for a change in zoning of the Mango Manor property which was submitted to the Department of Planning by Chris Hart & Partners.

The Mango Manor property, located at 270 Lahainaluna Road, is presently zoned as a residential zone; Chris Hart & Partners are seeking to change it from this to a business zone, so that a two story commercial structure for future businesses can be erected. Due to this, the County Department of Planning has sent a transmittal to Lahaina District requesting police commentary on this matter.

With regard to our scope of duties, the major address- before, during and after completion of the project, would be potential traffic related problems. ✓

At present, all roads surrounding the proposed site are adequate enough to handle traffic throughout most of the day. However, there are three notable "peak" times when traffic does slow down and congest considerably. These times, approximately, would be from 0700 hours to 0800 hours- school traffic going up and down Lahainaluna Road; from 1245 hours to 1500 hours- tourist traffic leaving Lahaina town(coinciding with airport mainland departure times) and school traffic coming down Lahainaluna Road; from 1630 hours to 1800 hours- after work local traffic.

Sometimes, left turn and right turn lanes onto upper Lahainaluna Road are not adequate enough to handle the number of vehicles making these turns, so, vehicles end up crowding the turn lanes to a point where they sometimes "spill" into the oncoming lanes, causing a traffic safety hazard.

In light of the demolishment portion of this project, traffic would definitely be affected when active trucking and construction equipment transportation begins. However, most affected will probably be the construction vehicles themselves, as they would have to deal with exiting the site to get onto Honoapiilani Highway and back. Another factor in the construction phase would be an airborne dust increase if no measures are taken to quell that.

In the construction phase, including paving, where a high level of construction vehicles will be used, traffic again will probably slow down to give way to these vehicles. Once again, the construction vehicles themselves will probably face the most frustration when exiting and entering the construction site.

After the Mango Manor complex is open for business, there would probably be an increase in traffic flow on Lahainaluna Road, Mill Street and Honoapiilani Highway but it should be minimal, as the complex will host a modest amount of parking spaces (about 30) and interruption in the current levels of traffic in this area will probably be very minimal, if not unnoticeable. However, to ease the load on the "peak" hours mentioned above, the inclusion of longer turn lanes from the highway onto Lahainaluna Road and from Lahainaluna Road onto the highway would be of obvious benefit. Nonetheless, there does not seem to be any issue within our scope of duties that would hinder this proposal.

SUBJECT : MANGO MANOR COMPLEX ZONE CHANGE REQUEST, PAGE TWO

As an added measure, the hiring of traffic control and site traffic personnel would be advisable to aid in the smooth flow of traffic in and around the site during the demolition phase and construction phase.

Respectfully submitted,

William K. ENOS
P.O. III
061498

E #8881
Lahaina Bicycle Patrol
1833hrs

Suggest approval
Carl Ching
6/14/98

Concur
Capt.
6/17/98

Maui Electric Company, Ltd. • 10 West Kamehameha Avenue • PO Box 398 • Kahului, Maui, HI 96733-6898 • (808) 871-8461

May 19, 1998

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

Dear Mr. Blane:

Subject: Mango Manor Commercial Complex
TMK: 4-6-010:025, 26 and 32
I.D.: CIZ 980011

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

In reviewing the information transmitted and our records, we have no objection to the subject project. We encourage the developer's electrical consultant to meet with us as soon as practical to verify the project's electrical requirements so that service can be provided on a timely basis.

If you have any questions or concerns, please call Dan Takahata at 871-2385.

Sincerely,

Edward L. Reinhardt
Manager, Engineering

ELR/dt:lh

EXHIBIT 16

DEPARTMENT OF
PARKS AND RECREATION
COUNTY OF MAUI

1580-C KAAHUMANU AVENUE WAILUKU, HAWAII 96793

LINDA LINGLE
Mayor

HENRY OLIVA
Director

ALLEN SHISHIDO
Deputy Director

(808) 243-7230
FAX (808) 243-7934

'98 MAY 27 P2:58

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

MEMORANDUM

May 20, 1998

TO: David W. Blane, Planning Director

FROM: Henry Oliva, Director

SUBJECT: Mango Manor Commercial Complex
Application for Change in Zoning

We have reviewed the request for a change in zoning for the Mango Manor Commercial Complex. At this time we have no objection to the proposed action as described in the application prepared by Chris Hart & Partners, April 1998.

Thank you for the opportunity to comment on this matter. Should you have any questions or need of further comment, please call me or Patrick Matsui, Chief of Parks Planning & Development, at extension 7387.

