Makaha Retirement Community Commercial

PLANNING DEPARTMENT

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR

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OFFICE OF LIVING...
QUALITY CO...

CHERYL D. SOON
CHIEF PLANNING OFFICER

CAROLL TAKAHASHI
DEPUTY CHIEF PLANNING OFFICER

MH 1996-1165

May 28, 1996

Honorable Gary Gill, Director
Office of Environmental Quality Control
220 South King Street
Central Pacific Plaza, Suite 400
Honolulu, Hawaii 96813

Dear Mr. Gill:

Notice of Determination for a
Finding of No Significant Impact Regarding the
Final Environmental Assessment for
Makaha Retirement Community Commercial, 96/W-2

The Planning Department has reviewed the Final Environmental Assessment (FEA) for the Makaha Retirement Community Commercial project which is being proposed by HRT, Ltd. The description of the proposed action is contained in the summary section of the attached publication form.

The Planning Department has determined that the subject project will not have any significant impacts on the environment. Based on our analysis and determination, we are filing a Finding of No Significant Impact for the subject project. The reasons supporting our determination are found in Section 7.2 of the FEA.

Attached are four (4) copies of the FEA. In accordance with your agency's submittal deadlines, this FEA should be published in "The Environmental Notice" of June 8, 1996.

For further information regarding the FEA, the names, addresses and phone numbers of the contact persons are listed below:

Bill Dornbush, President
Dornbush & Co., Ltd. (Real Estate Consultants)
3660 Waialae Avenue, Suite 418
Honolulu, Hawaii 96816
(808) 734-5279

and

William E. Wanket, President
William E. Wanket, Inc. (Land Use Consultant)
1001 Kamokila Blvd.
Kapolei Building, Suite 320
Kapolei, Hawaii 96707
(808) 674-3517

Should you have any questions, please contact Matthew Higashida of our staff at 527-6056.

Sincerely,

Carol Takahashi for

CHERYL D. SOON
Chief Planning Officer

CDS:ft

Attachments

cc: HRT, Ltd.
Dornbush & Co., Ltd. (Real Estate Consultants)
William E. Wanket, Inc. (Land Use Consultant)

1996-06-08-OA-FEA-Makaha Retirement Community Commercial

DEVELOPMENT PLAN LAND USE AMENDMENT APPLICATION AND FINAL ENVIRONMENTAL ASSESSMENT

FOR

MAKAHA RETIREMENT COMMUNITY COMMERCIAL

Waianae, Oahu

MAY 1996

DEVELOPMENT PLAN LAND USE AMENDMENT APPLICATION AND FINAL ENVIRONMENTAL ASSESSMENT

FOR

MAKAHA RETIREMENT COMMUNITY COMMERCIAL

Waianae, Oahu

May 1996

Prepared For: HRT, Ltd.
3660 Waialae Avenue, 4th Floor
Honolulu, Hawaii 96816

Prepared By: William E. Wanket, Inc.
Kapolei Building, Suite 320
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

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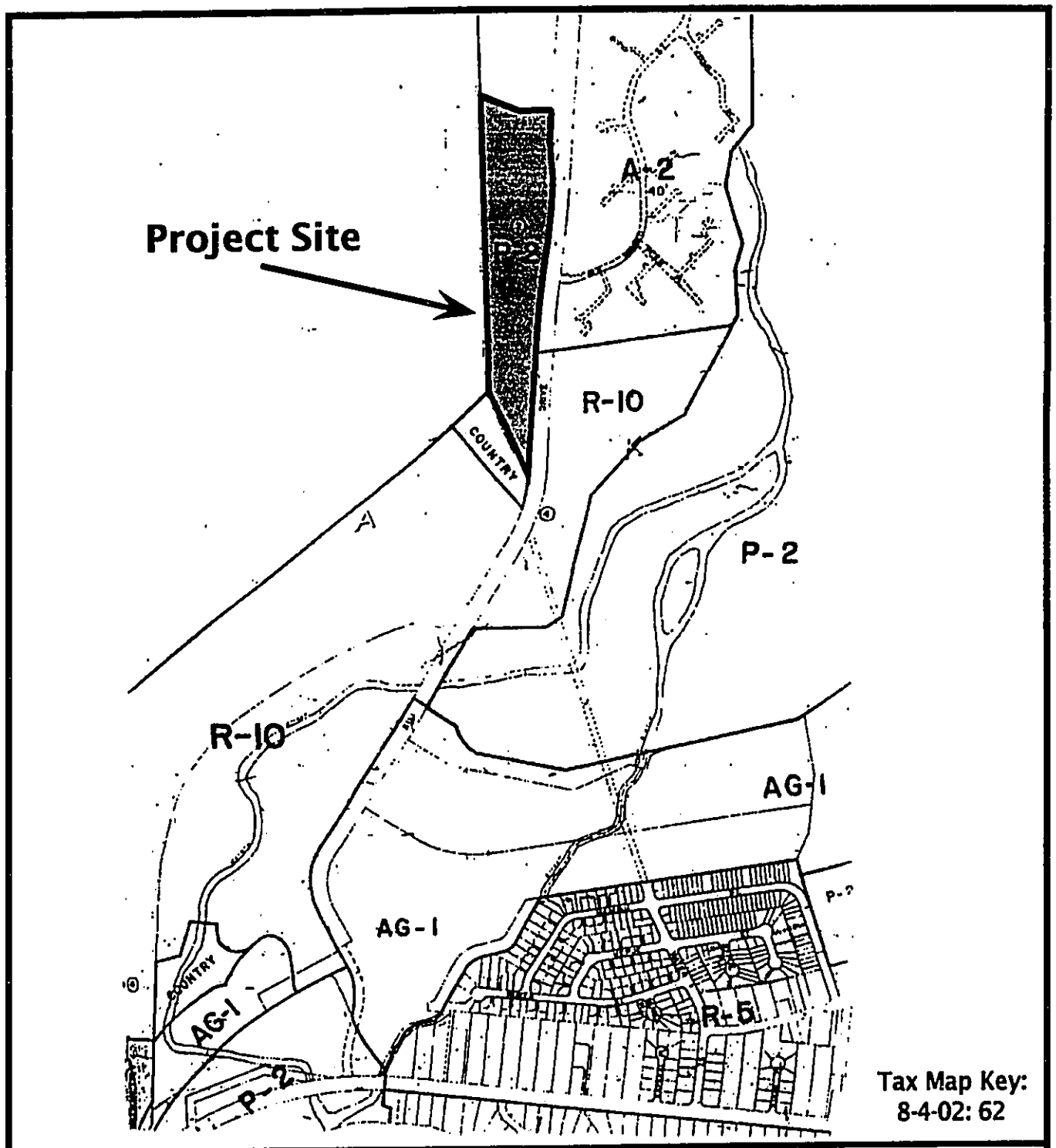
SECTION 1.0
INTRODUCTION

1.1 PURPOSE FOR REPORT

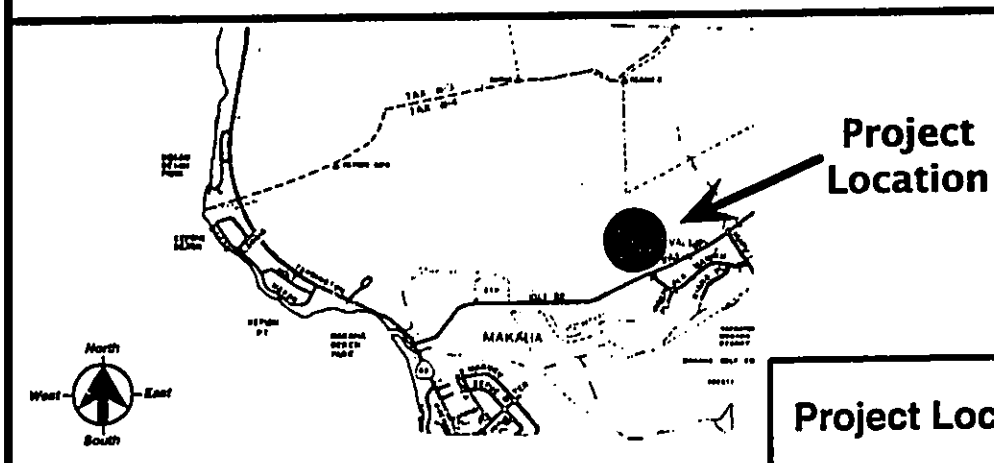
This document was prepared for HRT, Ltd. to serve as the Development Plan Land Use Amendment (DP Amendment) application and Final Environmental Assessment (Final EA) for the proposed Makaha Retirement Community Commercial project in Makaha on the island of Oahu. The applicant is seeking a DP Amendment from Preservation to Commercial for this project on a parcel of about 15 acres. As a result, this application is being filed with the City and County of Honolulu (City) Planning Department for processing to serve the planned and already approved Makaha Retirement Community development.

This Final EA was prepared under Chapter 343 of the Hawaii Revised Statutes, and in accordance with the content requirements of the State Department of Health's (DOH) Administrative Rules, Title 11, Chapter 200 Environmental Impact Statement Rules (referred to as EIS Rules). This document was also intended to satisfy the informational requirements for the City Planning Department's DP Amendment application. A Draft EA, dated January 1996, was previously prepared and published in the February 23, 1996 issue of the Office of Environmental Quality Control's *Environmental Notice.*

The proposed Makaha Retirement Community Commercial project would involve about 14.975 acres of land situated in the Makaha community of the Waianae district. Figure 1.1 shows the project's location and surrounding vicinity. This purpose of this project and DP Amendment request is to allow the construction of a commercial complex consisting of a medical facility and convenience retail shopping space to serve the future residents of the planned Makaha retirement community. Table 1.1 provides a summary of pertinent information associated with this project site.



Tax Map Key:
8-4-02: 62



Project Location Map	Figure 1.1

Table 1.1 Summary Information

Project Name:	Makaha Retirement Community Commercial Project
Applicant:	HRT, Ltd. 3660 Waialae Avenue, 4th Floor Honolulu, Hawaii 96816
Agent:	William E. Wanket, Inc. Kapolei Building, Suite 320 1001 Kamokila Boulevard Kapolei, Hawaii 96707
Accepting Agency:	Planning Department, City and County of Honolulu
Existing DP Land Use:	Preservation
Proposed DP Land Use:	To obtain an amendment to the City's Waianae Development Plan Land Use Map from Preservation to Commercial.
Project Description:	The land use amendment is to permit the development of a commercial complex with a maximum of 70,000square feet of space. About 40,000 square feet would be used for a medical facility while a convenience retail facility would encompass about 30,000 square feet of floor area.
Land Area:	14.975 acres
Tax Map Key:	8-4-02: 62
Land Ownership:	HRT, Ltd.
State Land Use:	Urban
City Zoning:	P-2, General Preservation District
SMA District:	Not Within District
Existing Use:	Vacant Land
Neighborhood Board:	Waianae Neighborhood Board, No. 24

1.2 BACKGROUND

In May 1985, the City Council approved a Development Plan Land Use Map amendment (Ordinance 85-52) redesignating the proposed commercial project site to Low-Density Apartment (LDA). As a result, this site was to be developed for apartment use as part of other residential development planned for surrounding properties. These other properties included a parcel designated for Medium Density Apartment located across Kili Drive (presently the Makaha Valley Plantation condominium) and surrounding parcel designated for residential development associated with the planned retirement community.