HO:PTM:rh

s:\planning\rh\mangoman.wpd

EXHIBIT 17

LINDA CROCKETT LINGLE
MAYOR

RONALD P. DAVIS
CHIEF

HENRY A. LINDO, SR.
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE CONTROL
200 DAIRY ROAD
KAHULUI, MAUI, HAWAII 96732
(808) 243-7561

'98 MAY 12 P2:49

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

May 11, 1998

Julie Higa, Staff Planner
County of Maui, Department of Planning
250 South High Street
Wailuku, HI 96793

RE: Mango Manor Commercial Complex; CIZ 980011;
TMK: 4-6-10:25, 26 and 32

Dear Ms Higa,

The Department of Fire Control has no objections to granting the applicant's request for a change in zoning.

If you have any further questions, you may contact me at extension 7568.

Sincerely,

LEONARD F NIEMCZYK
Captain, FPB

EXHIBIT 18

DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

LINDA CROCKETT LINGLE
Mayor
STEPHANIE AVEIRO
Director
MARK PERCE
Deputy Direc...

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

'98 JUN -8 P3:22

May 19, 1998

TO: Mr. David Blane
Director of Planning

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

SUBJECT: Mango Manor Commercial Complex
Application For Change In Zoning
I.D. No. CIZ 980011
TMK: 4-6-010: 025, 26 and 32

We have reviewed Mr. Barry L. Brown and Mr. David B. Rosen's Application For Change In Zoning for the subject project, and would like to offer the following comments:

1. Are the existing residential units occupied, and if so, what arrangements have been or will be made by the applicant to assist the tenant(s) in locating new units?

2. Will any type of financial assistance be provided to the tenant(s) for moving and relocation expenses?

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

WTO:wo

xc: Housing Administrator

EXHIBIT 19

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

LAWRENCE MIIKE
DIRECTOR OF HEALTH

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

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

'98 MAY 28 A9:59

CITY & COUNTY
RECEIVED

May 26, 1998

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

Dear Mr. Blane:

Subject: Mango Manor Commercial Complex
TMK: (2) 4-6-010: 025, 26, and 32
CIZ 980011

Thank you for the opportunity to comment on the Change in Zoning application. We have the following comments:

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

2. HAR, Chapter 11-46, "Community Noise Control" also sets maximum allowable levels for noise from stationary sources such as air conditioning units, compressors, and generators. The attenuation of noise from these potential sources should be considered during the design phase of the project.

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

Sincerely,

HERBERT S. MATSUBAYASHI
District Environmental Health Program Chief

c: Art Bauckham

EXHIBIT 20

4163

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

'98 JUN -3 P1:00

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

June 1, 1998

LD-NAV
Ref.:CIZ98011.RCM

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

Dear Mr. Blane:

SUBJECT: Review : Application for Change in Zoning
I.D. No. : CIZ 980011
Project : Mango Manor Commercial Complex
Applicant: Chris Hart and Partners
Location : Lahaina, Island of Maui, Hawaii
TMK : 2nd/ 4-6-10: 25, 26 and 32

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

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

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

Very truly yours,

DEAN Y. UCHIDA
Administrator

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

EXHIBIT 21

CHRIS HART &PARTNERS

FACSIMILE

TO: Planning Department
County of Maui
250 S. High Street
Wailuku, HI 96793

DATE: July 28, 1998

PROJECT: Mango Manor (97/074)

SUBJECT: Letter from First Assembly of God

FAX NO: (808) 243-7634

ATTENTION: **Ms. Julie Higa**

We are sending 2 pages including this header.

( ) FOR YOUR USE ( ) FOR REVIEW AND COMMENT (X) FOR YOUR INFORMATION
( ) AS REQUESTED

Originals to be mailed: ( ) Yes (X) No

REMARKS:

'98 JUL 28 A9:15

COPY TO: Project File

BY: Rory Frampton, Planner

LANDSCAPE ARCHITECTURE AND PLANNING
1955 MAIN STREET, SUITE 200 • WAILUKU, MAUI, HAWAII 96793 • PHONE (808) 242-1955 • FAX (808) 242-1956

EXHIBIT 22

P.01

First Assembly of God

"A Growing Spirit-Filled Fellowship"
Dr. James Marocco, Senior Pastor

August 9, 1997

TO WHOM IT MAY CONCERN:

RE: Rezone application for 270 Lahainaluna Rd. (TMK: parcels 11-4-6-10-25, 26, & 27), Lahaina, HI, from R2 (residential) to B2 (business).

Dear Sir,

First Assembly of God has recently entered escrow and is planning to purchase the land known as TMK: 11-4-6-10-27 located immediately adjacent to the above mentioned parcels. It is our understanding that Barry Brown is planning to build two office/retail buildings on those parcels and is applying for an appropriate zone change from R2 to B2. We wish to notify all parties concerned that we support such a zoning change as specified in the Community Plan.

Thank you for your consideration.

Sincerely your,

Rev. Anne Fujii
Senior Associate Pastor

JUL 23 1998

Table 1

Existing Conditions Level of Service

Signalized Intersection

Intersection	AM Peak Hour 7:15-8:15 AM		PM Peak Hour 4:00-5:00 PM	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Honoapiilani Highway/Lahainaluna Road	**E**	**54.0**	**D**	**33.0**
EB Left/Through	E	56.7	D	39.7
EB Right	F	67.8	D	36.3
WB Left/Through	F	87.4	D	34.5
WB Right	D	27.6	A	0.0
NB Left	E	58.2	D	39.6
NB Through/Right	E	59.9	D	36.1
SB Left	F	71.2	D	37.0
SB Through/Right	C	17.8	D	27.2

Note: NB- northbound, SB- southbound, EB- eastbound, WB- westbound

Table 2

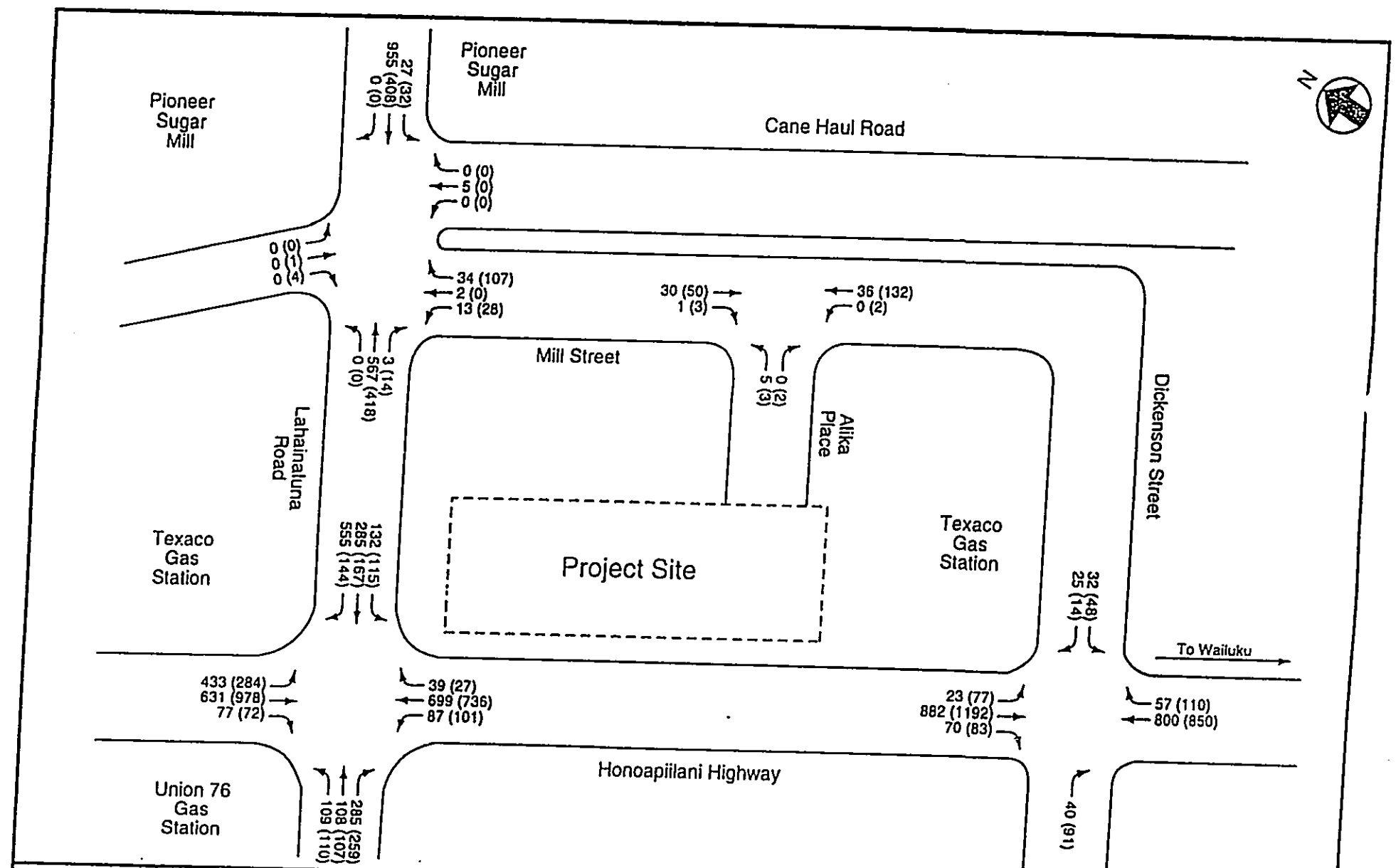
Existing Conditions Level of Service

Unsignalized Intersections

Intersection	AM Peak Hour 7:15-8:15 AM		PM Peak Hour 4:00-5:00 PM	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Honoapiilani Highway/Dickenson Street	**A**	**2.7**	**C**	**16.5**
EB Approach	B	5.2	B	7.1
WB Approach	F	86.0	F	*90.0
SB Approach	A	0.1	A	0.4
Mill Street/Alika Place	**A**	**0.3**	**A**	**0.1**
EB Approach	A	3.9	A	3.8
NB Approach	A	0.0	A	0.0
Lahainaluna Road/Mill Street	**A**	**0.7**	**A**	**1.2**
NB Approach	D	20.2	B	8.0
WB Approach	A	0.1	A	0.3