Since then, the Development Plan land use for the proposed project site was redesignated by the City Council from Low-Density Apartment to its current Preservation designation in 1987 under Ordinance 87-129. Initiated by the Chief Planning Officer of the City Planning Department, this amendment was instituted to reallocate dwelling unit capacity from the LDA property to other surrounding residential sites.

Similarly, the proposed project site was rezoned by the City Council from A-1, Low-Density Apartment District to P-2, General Preservation District in 1990 under Ordinance 90-36. This rezoning was initiated by the City Department of Land Utilization to ensure consistency between the Development Plan and zoning designations for the parcel.

SECTION 2.0
PROJECT DESCRIPTION

2.1 PROJECT LOCATION AND VICINITY

The project site is generally located at the western end of Makaha Valley of the Waianae District on the island of Oahu. The Makaha Retirement Community Commercial project site consists of approximately 14.975 acres of land identified under Tax Map Key 8-4-02: 62. The landowner of this commercial project site is HRT, Limited.

Figure 1.1 previously showed the general location of the site and the surrounding vicinity. This site is situated along the western end of Kili Drive near the foot of the ridge leading up to the Waianae Kai Forest Reserve. Immediately northeast of the site is the Makaha Valley Towers condominium development while the presently closed Sheraton Makaha Resort is located to the east. The Makaha Valley Plantation condominium along with the Sheraton Makaha Resort's West Golf Course are located immediately east of Kili Drive and the project site.

2.2 DESCRIPTION OF PROJECT

This project would consist of developing a commercial complex on the approximately 15-acre parcel with a maximum total floor area of 70,000 square feet. Figure 2.1 shows a general Site Plan for this project site. This complex would have a medical facility with a maximum of 40,000 square feet, and convenience retail shopping with a maximum of 30,000 square feet.

The medical facilities constructed would allow for providing a variety of services such as purchasing prescription drugs, clinics and facilities for in/out patient services, and offices for physicians. This facility also has the potential to provide long-term care services such as skilled nursing or intermediate care. The convenience retail facility would allow for various small scale retail shops providing daily goods and services.

Vehicular access to this commercial complex would be from Kili Drive with an open parking lot provided for visitors.

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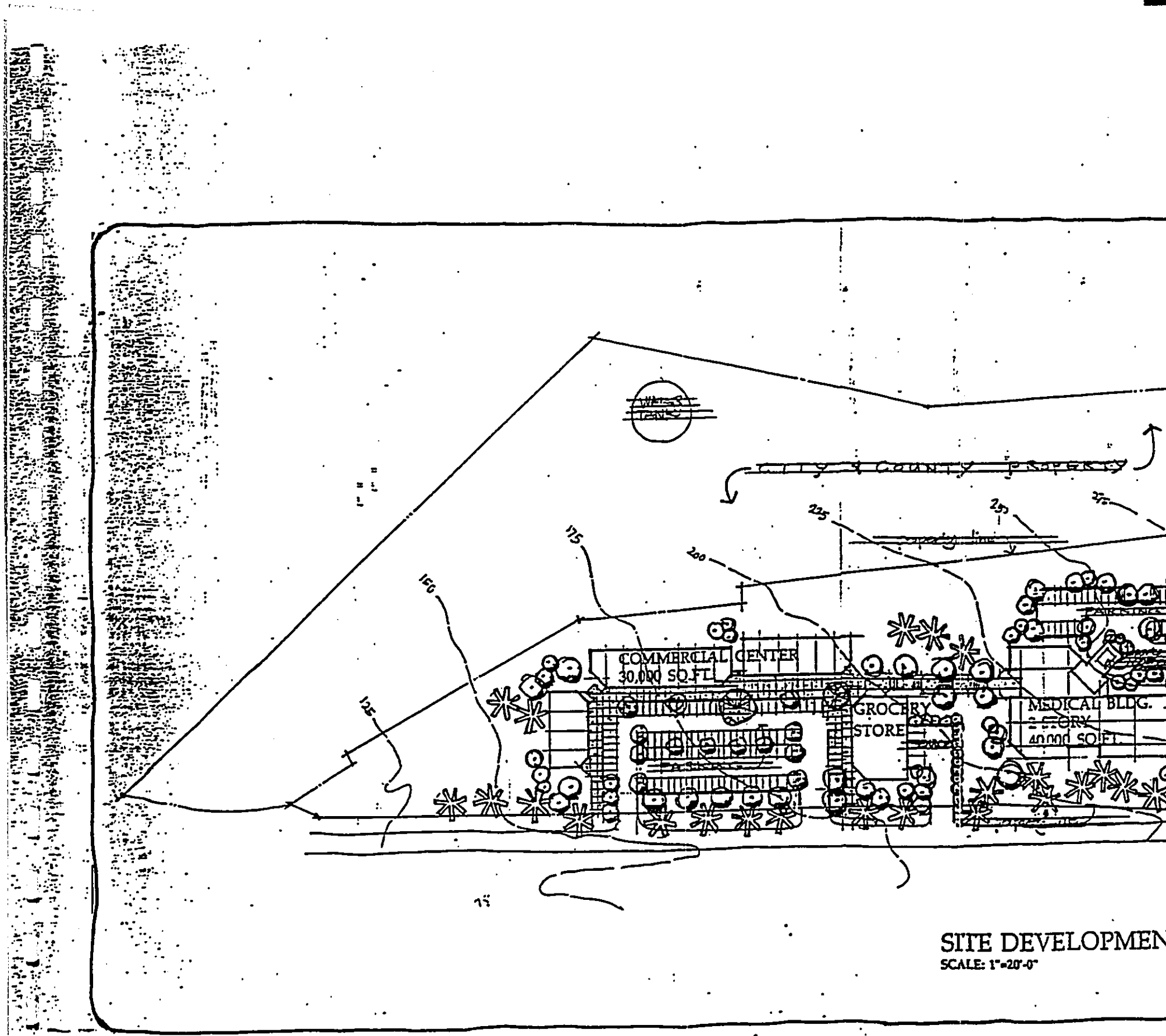

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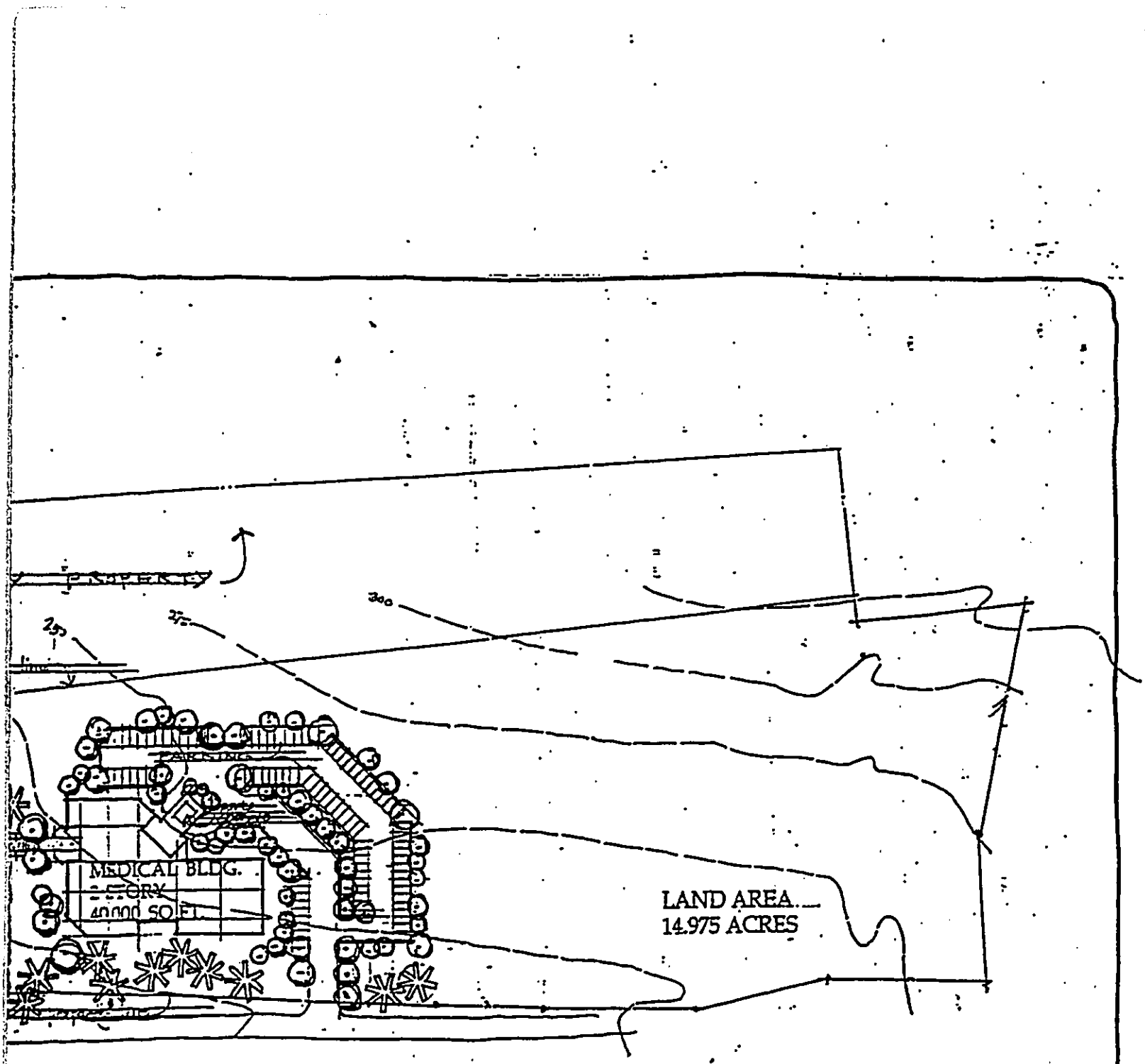

TE DEVELOPMENT PLAN
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Figure 2.1

JAN., 96 SUEDA & ASSOC., INC.

2.3 PROJECT NEED AND OBJECTIVES

This commercial complex is being proposed to serve the future residents of the Makaha Retirement Community planned for development along with existing residents in the immediate area. The shortage and lack of diversity in medical facilities conveniently located within Makaha along with the availability of convenience retail stores beyond the Waianae commercial district have resulted in the need for the proposed project. A market study on the Makaha Retirement Community which discusses the need for the medical and convenience retail facilities is included in Appendix B of this report.

Proposed space for a medical facility is needed to provide a greater number and increased diversity in the medical services and clinics available to Makaha residents. With the planned development of the retirement community near the project site, the need for a facility providing a diversity of medical services that is easily accessible and centrally located would be significant for these future elderly residents residing within this community. The services provided at this medical facility such as in/out patient care, prescription drugs, and potentially long-term care facilities would be an important factor in the planned retirement community's viability. Consequently, the location of the proposed project would be within walking distance or a short drive for residents of this planned retirement community. The project would also increase the number and diversity of medical services serving the Makaha community.

Existing residents from the Makaha Valley Towers condominium and surrounding communities have also expressed a desire for a convenience retail center centrally located within the Makaha community to more conveniently serve area residents. The planned development of several hundred units associated with the Makaha Retirement Community predominantly along Kili Drive would further increase this demand for centrally located retail space. With the recent closure of the Coronet store exacerbating this need, the nearest commercial retail center for Makaha residents is located in the usually congested Waianae commercial district over 2.0 miles away from the Makaha community. Consequently, the proposed project would provide needed commercial space more centrally located and conveniently accessible for Makaha residents and elderly residents residing within the planned retirement community. With the popular Makaha Beach Park located near the project site makai (southwest) of the intersection of Kili Drive with Farrington Highway, the project's location and services would be further enhanced for residents and tourist using this beach.

2.4 PROJECT PHASING AND IMPLEMENTATION

Upon receiving anticipated approval of the Development Plan amendment by the Council by the end of 1996, rezoning of the property would then be pursued. After receiving rezoning approval by the Council, development of the site would be pursued consisting of the following phases: 1) applying for subdivision approval of the land, 2) completing engineering and design work, 3) obtaining necessary non-discretionary permits, and 4) constructing infrastructure improvements and facility. The construction completion date for the commercial project is thus estimated to be sometime in 1999. The estimated costs for the project is about $10 million.

SECTION 3.0
EXISTING CONDITIONS

3.1 CLIMATE

The climate of the State of Hawaii is relatively moderate throughout the island chain, although, significant differences in these conditions may occur from one location to another due to the mountainous topography. On Oahu, the Koolau and Waianae mountain ranges are oriented almost perpendicular to the trade winds which account for much of the variation in local climatology.

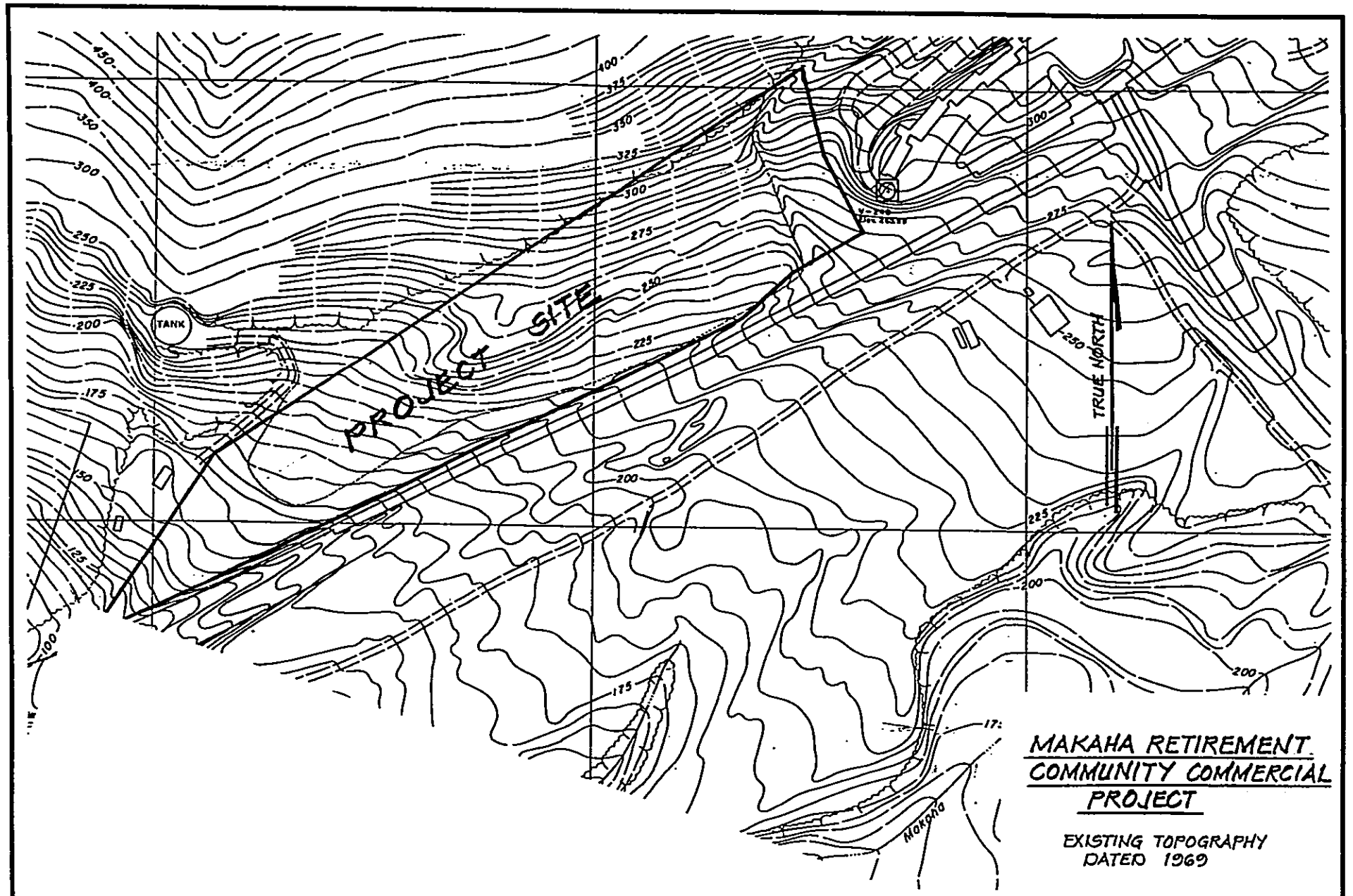
The annual prevailing wind direction for the area is from the east-northeast. These wind speeds average about 12 miles per hour (mph) and mainly vary between 6 and 17 mph. Although infrequent, trade winds ocassionally weaken from December to March resulting in the emergence of "Kona" winds from the south to southwest direction.

The average annual daily minimum and maximum temperatures taken from a station in Waianae are about 68 degrees and 88 degrees Farenheit, respectively. Rainfall on Oahu is highly variable depending upon elevation and location with respect to the trade winds. The Waianae district is one of the dryer areas on Oahu with average annual rainfall varying vary from as little as a trace during the dry season to about 5 inches during the wet season.

3.2 TOPOGRAPHY AND SOILS

The topography of the commercial project site is generally sloping uphill and into the valley with a gradient ranging from approximatly 5 to 20 percent due to its location at the foot of the mountain. Ground elevations range from approximately 110 to 325 feet mean sea level. Figure 3.1 shows the existing topography of the project site.

Soils located on the property were identified using the *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* (SCS 1972). A review of the applicable soil map from this report and consultation with the Planning Department determined that the project site consists of Stony Land (rST), Rock Land (rRK), and Lualualei Extremely Stony Clay, 3 to 35 percent slopes (LPE). The project site was not categorized under the State Agricultural Lands of Importance to the State of Hawaii (ALISH) classifications (DOA 1977).



Source: Sato And Associates	Existing Topography Map	Figure 3.1

The Stony Land soil type covers the majority of the site, and is common in valleys and on side slopes of drainageways between Barbers Point and Kaena Point. This soil consists of a mass of boulders and stones deposited by water and gravity covering 15 to 90 percent of the surface. The soil among the stones consists of reddish silty clay loam that is similar to Ewa soils and very dark grayish-brown clay that is similar to Lualualei soils (SCS 1972).

The Rock Land soil type is generally present along the parcel's boundary near the southwestern (makai) end of the parcel. This soil is made up of areas where exposed rock covers 25 to 90 percent of the surface with rock outcrops and very shallow soils the main characteristics (SCS 1972). This soil typically is very stick and plastic having a high shrink-swell potential.

The Lualualei Extremely Stony Clay soil type is only present along the property's northeastern corner. This soil consists of many stones, is about 10 inches thick, very dark grayish-brown, very sticky and plastic clay which has prismatic structure. Runoff is medium to rapid, and the erosion hazard moderate to severe.

3.3 EXISTING USES

The approximately 15-acre project site is presently undeveloped and not used for any agricultural nor urban-related activities or uses. With the exception of the Makaha Valley Towers immediately to the northeast and Kili Drive bordering the southern portion of the site, the remaining surrounding areas are similarly undeveloped.

SECTION 4.0
SUMMARY OF AFFECTED ENVIRONMENT AND IMPACTS

This section describes the existing affected environment and discusses the probable impacts resulting from the proposed commercial development. This section is divided into five major headings which are: 1) physical and natural resources, 2) biological and hydrological resources, 3) social and economic factors, and 4) infrastructure, and 5) public facilities. If necessary, appropriate mitigative measures proposed to minimize the impacts are discussed.

4.1 PHYSICAL AND NATURAL RESOURCES

This section describes the project's probable effect on the physical environment which include: 1) topography, soils, and agricultural production 2) natural hazards, 3) historic and archaeological resources, 4) visual resources, 5) air quality, and 6) noise.

4.1.1 Topography, Soils, And Agricultural Production

Topography And Soils

The project would inevitably have some impact on the existing topography due to site preparation activities such as grading and infrastructure improvements. However, the impact should not be significant since only those portions of the site suitable for development would be utilized. Grading activities would be performed in accordance with the City's applicable regulations associated with soil erosion and sediment control. These measures would consist of compliance with the City's *Soil Erosion Standards And Guidelines* (DPW 1992), development of an erosion control plan, and other measures required when necessary permits are obtained.

As shown on the Site Development Plan (Figure 2.1), the buildings and structures will generally be situated near the center of the site away from the northeastern boundary of the site. Consequently, no buildings or structures should be situated on either Lualualei Extremely Stony Clay or Rock Land soil thereby minimizing damages caused by these soil's shrink-swell characteristic. In addition, a soil reconnaissance report would be performed to assist in the appropriate design, site preparation, and construction of the project.

Applicable National Pollutant Discharge Elimination System permits would be obtained from the State Department of Health. Plans would include Best Management Practices to help control and reduce the amount of pollutant discharged into regulatory waters. Some of these measures could include: 1) structural measures such as earth dikes, drainage swales, sediment traps or interceptor ditches, perimeter silt screen and 2) non-structural measures such as mulching, temporary wind barriers, or mulching, and graveled construction entrance for ingress and egress.

Agricultural Production

The project would not have an impact on existing agricultural production since the project site is presently not used for agricultural activities. In addition, the surrounding area is also not utilized for agricultural activities.

4.1.2 Natural And Other Hazards

Earthquake Hazards

Although difficult to predict, an earthquake of sufficient magnitude may occur in the future causing damage to the commercial project. However, except for the island of Hawaii, the Hawaiian islands are not situated in a highly seismic area subject to numerous earthquakes (Macdonald 1983). Most of the earthquakes that have occurred were volcanic earthquakes causing little or no damage. Moreover, the seismic risk classification of the island of Oahu is generally low with a rating of Zone 2a. To further minimize damages to structures, the project would be constructed in accordance with City building codes and standards.

Hurricane Hazards, Tsunami Inundation, And Flooding

Based upon a review of the Flood Insurance Rate Map (Community Panel Number 150001 0065B) for the area, portions of the project site are located in areas designated both Zone X and Zone D. The lower half (makai or western end) of the site is located within Zone X indicating areas determined to be outside the 500-year flood plain. The remaining areas of the somewhat rectangular-shaped parcel is situated within Zone D which includes areas in which flood hazards are undetermined. Consequently, the project site is not situated in an area which has been subject to inundation by a 100-year flood, nor would it likely be subject to the effects of a tsunami. Thus, the project should not be adversely effected by these hazards, and is not subject to City requirements under the LUO's Flood Hazard Districts.

As with other developments in the region, the project could receive some damage from high winds caused by a hurricane of sufficient strength. A total of nine hurricanes have approached within 300 nautical miles from the islands between 1970 and 1992 (FEMA 1992).