Note: NB- northbound, SB- southbound, EB- eastbound, WB- westbound
*Adjusted delay according to field observations

EXHIBIT 23

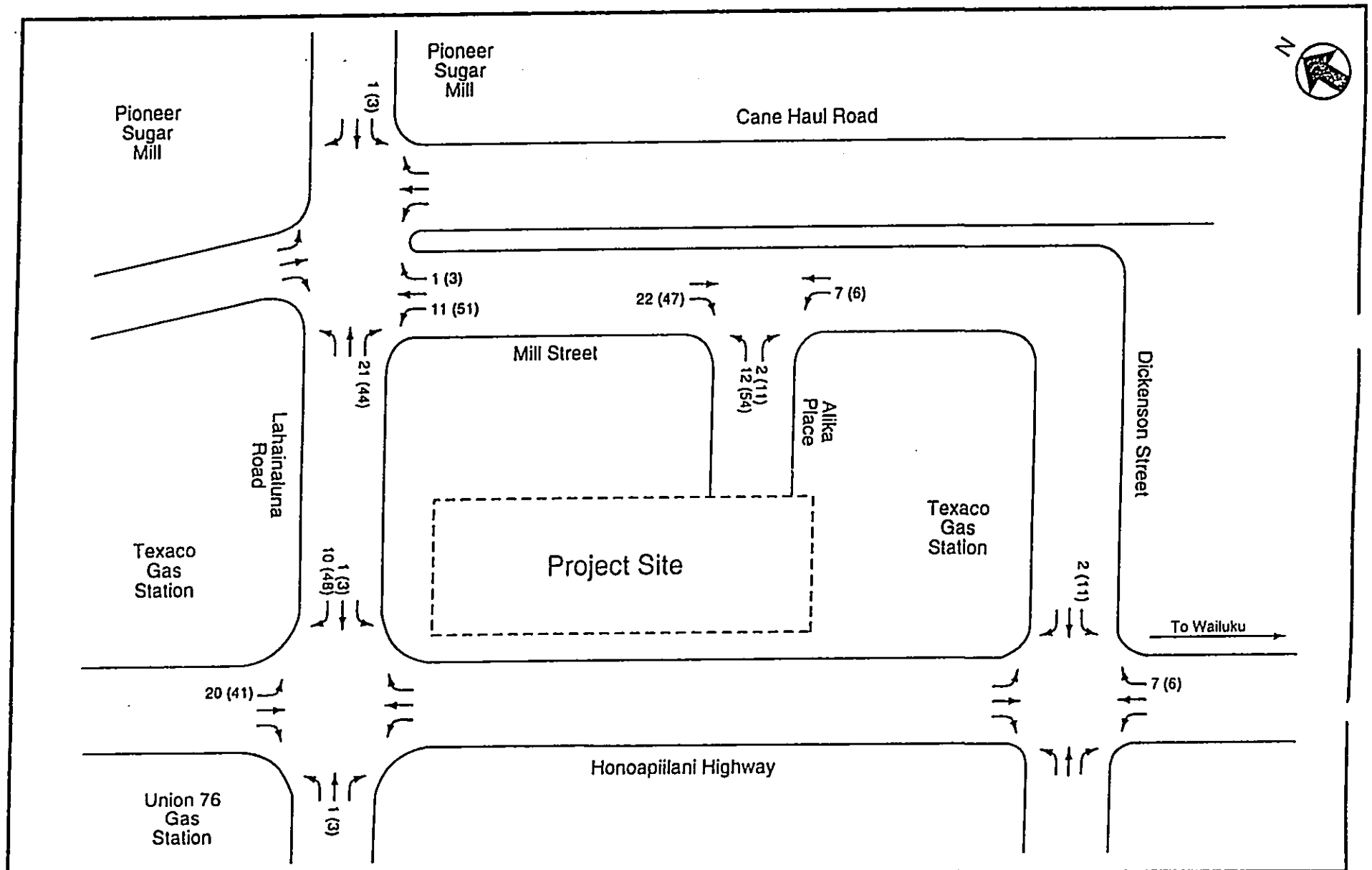


PB 100 YEARS

EXISTING PEAK HOUR TRAFFIC VOLUMES

Figure 4

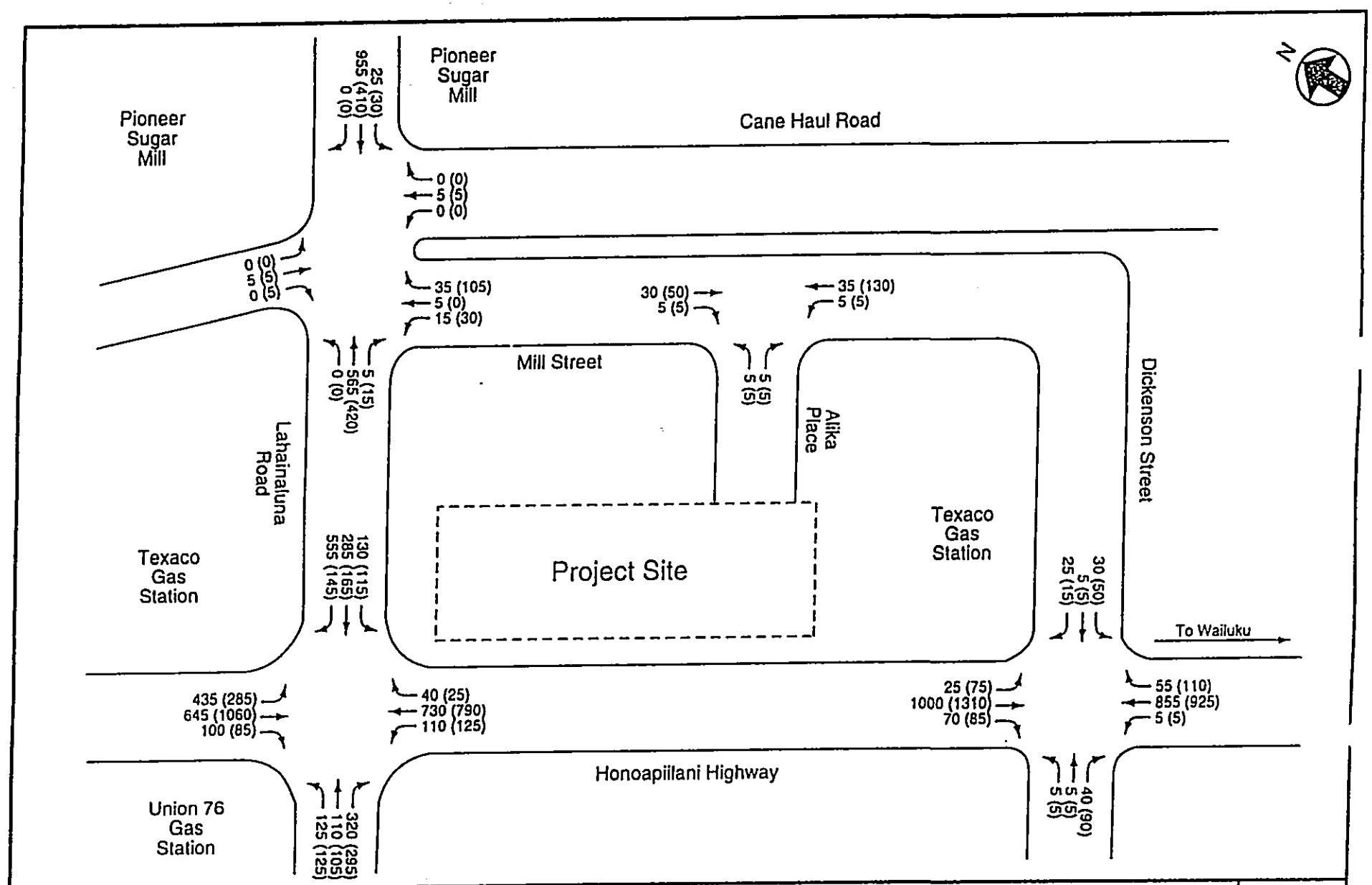
EXHIBIT 24



PB 100 YEARS

EXHIBIT 25 SITE GENERATED TRAFFIC VOLUMES

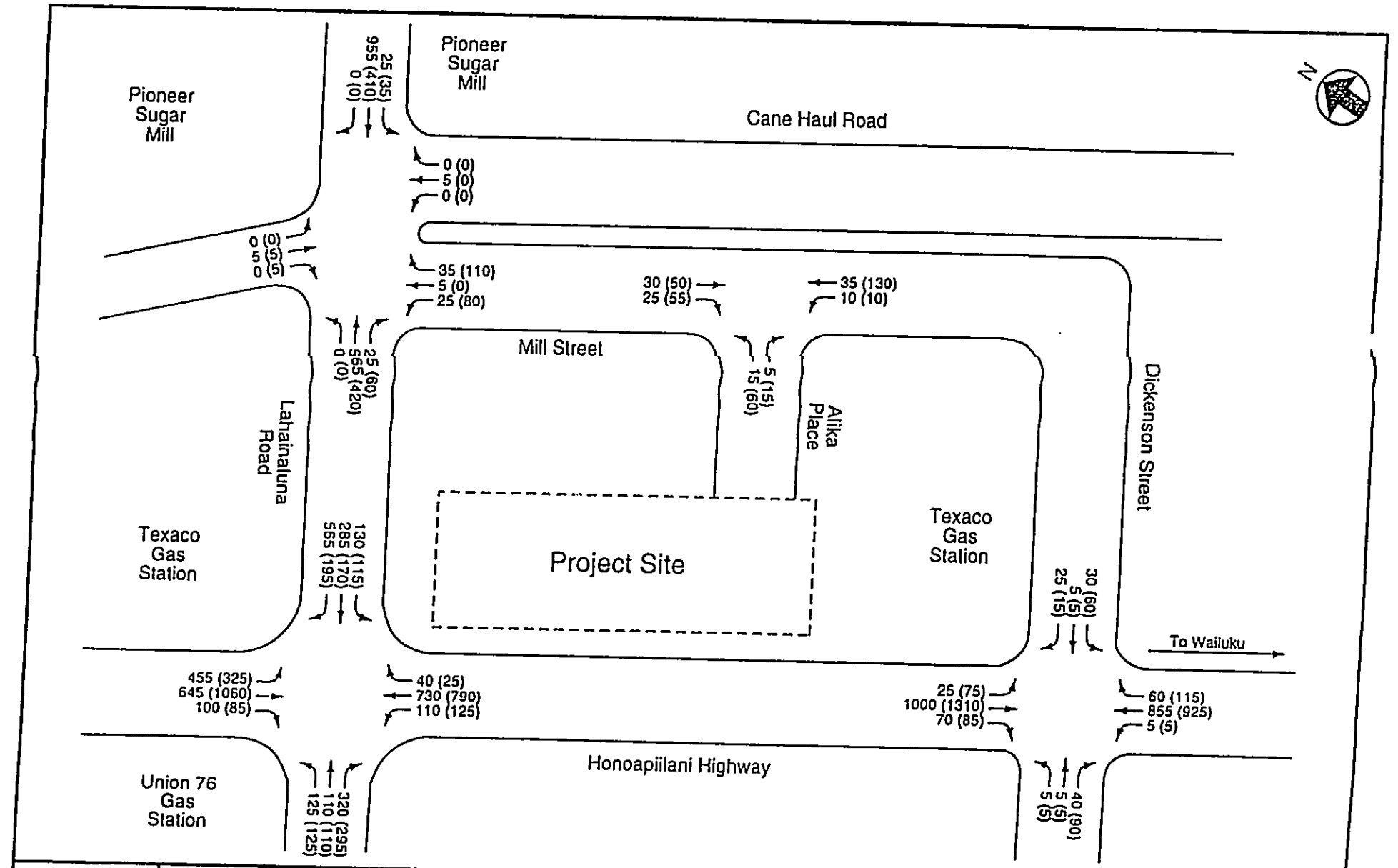
Figure 5



YEAR 2000 NO BUILD PEAK HOUR TRAFFIC VOLUMES

Figure 6

EXHIBIT 26



PB 100 YEARS

YEAR 2000 BUILD PEAK HOUR TRAFFIC VOLUMES

Figure 7

EXHIBIT 27

BENJAMIN J. CAYETANO
GOVERNOR

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

'98 SEP 29 P12:29

IN REPLY REFER TO:

STP 8.8829

September 24, 1998

Ms. Lisa M. Nuyen
Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Ms. Nuyen:

Subject: Mango Manor Commercial Complex
Zone Change Application and
Traffic Impact Analysis Report (TIAR)

Thank you for your transmittal requesting our comments on the subject development.

Storm water run-off attributable to the proposed development will not be permitted on the State highway right-of-way.

Plans for construction work within the State highway right-of-way must be submitted to our Highways Division for review and approval.

We appreciate the opportunity to provide comments.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

EXHIBIT 28

Appendix D

Additional Letters from Public Agencies and Surrounding Landowners

LINDA LINGLE
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

EASSIE MILLER, P.E.
Wastewater Reclamation Division

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

BRIAN HASHIRO, P.E.
Highways Division

Solid Waste Division

October 13, 1998

Mr. Rory Frampton
Chris Hart and Partners
1955 Main Street, Suite 200
Wailuku, Hawaii 96793-1706

Dear Mr. Frampton:

SUBJECT: CHANGE IN ZONING FOR MANGO MANOR COMMERCIAL COMPLEX, TMK: (2) 4-6-010:025, 026 & 032, CIZ 98/011

In our August 21, 1998 meeting, we discussed the above referenced project and the issue of right-of-way improvements necessary to provide adequate and safe access to the referenced project. This letter summarizes our review and conclusions with regard to these requirements.