Of the major hazards associated with hurricanes, high winds would be the primary hazard having the greatest potential to damage the project as would other developments on the island. High winds from a hurricane may inevitably cause some damage to the structures, trees, and other vegetation used for landscaping in accordance with the LUO. However, the project would be constructed in conformance with the City's *Uniform Building Code* to minimize damages.

4.1.3 Historic And Archaeological Resources

The project would not have an effect on historic or archaeological sites since the entire property does not appear to have been used for prior historic uses such as agricultural production nor suitable for historic habitation. As discussed under Section 1.2, the site was previously approved for low-density apartment development prior to its redesignation to Preservation. In addition, a February 28, 1996 letter from the State Historic Preservation Division included in Appendix A determined that they believe the project will have "no effect" on historic sites. However, in the event archaeological or historic remains resources are uncovered during construction activities, the State Historic Preservation Division would be notified immediately and work stopped.

4.1.4 Visual Resources

The impact on visual resources from the project was assessed using the City's *Coastal View Study* (Chu 1987) and Development Plan Special Provisions for Waianae. Based upon the *Coastal View Study* (CVS), the Waianae Kai Forest Reserve situated on the mountain range above the project site was identified as an Important Coastal Landform. In addition, there were no significant public viewing points nor visual landmarks associated with the project site. The Development Plan Special Provisions for Waianae pertinent to the project similarly identified the Waianae mountain range as an important Open Space resource. An important public view identified and applicable to the site is of the descending mountain ridges from Farrington Highway.

Building structures associated with the commercial project would have a maximum height of 40 feet under the Development Plan height controls for Waianae. In addition, appropriate landscaping and other physical designs would be incorporated into the project's design to allow it to transition or blend into the surrounding setting. Being situated adjacent to the Makaha Valley Towers condominium and across of the Makaha Valley Plantation townhomes, the commercial development would represent an extension of this urbanization along Kili Drive.

As a result, the project should not have a significant visual impact on these mauka views of the mountain range from Farrington Highway. The relatively low heights of structures should not visibly extend up the mountain as compared with the adjacent condominium buildings. Thus, the scenic views of the Waianae mountains should be preserved retaining the unique character of the surrounding area. Furthermore, public access onto the site would create new expansive views of the coastline for the public.

The project would also be designed and constructed in accordance with applicable City regulations which include the Development Plan Special Provisions for Waianae and the *Land Use Ordinance* (DLU 1994) which have applicable height and setback controls. Open space, landscaping and street tree plantings, and other building designs incorporated into the project should provide further mitigation to minimize the overall visual impact of the development.

4.1.5 Air Quality

4.1.5.1 Short-Term Impacts

The project could result in short-term direct and indirect impacts on air quality during construction activities. Two potential types of air pollution emissions which could occur are: 1) fugitive dust from vehicle movement and soil excavation; and 2) exhaust emissions from on-site construction equipment. Indirectly, there could be short-term impacts from slow moving construction equipment traveling to and from the project site, and from a temporary increase in local traffic caused by commuting construction workers.

Fugitive dust emissions from construction activities may amount to about 1.2 tons per acre per month depending on rainfall. Emissions from on-site mobile and stationary construction equipment would emit air pollutants from engine exhausts. Nitrogen oxide emissions from diesel engines could be relatively high compared to gasoline powered equipment, however, the standard for this pollutant is set on an annual basis and thus not likely to be exceeded by short-term emissions. Carbon monoxide emissions from diesel engines are low and should be relatively insignificant compared to vehicular emissions on major roadways.

Mitigative Measures For Short-Term Impacts

To mitigate short-term impacts, a dust control plan would be developed to prohibit visible emissions of fugitive dust from construction activities at the property line in compliance with the State Department of Health's (DOH) regulations on air pollution control (State of Hawaii 1992). Such measures may include:

1. Watering active work areas and any temporary unpaved work roads at least twice daily on days without rainfall;

2. Use of wind screens and/or limiting the area that is disturbed at any given time to contain fugitive dust emissions;
3. Incorporating measures such as chemical soil stabilizers or mulching, using wind screens, and limiting the areas which are disturbed at any given time;
4. Covering dirt-hauling trucks before traveling on roadways;
5. Paving of parking areas and establishing landscaping early in the construction schedule to control dust; and
6. Establishing a road cleaning or tire washing program to reduce fugitive dust emissions from trucks using paved roadways in the project area.

To minimize indirect short-term impacts in air quality, slow moving construction equipment could be moved during periods of low traffic volume to prevent obstruction of normal traffic flow. Likewise, the schedules of commuting construction workers could be adjusted to avoid peak hours in the project vicinity.

4.1.5.2 Vehicular Traffic-Related Impacts

The National AAQS for 1-hour carbon monoxide concentrations is 40 mg/m^3 while the more stringent State AAQS is 10 mg/m^3. The National AAQS for 8-hour concentrations is 10 mg/m^3 while the State AAQS is 5 mg/m^3. Existing traffic along this roadway is relative low compared to other major roadways due to the lack of developments along Kili Drive. Hence, carbon monoxide concentrations along this road should be well within both the State and National AAQS.

The proposed commercial project should result in increased emissions of carbon monoxide concentrations due to project's generation of increased traffic along Kili Drive. However, the increased traffic volumes associated with the project is not expected to result in air quality standards for carbon monoxide being exceeded.

4.1.6 Noise Environment

4.1.6.1 Short-Term Construction Noise Impacts

Development of the project will involve excavation, grading, and construction activities which may generate significant amounts of noise that may impact nearby residential areas. The actual noise created will be dependent upon the methods employed during each stage of the construction process, however, earthmoving equipment, such as bulldozers and diesel-powered trucks, will probably be the loudest.

Mitigative Measures For Construction Noise

To mitigate construction noise, these activities would be conducted in conformance with DOH regulations and permit conditions (State of Hawaii 1981). Construction equipment and on-site vehicles or devices requiring an exhaust of gas or air would need to be equipped with mufflers, and construction vehicles using roadways would need to satisfy the DOH's vehicular noise requirements (State of Hawaii 1981a). Some of the permit conditions for construction activities include:

- No permit shall allow construction activities creating excessive noise . . . before 7:00 am and after 6:00 pm of the same day.
- No permit shall allow construction activities which emit noise in excess of 95 dB(A) . . . except between 9:00 am and 5:30 pm of the same day.
- No permit shall allow construction activities which exceed the allowable noise levels on Sundays and on . . . holidays. Activities exceeding 95 dB(A) shall be prohibited on Saturdays.

4.1.6.2 Traffic-Related Noise Impacts

Kili Drive presently has a relatively low volume of traffic and correspondingly traffic noise level due to the general absence of development along this roadway. The increased traffic volume resulting from the commercial project would result in increased traffic noise along Kili Drive. However, this increase in noise volume is not expected to be significant and should be well within State guidelines.

4.2 BIOLOGICAL AND HYDROLOGICAL RESOURCES

This section describes the project's probable effect on biological and hydrological resources which include: 1) botanical resources 2) avifaunal resources, and 3) water quality.

4.2.1 Botanical Resources

The project site consists of botanical resources typical of other coastal zone areas in the Waianae district. The typically arid terrain consists of various scrub brush and koa-haole similar to other sites in the surrounding area. A review of the *Hawaii Stream Assessment* (HCPSU 1990) determined that there were no special areas identified on the project site and surrounding areas which includes among others high quality streams, priority aquatic sites, wetlands, natural area reserves, or recovery habitat for waterbirds. Consequently, no officially listed, proposed, or candidate threatened or endangered plant species should be situated within the site or impacted by the commercial development.

4.2.2 Avifaunal And Feral Mammal Resources

The project site predominantly consists of Stony Land (rST) soil which contains a large percentage of stones and boulders, and should not have any wetlands present due to the site's typically arid terrain. As a result, there should not be any candidate threatened or endangered waterbird species present on the site or in the surrounding area since there are no suitable nesting or foraging habitat available for these species. Consequently, the project should not have an impact on important these waterbird or other avifaunal species.

Concerns with bright lighting, such as parking lot lights, affecting potential seabirds traversing in the area were identified by the U.S. Fish and Wildlife Service in their March 4, 1996 letter included in Appendix A. However, parking lot lighting and other pertinent lighting for commercial buildings and structures would be appropriately designed and shielded to prevent them from impacting these seabirds addressing their concerns.

The commercial development should not have a significant impact on feral mammal species present on the site or in the surrounding area since no endangered or threatened species should be present. Typical feral mammals potentially located on the site and found in other areas of the island may include Mongoose *(Herpestes auropunctatus)* and feral cats, and rats or mice.

4.2.3 Water Quality

The project is not expected to cause a significant degradation to the quality of coastal waters and marine resources in the surrounding area. An appropriate drainage plan would be prepared for the site which would incorporate measures to minimize the discharge of surface runoff. Efforts would be made, where feasible, to comply with the City Council's Resolution 94-296 seeking a no-net increase in peak discharge for new developments. As a result, the project should not have a significant impact on water quality and marine resources.

No significant short-term impacts are expected since construction activities would be performed using common Best Management Practices in conformance with applicable City regulations concerning soil erosion and sediment control to mitigate non-point source pollution. In addition, applicable National Pollutant Discharge Elimination System permits would be obtained from the State Department of Health to address surface runoff and determine necessary mitigative measures.

4.3 SOCIAL AND ECONOMIC FACTORS

4.3.1 Social Factors

The Makaha community generally consists of the area from Kamaileunu Ridge to Waianae Ridge and Kaena Point. Based upon the 1990 census data (tract 98), the area had a resident population of 8,208. This resident population has experienced a growth of less than 4 percent a year since 1980 which then had a resident population of 5,928.

Since the project does not include the development of any homes or visitor units, there should be no impact on the existing and future housing supply in the Waianae district. In addition, there should be no significant change to the resident population resulting from this project. The additional full-time jobs created by the project would make housing in the surrounding areas more desirable, however, it is anticipated that the majority of jobs would be filled by existing residents living in the district. In addition, the project would support the viability of the planned Makaha Retirement Community proposed for development along Kili Drive.

4.3.2 Economic Factors

The commercial project is expected to have a moderate positive impact by creating several full-time jobs along with increased State and County revenues derived from sales and property taxes. Based upon the 70,000 total square footage planned, about 140 full-time jobs would be created.

With the medical facility planned for the site, these jobs would offer a variety of employment opportunities in addition to convenience retail jobs. Employment opportunities would include positions in professional, management, and technical levels. Employment opportunites generated by retail facilities would include positions in management, sales, marketing, and maintenance. Employment would also be generated by short-term construction-related jobs.

In addition, the project should strengthen State and County finances by providing additional income from the property whereas negligible tax revenues are presently derived from the property.

4.4 INFRASTRUCTURE

This section describes the project's probable effect on infrastructure serving the site and surrounding area which include: 1) water supply, 2) wastewater treatment, 3) drainage, 4) solid waste, and 5) transportation facilities.

4.4.1 Water Supply

The Board of Water Supply (BWS) has allocated 350,000 gallons per day (gpd) of domestic water for Makaha Valley. Of this total, about 200,000 gpd have been assigned for developments associated with the planned Makaha Retirement Community which includes the proposed commercial site. Using the domestic consumption guideline from the BWS's *Water System Standards* (BWS 1985), the commercial project is estimated to result in an average daily demand of about 45,000 gallons (3,000 gallons per acre). However, the actual daily demand should be considerably less than this since the entire 15-acre site would not be developed as shown on the Site Plan on Figure 2.1.

As a result, the project should not have a significant impact on the BWS's water supply serving the valley. As indicated in a February 28, 1996 letter from the BWS included in Appendix A, the existing water system is presently adequate to accommodate the project. Furthermore, water facilities required to provide water service to the project site would be developed in conformance with the BWS standards.

4.4.2 Wastewater Treatment

The municipal sewer system along Kili Drive contains an 18-inch line which flows toward Farrington Highway. Sewage generated by the commercial project would be treated at the Waianae Sewage Treatment Plant. As indicated in a February 26, 1996 letter from the the Department of Wastewater Management included in Appendix A, the existing municipal system is available and adequate to accommodate the project. Wastewater treatment and disposal improvements necessary for the project would be developed in conformance with applicable standards and regulations. As a result, the project should not have a significant impact on wastewater facilities serving the area.

4.4.3 Drainage

Drainage improvements would be implemented to address surface runoff from the project site. As previously discussed, the project site does not require special flood regulation since the property is designated both Zone X and Zone D under the FIRM. Zone X indicates areas outside of the 500-year flood plain and mauka areas designated Zone D are similarly expected to be outside of this flood plain. As a result, there should be no major impacts to existing drainage patterns associated with the project site.

However, development of the project would inevitably increase surface runoff due to the construction of impervious surfaces such as roads and buildings. An appropriate drainage plan would be prepared for the site incorporating measures to minimize the discharge of surface runoff such as a detention basin. Where practical and feasible, these improvements would try to meet the policies specified in the City Council's Resolution 94-296. Improvements would be subject to City review and constructed in accordance with their *Storm Drainage Standards* (DPW 1988).

4.4.4 Solid Waste

Refuse collection at the commercial site would be accommodated by private collection services. To further reduce the amount refuse generated by the project, a solid waste management plan could be coordinated with the City and the State Department of Health. A recycling program may be one of the components of this plan. Consequently, solid waste generated by the project is not expected to have a significant impact on the City's refuse collection system.

4.4.5 Transportation Facilities

A traffic impact study addressing both existing and future conditions was conducted by Phillip Rowell and Associates. A copy of this report is included in Appendix C of this Final EA. This traffic study included in its analysis up to 600 units as part of the planned retirement community along with a potential 9-hole golf course. This potential golf course is not part of this application, and no decision has yet been made to procede with its development and City approvals. The residential units and golf course were included in this study to assess more conservative worst-case conditions at the study intersection of Kili Drive with Farrington Highway.

Kili Drive is the primary roadway providing vehicular access to the commercial project site, and currently has a 26-foot right-of-way. This road connects with Farrington Highway near the shoreline forming an unsignalized T-intersection. As indicated in the traffic study, the morning and afternoon peak hours were determined to be from 10:30 to 11:30 am and 5:00 to 6:00 pm, respectively. Analysis using existing traffic volumes determined that this intersection operates at Level-Of-Service (LOS) "A" during both peak hours with all movements operating at LOS B or better.

Future conditions were projected for the year 2001 which is beyond the anticipated completion date for the commercial project. However, this scenario would provide a more conservative assessment since it includes residential units planned as part of the retirement community. With the project, the study intersection would continue to operate at LOS A with all movements operating at LOS C or better. Consequently, the commercial project is expected to have minimal impact on the intersection of Kili Drive with Farrington Highway. Intended to serve the retirement community, traffic generated by the commercial project would be utilized by these future residents many of whom would be within walking distance or a short drive from the site. Furthermore, vehicle trips to this medical facility by citizens of the retirement community would likely occur during the day during non-peak traffic hours. Necessary improvements to the site would be implemented in conformance with City standards to provide convenient vehicular access and minimize congestion in the area.

4.5 PUBLIC FACILITIES AND UTILITIES

This section addresses the project's probable impact on public facilities and utilities serving the site. The following public facilities should not be affected by the commercial development since the project would not increase the resident or visitor population.

1. School Facilities - The project would not affect student enrollments or existing school facilities serving the Waianae district since no housing is included with this projecty which would change in the area's resident population.
2. Recreation Facilities - The project would not create additional demands for recreational facilities serving the area because no increase in the resident population would occur.
3. Day Care - The project would not create additional demands for day care services or facilities serving the area because no increase in the resident population would occur.

4.5.1 Medical Facilities

The only medical facilities presently providing services for Makaha residents and serving the Waianae district is the Waianae Coast Comprehensive Health Center. This center offers various medical services such as pediatrics, internal medicine along with several programs such as social services and health education. The nearest major hospital serving the Waianae district is the Saint Francis Medical Center-West in Ewa.

The proposed commercial project would include space for another medical facility to serve future residents of the planned retirement community along with residents in the immediate vicinity. Consequently, the project should not have a significant impact on medical facilities serving the region since additional facilities and services would be provided diversifying currently available services.

4.5.2 Electrical And Communication Facilities

Improvements to electrical facilities would need to be constructed to serve the project, and the increased electrical demand created by the project is expected to be adequately provided by Hawaiian Electric Company, Inc. There are already existing electrical facilities serving other developments in the surrounding area such as the condominium and townhomes complexes along with the currently closed Sheraton Makaha Resort. As a result, there should be no significant impact to HECO's electrical facilities or ability to provide power.

Hawaiian Telephone Company (HTC) presently provides communication facilities for residents in the area and would continue to provide services to the commercial project. As a result, the project should not have a significant impact on communication facilities.

4.5.3 Police Protection

The Waianae Substation presently serves the Waianae district which includes the Makaha community and project site. The project should not cause a significant impact on the police department's ability to provide protective services to area residents since the development would not increase the resident population. Furthermore, a March 14, 1996 letter from the Police Department included in Appendix A confirms the project would not have a significant impact.

4.5.4 Fire Protection

Fire protection at the project site would be provided by the Waianae Fire Station located along Farrington Highway across of Waianae Intermediate School. The project is not expected to result in a significant change or impact in the level of fire protection services provided by the fire department since the project would not increase the resident population. The project would be developed in compliance with Article 10 of the Uniform Fire Code, and construction plans would be reviewed by the Fire Department for approval. Furthermore, a February 26, 1996 letter from the Fire Department included in Appendix A confirms the project would not have a significant impact.

SECTION 5.0
CONFORMANCE WITH PLANS AND POLICIES

This section discusses the project's conformance with applicable plans and policies which include the State Land Use District, Hawaii State Plan, and the City's General Plan and Development Plan.

5.1 STATE LAND USE DISTRICT

The approximately 15-acre project site is currently designated "Urban" under the State's Land Use District Boundary Map for Waianae (Map O-2). Consequently, the project is consistent with the State's Land Use District Boundary Map.

The project site is not located within the Special Management Area and thus would not adversely affect any coastal zone management objectives and policies.

5.2 HAWAII STATE PLAN

The Hawaii State Plan (Chapter 226, HRS) consists of a series of goals, objectives, and policies which serve as a guide for the growth and development of the State. Principles or values integral to the overall theme of the Plan are: 1) individual and family self-sufficiency, 2) social and economic mobility, and 3) community or social well-being. This Plan details somewhat generalized objectives and policies in various areas such as population, the economy, physical environment, facility systems, and socio-cultural.

The proposed commercial project would be consistent with pertinent policies and objectives from this Plan. Due to the commercial nature of the project, most of these applicable policies concern the economy along with objectives pertaining to health and social services.

5.3 GENERAL PLAN

The project would generally conform to and be consistent with applicable objectives and policies described under the City's *General Plan* (DGP 1992). Those objectives and policies most pertinent to the project are provided greater discussion below.

Economic Activity

Objective A:	To promote employment opportunities that will enable all the people of Oahu to attain a decent standard of living.
Policy 1:	Encourage the growth and diversification of Oahu's economic base.
Policy 2:	Encourage the development of small businesses and larger industries which will contribute to the economic and social well-being of Oahu residents.

Objective E: To prevent the occurrence of large scale unemployment.
Policy 1: Encourage the training and employment of present residents for currently available and future jobs.
Objective G: To bring about orderly economic growth on Oahu.
Policy 3: Maintain sufficient land in appropriately located commercial and industrial areas to help ensure a favorable business climate on Oahu.

As discussed in this document, development of the project would create employment opportunities, provides for orderly growth in the area, and increases the diversity of present jobs for residents of the Makaha and Waianae communities. The project further encourages the development of small businesses and helps to address unemployment in this region.

Natural Environment

Objective A: To protect and preserve the natural environment.
Policy 4: Require development projects to give due consideration to natural features such as slope, flood and erosion hazards, water recharge areas, distinctive land forms, and existing vegetation.
Policy 7: Protect the natural environment from damaging levels of air, water, and noise pollution.
Policy 8: Protect plants, birds, and other animals that are unique to the State of Hawaii and the Island of Oahu.

Development of the project would be consistent with these policies since it would not cause a significant impact to the natural environment. Those impacts inevitably occurring would be reduced by mitigative measures implemented to minimize disturbances. The project's design would also take into consideration the natural features of the property to minimize disruptions and grading. Important scenic views of the Waianae mountains from Farrington Highway would be preserved and new views of the coastline created due to the new public access allowed onto this site. Appropriate design, setbacks, and landscaping would further enhance this development's character with the surrounding community.

Physical Development And Urban Design

Objective A: To coordinate changes in the physical environment of Oahu to ensure that all new developments are timely, well-designed, and appropriate for the areas in which they will be located.
Policy 2: Coordinate the location and timing of new development with the availability of adequate water supply, sewage treatement, drainage, transportation, and public safety facilities.
Policy 3: Phase the construction of new developments so that they do not require more regional supporting services than are available.

Policy 4:	Require new developments to provide or pay the cost of all essential community services, including roads, utilities, schools, parks, and emergency facilities that are intended to directly serve the development.
Policy 5:	Provide for more compact development and intensive use of urban lands where compatible with the physical and social character of existing communities.
Policy 6:	Encourage the clustering of developments to reduce the cost of providing utilities and other public services.
Policy 7:	Locate new industries and new commercial areas so that they will be well related to their markets and suppliers, and to residential areas and transportation facilities.
Objective D:	To maintain those development characteristics in the urban-fringe and rural areas which make them desirable places to live.
Policy 4:	Maintain rural areas as areas which are intended to provide environments supportive of lifestyle choices which are dependent on the availability of land suitable for small to moderate size agricultural pursuits, a relatively open and scenic setting, and/or a small town, country atmosphere consisting of communities which are small in size, very low density and low rise in character, and may contain a mixture of uses.
Objective E:	To create and maintain attractive, meaningful, and stimulating environments throughout Oahu.
Policy 2:	Integrate the City and County's urban design plan into all levels of physical planning and developmental controls.
Policy3:	Encourage distinctive community identities for both new and existing districts and neighborhoods
Policy 4:	Require the consideration of urban-design principles in all development projects.
Policy 5:	Require new developments in stable, established communities and rural areas to be compatible with the existing communities and areas.

The project would be consistent with these physical development and urban design policies. Available infrastructure facilities are located in the area to serve the project, which includes the present widening of Farrington Highway, and the project should not require more improvements to regional facilities. All site improvements would be provided by the applicant, and the project is a part of the clustering of planned developments along Kili Drive reducing utility and public service costs. The commercial site would also be conveniently located for existing and future residents in the area and within the community.

The project's low-density character and design would make it compatible with surrounding development and the rural character of the Waianae district. Urban design standards and principles under the Special Provisions for the Waianae Development Plan district would be followed along with other City regulations and standards.