In preparation for our meeting on August 21, 1998, I reviewed briefly the memorandum from my office to David Blane, Director of Planning, dated May 28, 1998, and the comments with regard to improvements to the right-of-way fronting and providing access to the subject project. I also reviewed a letter dated August 6, 1998 from Mr. Lloyd Lee, Division Chief of the Engineering Division, with regard to Mill Street and Alika Place as well as the question with regard to granting access off of Honoapiilani Highway and Lahainaluna Road.

Based upon my review of the facts as you presented them, review of the above referenced letters, general knowledge of the area, and the ownership patterns in the area, this department has concluded that the required right-of-way requirements for the subject change in zoning application would be as follows.

1. Mill Street at its intersection of Lahainaluna Road - The intersection will be improved to maximize visibility within the right-of-way presently under the jurisdiction and ownership of the County of Maui. These improvements will include improved signage, where necessary, to facilitate the regulated flow of traffic as well as any on surface striping to address motor vehicle and pedestrian traffic.

2. Mill Street from its intersection with Lahainaluna Road to the terminus of the improved right-of-way on Mill Street at its very southern end will be improved and repaved with a road surface approved by the Department of Public Works to a pavement width of a minimum of 20' including, where possible, paved shoulders to facilitate pedestrian and bicycle traffic. These improvements will be limited to the available right-of-way and the minimal improvement will be the 20' paved roadway surface.

3. Intersection of Alika Place and Mill Street - This intersection will be improved to maximize visibility within that area presently under the jurisdiction and ownership of the County of Maui. In addition, traffic signs to assist in the regulated flow of traffic as well as crosswalks to facilitate pedestrian traffic and any other street markings will be installed per County Code.

4. Alika Place from its intersection with Mill Street to the subject TMK and project area will be improved to a minimum paved width of 20' for vehicular traffic with paved shoulders, where possible, to facilitate pedestrian and bicycle traffic and striped accordingly.

5. At the point Alika Place dead-ends into the subject property, any road frontage dedication will be effectuated to reflect a 56' right-of-way for future roadway improvements consistent with the County Code.

Mr. Frampton, I believe the above requirements are consistent with our conversation in my office of August 21, 1998. I would appreciate your quick review of these requirements and your return to me as soon a possible a response either verbally or in writing so that this office can complete this element of the project review.

Sincerely,

CHARLES JENCKS
Director of Public Works
and Waste Management

CJ:mt

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
HAWAII HOUSING AUTHORITY
P.O. BOX 656
WAILUKU, HAWAII 96793
PHONE: 243-5001

August 11, 1998

Mr. Barry Brown
Barry Brown Realty
Fax # 669-1258

Re: Mango Manor

Dear Barry,

Your proposed development is a definite change for this corner of Lahaina. Our community may be concerned with the following issues.

1. Increase traffic noise
2. Types of businesses that will lease your building
3. Light Pollution

As discussed, a sound wall that would be between our properties would be a feasible solution to our communities concern. In addition you have assured us that you will not have a retail type business that would enhance the traffic noise during the early morning and late at night. This would mean a retail store i.e. convenience store operation.

If your tenant mix is slated for professional offices, real estate sales and management companies and office type operations you will have our full support for your project. If there is a change in your philosophy for your tenant mix, please advise me soon.

Your development is a needed improvement that would enhance our community and perhaps provide employment opportunities for our residents.
We are supportive of your project in that regard. If there is anything else I can do to help you make this project a reality please call me directly.

Sincerely,

Clif R. Libed
PHM – Maui

CRL/jf

September 21, 1998

To whom it may concern

RE: Rezone application for 270 Lahainaluna Rd., Lahaina, HI, from R2 to B2

Dear Sirs,

As the owner of Ed's Union, located at 243 Lahainaluna Road across the intersection from the above property, I support the rezoning application from residential to business. Replacing the old existing buildings will be beneficial to the neighboring businesses and Lahaina residents, as well as anyone passing by the area.

Sincerely,

Dean Kiyonaga

Dean Kiyonaga

OCT-13-98 07:53 TEL: P:01

AUG-29-98 SAT 02:02 AM P.01

Lahaina Texaco, Inc.
263 Lahainaluna Road
Address Line 2
Lahaina, Maui, Hawaii
Phone (808)661-4035
Fax (808)661-0935

August 28, 1998

RE: Application for rezoning of 270 Lahainaluna Road from Residential to Business (B2)

To whom it may concern,

We are located directly across from 270 Lahainaluna Road. I support and encourage the rezoning of 270 Lahainaluna Road. I believe that rezoning this property will be most beneficial to all buisnesses in this area. Our business has been located here for 34 years.

Please feel free to contact me. ~

Sincerely,

Michelle Nishida
Lahaina Texaco, Inc.

ROGER VOSIKA REALTY

August 20, 1998

RE: Application for rezoning of 270 Lahainaluna Road from Residential to Business (B2)

TO WHOM IT MAY CONCERN:

I own the business located at 252 Lahainaluna Road. I believe that rezoning of the subject parcel would be beneficial to all business located in this part of town, and therefore encourage you to rezone the property to B2.