Health And Education

Objective A:	To protect the health of the people of Oahu.
Policy 1:	Encourage the provision of health-care facilities that are accessible to both employment and residential centers.
Policy 2:	Encourage prompt and adequate ambulance and first-aid services in all areas of Oahu.

Medical facilities planned as part of the commercial project would be consistent with these policies by providing conveniently accessible medical services and facilities to surrounding residential areas along with the planned retirement community. This site would also increase the number and help diversify the type of health care services presently being in the Waianae district.

5.4 DEVELOPMENT PLAN SPECIAL PROVISIONS

5.4.1 Development Plan Land Use

The project site is designated "Preservation" under the City's Waianae Development Plan Land Use Map. As discussed in an earlier section, this site was previously designated for "Low-Density Apartment" use prior to being redesignated in 1990 under Ordinance 90-36. Being designated for "Urban" use under the State's Land Use District Boundary Map, this Development Plan Amendment application is thus seeking an amendment to "Commercial" to allow the development of the proposed project. This project is needed to support the planned development of the retirement community and to provide needed medical and retail services for residents in the immediate vicinity.

5.4.3 Urban Design Principles And Controls For Waianae

The project would be consistent with the specific urban design principles and controls (Section 24-9.2, ROH) under the Development Plan Special Provisions for Waianae. As discussed under Section 4.1.4, the project would not impact important public views pertinent to the site and would preserve open space resources of the Waianae mountain range. Appropriate setbacks would be provided from Kili Drive and utilities would be located underground. The project would also be constructed within the 40-foot height limit set under the commercial height controls under this provision.

SECTION 6.0
ALTERNATIVES CONSIDERED

Alternatives to the proposed project consisted of the No Action Alternative. Under this alternative, the commercial project would not be constructed and the property would continue as an undeveloped vacant parcel.

After consideration, this alternative would not be pursued since it is not a feasible or viable alternative to the proposed project. It would not achieve the project's objectives of providing needed medical facilities to support the viability of the planned retirement community in the surrounding area. In addition, the existing Makaha community's desire for a more conveniently located convenience retail center would not be met.

SECTION 7.0
PRELIMINARY DETERMINATION AND FINDINGS

7.1 PRELIMINARY DETERMINATION

This Final EA included an assessment of the probable environmental impacts resulting from the proposed Makaha Retirement Community Commercial project, and incorporated the comments received from government agencies on the Draft EA previously published. This assessment was conducted in conformance with the requirements of the State Department of Health's Administrative Rules, Title 11, Chapter 200 Environmental Impact Statement Rules.

In anticipating that a Negative Declaration should be warranted for this project, this Final EA was prepared for the review and determination by the City Planning Department. This determination would be based upon the 11 significance criteria listed under Section 11-200-12 of the State DOH's EIS Rules. Based upon the assessment results of this Final EA, the proposed commercial project is not expected to cause a significant impact to the environment nor meet any of the 11 significance criteria, therefore, a Negative Declaration should be warranted.

7.2 FINDINGS AND REASONS SUPPORTING DETERMINATION

The findings and reasons which support the preliminary determination that a Negative Declaration is warranted are discussed below in terms of the 11 significance criteria.

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

The project would not result in the irrevocable commitment to loss or destruction of any natural or cultural resource since there are none present on the project site.

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

The range of beneficial uses of the environment would not be curtailed by the project. The vacant site is presently privately-owned and not used for any activities. As a result, the present range of beneficial uses to the public is non-existent. With the project, this range of beneficial uses would be increased since the public would be able to utilize the convenience retail and medical facilities developed on the property, and would have access onto the site which presently does not exist.

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

The project would not conflict with the State's long-term environmental policies or goals described in Chapter 344, HRS.

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

As discussed in various sections of this Final EA, the project would not substantially affect the economic nor social welfare of the Makaha and Waianae communities or the State of Hawaii. The project would provide additional medical and retail services needed in this district and would create a moderate number of new full-time jobs of various skills levels for area residents.

5. Substantially affects public health.

As discussed in the various sections of this Final EA, the project would not substantially affect public health. Increased air pollutant emissions and noise generated by the project should be well within State standards, and present water quality should not be adversely affected. The medical facility included with the project would provide additional and more diversified medical services for residents to utilize.

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

The commercial project should not involve substantial secondary impacts to the environment since it would not increase the resident population in the region and would have minimal to minor effects on various public facilities.

7. Involves a substantial degradation of environmental quality.

Based upon the study results described in this Final EA, the commercial project should not involve a substantial degradation of environmental quality. Impacts which could occur would not be significant, and would be mitigated by measures discussed in this document.

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

The project would not have a cumulatively significant impact upon the environment nor would it involve a commitment for larger actions. As discussed, the project is intended to provide needed retail and medical services for the community. The planned retirement community for which the medical facility will partially serve has already been approved for development by the City.

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

The results of this Final EA have determined that there are no rare, threatened, or endangered species present on the project site or in the immediate area which may be affected by the commercial development. In addition, this site does not provide suitable or unique habitat for potential rare, threatened, or endangered species.

10. Detrimentally affects air or water quality, or ambient noise levels.

The project would not detrimentally affect air, water quality, or ambient noise levels. Increased pollutants and noise levels would occur, but should be well within both Federal and State guidelines.

11. Affects an environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

The project would not affect an environmentally sensitive area since none of these areas are present on the site or in the immediate vicinity.

SECTION 8.0
AGENCY AND COMMUNITY CONSULTATION

8.1 EARLY CONSULTATION COMMENTS

In conformance with the State DOH's EIS Rules (§11-200), early consultation was performed with various government agencies and community groups. Letters soliciting comments on the project were sent to the following agencies and community organizations listed below. However, due to the January 15, 1996 filing deadline for Development Plan Amendment Applications with the City Planning Department, no responses were received for inclusion in the Draft EA previously published. However, discussions with the Planning Department were conducted on the project to identify possible concerns and significance of impacts.

Since the publishing of the Draft EA, early consultation comments were received from the parties identified below, and a copy of these letters along with responses are provided in Appendix A of this report. A total of 11 comment letters were received which are identified with a "Δ" next to them.

FEDERAL AGENCIES

Fish and Wildlife Service, U.S. Department of Interior

STATE AGENCIES

Department of Agriculture
Department of Health
Δ Department of Human Services
Δ Department of Land and Natural Resources (State Historic Preservation Division)
Δ Department of Transportation

CITY AND COUNTY OF HONOLULU AGENCIES

Department of Land Utilization
Δ Department of Parks and Recreation
Δ Department of Public Works
Department of Transportation Services
Δ Department of Wastewater Management
Δ Board of Water Supply
Δ Fire Department
Planning Department
Δ Police Department

COMMUNITY ORGANIZATIONS

Waianae Coast Neighborhood Board No. 24
Δ Makaha Valley Towers
Δ Makaha Valley Incorporated

8.2 DRAFT EA COMMENTS

The Draft EA, dated January 1996, was filed with the City Planning Department who subsequently filed the report with the State Office of Environmental Quality Control (OEQC). Notice of this Draft EA was initially published in the February 23, 1996 issue of OEQC's *Environmental Notice* initiating the 30-day public comment period. Copies of this Draft EA was distributed to the following agencies and community organizations for review and comment.

The deadline for receiving comments was March 26, 1996, and a total of 15 responses were received which are identified below with a "Δ" next to them.. Copies of these comment letters along with responses are included in Appendix A of this report.

FEDERAL AGENCIES

Δ Fish and Wildlife Service, U.S. Department of Interior

STATE AGENCIES

Department of Agriculture
Δ Department of Health
Department of Land and Natural Resources
Δ Department of Transportation
Environmental Center, University of Hawaii
Δ Land Use Commission
Office of Environmental Quality Control
Δ State Historic Preservation Division (Department of Land and Natural Resources)

CITY AND COUNTY OF HONOLULU AGENCIES

Δ Board of Water Supply
Δ Department of Land Utilization
Δ Department of Parks and Recreation
Δ Department of Public Works
Δ Department of Transportation Services
Δ Department of Wastewater Management
Δ Fire Department
Planning Department
Δ Police Department

COMMUNITY ORGANIZATIONS

- Δ Hawaiian Electric Company, Inc.
  Waianae Coast Neighborhood Board No. 24
- Δ Hawaiian Princess at Makaha Beach

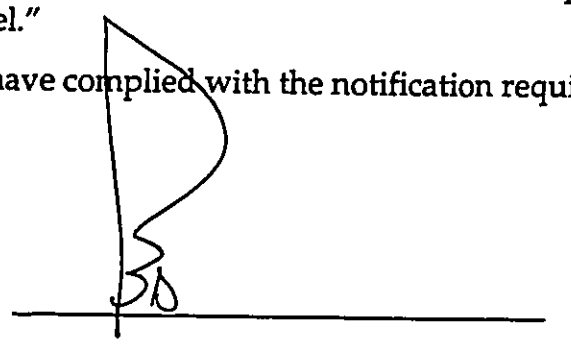
SECTION 9.0
NOTIFICATION REQUIREMENTS

In addition to the government agencies and community organizations listed under Section 8.0, applicable property owners, lessees, sub-lessees, and residents of property abutting the project site were notified of the proposed Development Plan Amendment request in accordance with Ordinance 84-111. These individuals or groups were notified prior to the filing and publishing of the Draft EA with OEQC.

Ordinance 84-111 states:

> "No application for Development Plan Land Use Map amendment shall be accepted for processing unless the applicant notifies, by mail, all owners, lessees, sub-lessees and residents of the affected property and of each abutting parcel."

I hereby certify that I have complied with the notification requirements of Ordinance 84-111.



William E. Wanket, President

SECTION 10.0
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APPENDICES

APPENDIX A

Agency And Community Consultation

APPENDIX A-1

Early Consultation
Comments And Responses

BENJAMIN J. CAYETANO
GOVERNOR

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

KATHLEEN G. STANLEY
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
1390 Miller Street
Honolulu, Hawaii 96813

February 22, 1996

William J. Dornbush, President
Dornbush & Co., Ltd.
3660 Waialae Ave., Suite 418
Honolulu, HI 96816

Dear Mr. Dornbush:

Subject: Waianae Development Plan Annual Review
(TMK: 8-4-02: 62)

Thank you for the opportunity to review this document. We have no comments to offer at this time.

Sincerely,

Kathleen G. Stanley

For Susan M. Chandler, M.S.W., Ph.D.
Director

DORNBUSH & CO., LTD.
Real Estate Consultants

3660 Waialae Avenue • Suite 418
Honolulu, Hawaii 96816
(808) 734-5279 • Fax: (808) 734-5964

William J. Dornbush, MAI, CRE
President

April 24, 1996

Dr. Susan M. Chandler, Director
Department of Human Services
State of Hawaii
1390 Miller Street
Honolulu, Hawaii 96813

Dear Dr. Chandler:

Re: **Makaha Retirement Community Commercial Project**

Thank you for your letter dated February 22, 1996 on the subject project. We note that your department has no comments on the proposed project.

We appreciate you assistance. Please give me a call at 734-5279 if you have any questions on this matter.

Sincerely,

DORNBUSH & CO., LTD.

Bill Dornbush

William J. Dornbush
President

WJD:gf
pc: William E. Wanket

B JAMIN 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

DEPUTY
GILBERT COLOMA-AGARAN

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

February 8, 1996

LOG NO: 16463 ✓
DOC NO: 9602EJ01

William J. Dornbush, President
Dornbush & Co., Ltd.
3660 Waialae Avenue, Suite 418
Honolulu, Hawaii 96816

Dear Mr. Dornbush:

SUBJECT: Waianae Development Plan Annual Review Development Plan Use Map Change for Commercial Development of Medical Facility and Convenience Retail Shopping Complex
Mākaha, Wai'anae, O'ahu TMK: 8-4-02:67

Thank you for the opportunity to comment on this project for the development of 14.975 acres for a medical facility and retail shopping complex. A review of our records shows that this area is within the site boundaries of site 50-80-07-776, a large complex of agricultural and habitation sites recorded in the late 1960s. However, aerial photos and an on-site inspection shows that this parcel has been graded and modified, most likely during the development of the Makaha resort, and it is unlikely that significant historic sites will be found. Therefore, we believe that this Plan Use Map change will have "no effect" on historic sites.

If you have any questions please call Elaine Jourdane at 587-0015.

Aloha,

Don Hibbard, Deputy
State Historic Preservation Officer

EJ:smf

DORNBUSH & CO., LTD.
Real Estate Consultants

3660 Waialae Avenue • Suite 418
Honolulu, Hawaii 96816
(808) 734-5279 • Fax: (808) 734-5964

William J. Dornbush, MAI, CRE
President

April 24, 1996

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

Dear Mr. Hibbard:

Re: **Makaha Retirement Community Commercial Project**

Thank you for your letter dated February 8, 1996 on the subject project. We note that your department believes the project will have "no effect" on historic sites.

We appreciate you assistance. Please give me a call at 734-5279 if you have any questions on this matter.

Sincerely,

DORNBUSH & CO., LTD.

Bill Dornbush

William J. Dornbush
President

WJD:gf
pc: William E. Wanket

DORNBUSH & CO., LTD.
Real Estate Consultants

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Honolulu, Hawaii 96816
(808) 734-5279 • Fax: (808) 734-5964

William J. Dornbush, MAI, CRE
President

April 24, 1996

Mr. Kazu Hayashida, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Hayashida:

Re: **Makaha Retirement Community Commercial Project**

Thank you for your letter dated January 23, 1996 on the subject project. A traffic impact study will be included with the Final Environmental Assessment to address your concerns.

We appreciate you assistance. Please give me a call at 734-5279 if you have any questions on this matter.

Sincerely,

DORNBUSH & CO., LTD.

Bill Dornbush

William J. Dornbush
President

WJD:gf
pc: William E. Wanket

BENJAMIN J. CAYETANO
GOVERNOR

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
JERRY M. MATSUDA
GLENN M. OKIMOTO

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

JAN 23 1996

IN REPLY REFER TO:

HWY-PS
2.8801

Mr. William J. Dornbush
President
Dornbush & Co., Ltd.
3660 Waialae Avenue, Suite 418
Honolulu, Hawaii 96816

Dear Mr. Dornbush:

Subject: (1) Environmental Assessment (EA) for Proposed Recreational Facilities Makaha, Hawaii, TMK: 4-8-02: 45

(2) Environmental Assessment (EA) for Proposed Medical Facility and Retail Shopping Complex Makaha, Hawaii, TMK: 4-8-02: 62

Thank you for requesting our comments. Your EAs should address the proposed development's impact on peak hour traffic, including turning movements, at the intersection of Kili Drive and Farrington Highway.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843
PHONE (808) 527-6180
FAX (808) 533-2714

February 5, 1996

Mr. William J. Dornbush
Dornbush & Co., Ltd.
3660 Waialae Avenue, Suite 418
Honolulu, Hawaii 96816

Dear Mr. Dornbush:

Subject: Your Letters of January 11 and 12, 1996 Regarding Waianae Development Plan Annual Review, TMK: 8-4-02: 45 and 62

We have no objections to the proposed amendment. We have the following comments:

1. The availability of water will be confirmed when the building permits or application for water service are submitted for our review and approval. When water is made available, the developer will be assessed our Water System Facilities Charges for resource development, transmission, and daily storage.

2. The use of drought tolerant/low water use plants should be considered along with xeriscaping principles for landscaping of the park for water conservation purposes. We also recommend the installation of an efficient irrigation system, possibly drip irrigation, that incorporates moisture sensors to avoid the operation of the system in the rain and if the ground has adequate moisture. Please contact the Conservation Section of our Planning and Engineering Division for information and assistance in implementing water conservation measures.

3. The project will be subject to our cross-connection control requirements prior to approval of the building permit application.

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

Very truly yours,

Raymond H. Sato

RAYMOND H. SATO
Manager and Chief Engineer

DORNBUSH & CO., LTD.
Real Estate Consultants

3660 Waialae Avenue • Suite 418
Honolulu, Hawaii 96816
(808) 734-5279 • Fax: (808) 734-5964

William J. Dornbush, MAI, CRE
President

April 24, 1996

Mr. Raymond H. Sato, Manager & Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Sato:

Re: **Makaha Retirement Community Commercial Project**

Thank you for your letter dated February 5, 1996 on the subject project. We note that you have no objections to the proposed project.

An application for water service will be submitted to your department for review and approval at the appropriate time, and facilities would be constructed in accordance with pertinent standards and building codes.

Please give me a call at 734-5279 if you have any questions on this matter.

Sincerely,

DORNBUSH & CO., LTD.

Bill Dornbush

William J. Dornbush
President

WJD:gf

pc: William E. Wanket

D .RTMENT OF PARKS AND RECREATIOI
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

:REMY HARRIS
MAYOR

DONA L. HANAIKE
DIRECTOR

ALVIN K.C. AU
DEPUTY DIRECTOR

January 31, 1996

Mr. William J. Dornbush
President
Dornbush & Company, Ltd.
3600 Waialae Avenue, Suite 418
Honolulu, Hawaii 96816

Dear Mr. Dornbush:

Subject: 1996 Waianae Development Plan Annual Amendment Review
Tax Map Key 8-4-02: 62

This responds to the subject proposed project for the 1996 Waianae Development Plan Annual Amendment Review (AAR).

We cannot, at this time, review or provide any substantial comments on the subject amendment based on the inadequate information that has been provided to us.

To better evaluate the impacts of your project, we request that a copy of your AAR land use application and environmental assessment be forwarded to our department for review.

Should you have any further questions on the matter, please contact Brian Suzuki of our Advance Planning Branch at 527-6316.

Sincerely,

For DONA L. HANAIKE
Director

DLH:ei

cc: Planning Department

We Add Quality to Life

DORNBUSH & CO., LTD.
Real Estate Consultants

3660 Waialae Avenue • Suite 418
Honolulu, Hawaii 96816
(808) 734-5279 • Fax: (808) 734-5964

William J. Dornbush, MAI, CRE
President

February 7, 1996

Dona L. Hanaike, Director
Department of Parks and Recreation
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Ms. Hanaike:

RE: **Makaha Valley Property/Tax Map Key 8-4-02:62**

In reponse to your request, we are enclosing a copy of our AAR Land Use Application and Environmental Assessment for your review.

Thank you for your consideration and assistance.

Sincerely,

DORNBUSH & CO., LTD.

William J. Dornbush
President

WJD:gf
Enclosures

pc: Bill Wanket (w/o enclosures) ✓

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR

KENNETH E. SPRAGUE
DIRECTOR AND CHIEF ENGINEER

IN REPLY REFER TO:

96-14-0083

January 29, 1996

Mr. William J. Dornbush
Dornbush & Co., Ltd.
3660 Waialae Avenue, Suite 418
Honolulu, Hawaii 96816

Dear Mr. Dornbush:

Subject: Your Letter of January 11, 1996, Relating to a Waianae Development Plan Annual Review, Tax Map Key: 8-4-02: 62

We have the following comments in response to your letter regarding the subject matter.

ENGINEERING:

Address water quality, including erosion and sediment control during construction, and minimizing discharge of pollutants after construction is completed. Should there be any questions, please contact Gerald Takayesu at extension 6104.

Frontage improvements based on land use in accordance with City standards and the Americans with Disabilities Act Accessibility Guidelines shall be required. A minimum 24-foot wide pavement from the main road to the project site will be required. Adequate onsite parking must be provided. Should there be any questions, please contact Faith Kunimoto at extension 5084.

REFUSE COLLECTION:

Refuse collection for this business venture should be provided by a private rubbish hauler. Should there be any questions, please contact David Shiraishi at extension 5697.

Very truly yours,

KENNETH E. SPRAGUE
Director and Chief Engineer

DE RTMENT OF WASTEWATER MANAGEM:
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR

FELIX B. LIMTIACO, P.E.
DIRECTOR

CHERYL K. OKUMA-SEPE, ESQ.
DEPUTY DIRECTOR

In reply refer to:
WCC 96-12

January 29, 1996

Mr. William J. Dornbush, President
Dornbush & Co., Ltd.
Real Estate Consultants
3660 Waialae Avenue, Suite 418
Honolulu, Hawaii 96816

Dear Mr. Dornbush:

Subject: **Waianae Development Plan Annual Review**
15 Acre Medical Facility and Convenience Retail Shopping Complex
TMK: 8-4-002:062

Please refer to your letter of January 11, 1996, requesting a connection for the proposed Medical Facility and Convenience Shopping Complex on parcel TMK 8-4-002:062 in Makaha. The municipal sewer system is available and adequate. This statement shall not be construed as confirmation of sewage capacity reservation. Sewage capacity reservation is contingent on submittal and approval of a "Sewer Connection Application" form. Also, this project is liable for payment of a Wastewater System Facility Charge.

If you have any questions, please contact Ms. Tessa Yuen of the Service Control Branch at 523-4956.

Very truly yours,

Cheryl K. Okuma-Sepe

for FELIX B. LIMTIACO
Director

DORNBUSH & CO., LTD.
Real Estate Consultants

3660 Waialae Avenue • Suite 418
Honolulu, Hawaii 96816
(808) 734-5279 • Fax: (808) 734-5964

William J. Dornbush, MAI, CRE
President

April 24, 1996

Mr. Felix B. Limtiaco, Director
Department of Wastewater Management
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Limtiaco:

Re: **Makaha Retirement Community Commercial Project**

Thank you for your letter dated January 29, 1996 on the subject project. We note that your department has determined that the municipal sewer system is available and adequate to serve the subject project. A Sewer Connection Application will be submitted at the appropriate time.

We appreciate you assistance. Please give me a call at 734-5279 if you have any questions on this matter.

Sincerely,

DORNBUSH & CO., LTD.

Bill Dornbush

William J. Dornbush
President

WJD:gf
pc: William E. Wanket

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H425
HONOLULU, HAWAII 96819-1869

JEREMY HARRIS
MAYOR

ANTHONY J. LOPEZ, JR.
FIRE CHIEF

ATTILIO K. LEONARDI
FIRE DEPUTY CHIEF

February 26, 1996

Mr. William J. Dornbush, President
Dornbush & Company, Limited
3660 Waialae Avenue, Suite 418
Honolulu, Hawaii 96816

Dear Mr. Dornbush:

SUBJECT: Waianae Development Plan Annual Review
Tax Map Keys 8-4-02-45 and 8-4-02-62

We have reviewed the applications for the above subjects. Fire protection services provided from Waianae and Nanakuli engine companies with ladder service from Waianae are adequate. We have no objections to the proposed projects.

Access for fire apparatus, water supply and building construction shall be in conformance to existing codes and standards.

Thank you for the opportunity to comment on these projects.