Should you have any questions or need anything further, please feel free to contact me.

Sincerely,

Roger Vosika
Lahaina Towne Antiques
Roger Vosika Realty

REALTOR® P.O. BOX 35, LAHAINA, MAUI, HAWAII 96767 • 808-661-2066 • FAX 808-667-9226 • 800-548-1318

PIONEER MILL COMPANY, LIMITED

Growers of sugar cane and producers of raw sugar

P. O. Box 727
Lahaina, Hawaii 96767
Fax (808) 661-0992

September 21, 1998

To whom it may concern

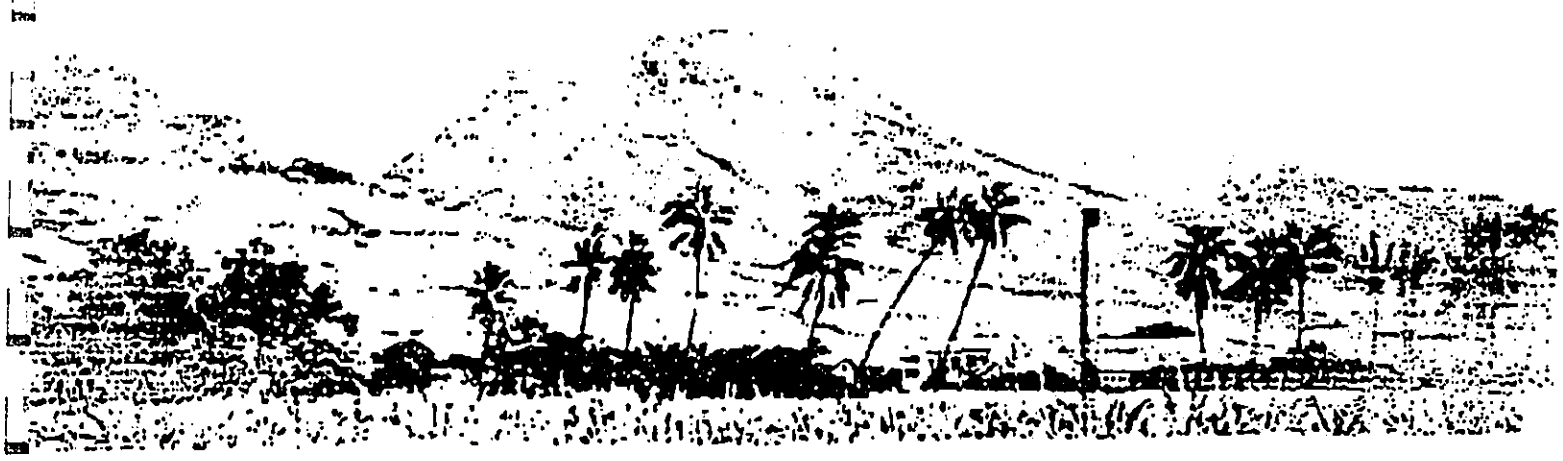
RE: Rezone application for 270 Lahainaluna Rd., Lahaina, HI, from R2 to B2

Dear Sirs,

Regarding the above application, I support the zoning change from residential to business use, as per the community plan. I believe it will benefit the nearby businesses and the surrounding neighborhood, as well as residents and visitors of Lahaina in general.

Sincerely,

James Kimo Falconer
Vice President, Pioneer Mill Company



Appendix E

Draft EA Comment Letter

BENJAMIN J. CAYETANO
GOVERNOR

GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

'99 MAY 10 P1:05

May 7, 1999

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

Dear Mr. Min:

Subject: Draft Environmental Assessment for Mango Manor Commercial Complex, Maui

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

1. Please discuss the findings and reasons for supporting the FONSI determination based on the significant criteria listed in §11-200-12 of the EIS rules. Please see the enclosed example.

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

Sincerely,

for Gary Gill
Director

c: Chris Hart and Partners

OEQC FAX

BENJAMIN J. CAYETANO
Governor
GARY GILL
Director

OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 So. Beretania St., Ste. 702
Honolulu, Hawaii 96813

Telephone (808) 586-4185
FAX (808) 586-4186

JMH

Date: May 19, 1999

To: Ms. Julie Higa

Agency or Organization Name: Maui Planning Department

Facsimile Number: 243-7634 Phone Number: _____

Total number of pages, including this page: 2

IF YOU DO NOT RECEIVE ALL OF THE PAGES OR THE TRANSMISSION IS UNCLEAR, PLEASE CALL OEQC AT 586-4185

From: Jeyan Thirugnanam

Re: Draft Environmental Assessment for Mango Manor Commercial Complex

Remarks: Please disregard our comments of May 7, 1999. After further review, we have determined that the environmental assessment has sufficiently discussed the findings and reasons for supporting the FONSI.

Date FAX received: _____ Time: _____