Should you have any questions, please call Assistant Chief Arthur Ugalde of our Administrative Services Bureau at 831-7774.

Sincerely,

ANTHONY J. LOPEZ, JR.
Fire Chief

AJL/TKP:ny

DORNBUSH & CO., LTD.
Real Estate Consultants

3660 Waialae Avenue • Suite 418
Honolulu, Hawaii 96816
(808) 734-5279 • Fax: (808) 734-5964

William J. Dornbush, MAI, CRE
President

April 24, 1996

Mr. Anthony J. Lopez, Jr., Fire Chief
Fire Department
City and County of Honolulu
3375 Koapaka Street, Suite H425
Honolulu, Hawaii 96819-1869

Dear Mr. Lopez:

Re: **Makaha Retirement Community Commercial Project**

Thank you for your letter dated February 26, 1996 on the subject project. We note that your department has no objections to the proposed project. The project would be developed in conformance to existing building codes and standards.

We appreciate you assistance. Please give me a call at 734-5279 if you have any questions on this matter.

Sincerely,

DORNBUSH & CO., LTD.

Bill Dornbush

William J. Dornbush
President

WJD:gf
pc: William E. Wanket

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111

JEREMY HARRIS
MAYOR

MICHAEL S. NAKAMURA
CHIEF

HAROLD M. KAWASAKI
LEE DONOHUE
DEPUTY CHIEFS

OUR REFERENCE BS-DL

January 16, 1996

Mr. William J. Dornbush
President
Dornbush & Co., Ltd.
3660 Waialae Avenue, Suite 418
Honolulu, Hawaii 96816

Dear Mr. Dornbush:

This is in response to your letter of January 11, 1996, requesting comments on an amendment application to the City and County of Honolulu's Waianae Development Plan Land Use Map, Tax Map Key 8-4-02-62.

This project should have no significant impact on the operations of the Honolulu Police Department.

Thank you for the opportunity to comment.

Sincerely,

MICHAEL S. NAKAMURA
Chief of Police

By Eugene Uemura
EUGENE UEMURA, Assistant Chief
Administrative Bureau

DORNBUSH & CO., LTD.
Real Estate Consultants

3660 Waialae Avenue • Suite 418
Honolulu, Hawaii 96816
(808) 734-5279 • Fax: (808) 734-5964

William J. Dornbush, MAI, CRE
President

April 24, 1996

Mr. Michael S. Nakamura, Chief of Police
Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Nakamura:

Re: **Makaha Retirement Community Commercial Project**

Thank you for your letter dated January 16, 1996 on the subject project. We note your comment that the project should not have a significant impact on your department's operations.

We appreciate you assistance. Please give me a call at 734-5279 if you have any questions on this matter.

Sincerely,

DORNBUSH & CO., LTD.

Bill Dornbush

William J. Dornbush
President

WJD:gf
pc: William E. Wanket

Makaha Valley, Incorporated
Suite 1700 • PRI Tower
733 Bishop Street
P.O. Box 2668 • Honolulu, Hawaii 96803
Phone: (808) 537-3981 • FAX: (808) 523-3025

January 16, 1996

William J. Dornbush, President
Dornbush & Co., Ltd.
3660 Waialae Avenue, Suite 418
Honolulu, Hawaii 96816

Dear Bill:

Re: Tax Map Key 8-4-02-62: Waianae Development Plan Annual Review

We have no objections or comments to the proposed amendment to the Waianae Development Plan Land Use Map for the 15-acre parcel. The proposed use as a medical facility and convenience retail shopping complex would only be a service to the valley residents.

Very truly yours,

Stuart T.K. Ho
President

STKH:ahh

DORNBUSH & CO., LTD.
Real Estate Consultants

3660 Waialae Avenue • Suite 418
Honolulu, Hawaii 96816
(808) 734-5279 • Fax: (808) 734-5964

William J. Dornbush, MAI, CRE
President

April 24, 1996

Mr. Stuart T. K. Ho, President
Makaha Valley, Incorporated
PRI Tower, Suite 1700
733 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Ho:

Re: **Makaha Retirement Community Commercial Project**

Thank you for your letter dated January 16, 1996 on the subject project.

We appreciate your continued assistance. Please give me a call at 734-5279 if you have any questions on this matter.

Sincerely,

DORNBUSH & CO., LTD.

Bill Dornbush

William J. Dornbush
President

WJD:gf
pc: William E. Wanket

Makaha
Valley Towers

84-740 Kili Drive
Waianae, Hawaii 96792
(808) 695-9568
FAX (808) 695-7201

January 26, 1996

Mr. William Dornbush
Dornbush & Company Ltd.
Real Estate Consultants
3680 Waialae Avenue Suite 418
Honolulu, Hawaii 96816

Dear Bill:

It was indeed a pleasure having lunch with you and Landis Ornellas on Tuesday bringing us up to date on the HRT Development Plans. Based on the information you presented it is quite obvious that much thought, money and time has already been spent on the proposed project. Of course there is still much to be done before the project can start taking shape and come to life.

I plan to review the proposal with the Makaha Valley Towers Board of Directors in an informal gathering on Monday, January 29, 1996.

During your visit to the valley on Tuesday we surveyed the property in an attempt to pin point location of the proposed commercial development and the proposed recreational facilities. In addition we discussed the present condition of Kili Drive and its maintenance. After some discussion it is my understanding that Landis Ornellas now has the go ahead to keep Kili Drive clear of all rubbish and well groomed as needed. With the winter rains the grass has grown completely out of control so it will take some doing to keep up with it. However come spring, summer and fall the rains are quite scarce so cutting of grass and weeds will be at a minimum. The improved appearance of Kili Drive is most certainly going to put all the people in the valley in a much happier mood. Bill, I can't thank you enough for your cooperation; and honest concern for improving the appearance of Kili Drive and the impact it will have on the valley as a whole. Will be talking to you soon.

Sincerely,

Louis Garcia
President, Board of Directors

cc; Landis Ornellas

DORNBUSH & CO., LTD.
Real Estate Consultants

3660 Waialae Avenue • Suite 418
Honolulu, Hawaii 96816
(808) 734-5279 • Fax: (808) 734-5964

William J. Dornbush, MAI, CRE
President

April 24, 1996

Mr. Henry Jaran, President
Board of Directors
Makaha Valley Towers
84-740 Kili Drive
Waianae, Hawaii 96792

Dear Mr. Jaran:

Re: **Makaha Retirement Community Commercial Project**

We want to thank you for Mr. Garcia's letter dated January 26, 1996 on the subject project. We appreciate your cooperation and will continue coordinating with your Board on the progress of this important project.

Please give me a call at 734-5279 if you have any questions on this matter.

Sincerely,

DORNBUSH & CO., LTD.

Bill Dornbush

William J. Dornbush
President

WJD:gf

pc: William E. Wanket

APPENDIX A-2

Draft EA
Comments And Responses

United States Department of the Interior

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

In Reply Refer To: AAP

Mr. Patrick T. Onishi
Department of Land Utilization
Zoning District Changes Branch
650 South King Street, 8th floor
Honolulu, Hawaii 96813

MAR 04 1996

Re: Technical Assistance Request for a Proposed Zone Change from Agricultural to Preservation for an Outdoor Recreational Facility (TMK: 8-4-02:45) and Preparation of an Environmental Assessment for a Medical Facility and Commercial Development (TMK: 8-4-02:62) in Makaha, Oahu, Hawaii

Dear Mr. Onishi:

The U.S. Fish and Wildlife Service (Service) has reviewed a technical assistance request for two potential project developments in Makaha, Oahu, Hawaii. The consulting firm of Dornbush & Co. LTD. provided a brief description of a client's intent to apply for a zone change from Agricultural to Preservation to create an outdoor recreational facility upon a 9-hectare [ha] (22.25- acre [ac]) land parcel. The consultant's client also intends to prepare an Environmental Assessment (EA) for a proposed medical and convenience retail shopping complex upon a separate 6-ha (14. 9- ac) parcel. The proposed developments may serve the existing community and potential retired residents in the area. The Service offers the following comments for your consideration.

Although the affected sites lack wetlands and do not provide essential habitat for rare, threatened, or endangered species, we are concerned with potential impacts to seabirds, such as wedge-tailed shearwaters (*Puffinus pacificus*), that may traverse through the vicinity of the project areas. The Service is concerned that buildings or other facilities that may be constructed on these parcels may increase seabird "fallout" (collision with structures brought on by attraction to and disorientation from bright lights). Fallout primarily begins during the nesting season (summer) but increases significantly during the fledgling season (fall). The majority of fallout occurs at night and involves juvenile birds that are making their initial flight from nesting colonies to the sea. Major fallout areas for individual species correspond to flight paths from nesting colonies to the sea.

If there is a large increase in the number of lights in the area from the anticipated urban development, bright lighting from the proposed golf course / driving range and the medical / commercial complex buildings may increase fallout of these federally protected birds. To minimize the potential impacts of proposed lighting for the facilities, the Service recommends that outside lights be shielded and aimed downward.

For additional information on measures that may be employed to minimize the effects of lighting on shearwaters and other seabirds, please refer to the enclosed pamphlet entitled "The Newell's Shearwater Light Attraction Problem: A Guide for Architects, Planners, and Resort Managers," which is also available from the Hawaii State Department of Land and Natural Resources.

Provided that the above recommendation for shielded lights is incorporated into the project design for both parcels, we will not object to the proposed zone change and construction of the outdoor recreational facility and medical / shopping complex.

We appreciate the opportunity to comment on the above-mentioned proposals, and we look forward to reviewing other projects provided by your office. If you have questions regarding these comments, please contact Fish and Wildlife biologist Arlene Pangelinan at 808/541-3441.

Sincerely,

Brooks Harper

Brooks Harper
Field Supervisor
Ecological Services

enclosure

cc: Dornbush & Co., LTD. w/ enclosure

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 9, 1996

Mr. Brooks Harper, Field Supervisor
Ecological Services
Fish and Wildlife Service
U.S. Department of Interior
300 Ala Moana Boulevard, Room 3108
Honolulu, Hawaii 96813

Dear Mr. Harper:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated January 29, 1996 on the Draft Environmental Assessment prepared for the subject project. We note your concerns with night lighting associated with the commercial project possibly affecting seabirds which may traverse the project vicinity. To address your concerns, lighting for the parking lot and commercial buildings, as applicable, would be appropriately designed and shielded to prevent them from affecting seabirds.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

LAWRENCE MIIKE
DIRECTOR OF HEALTH

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

In reply, please refer to

May 2, 1996

96-015/epo

Mr. William E. Wanket
President, William E. Wanket Inc.
1001 Kamokila Boulevard
Kapolei Building, Suite 320
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Subject: Waianae Development Plan Amendment and Draft Environmental Assessment
Potential Medical Facility and Retail Shopping Complex
15 Acres Along Kili Drive
Makaha, Waianae
TMK: 8-4-02: 62

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

Wastewater

Approximately 90 percent of this proposed project lies within the Board of Water Supply's "No Pass Zone," which means we would recommend approval of this project only if it can be connected to the County's sewer system.

The developer should work closely with the County to assure the availability of additional treatment capacity and adequacy for the project. Non-availability of treatment capacity will not be an acceptable justification for use of any private treatment works.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." However, we do reserve the right to review the detailed wastewater plans for conformance to applicable rules.

Should you have any questions, please contact Ms. Lori Kajiwara of the Wastewater Branch at telephone 586-4294.

Solid Waste

The City and County of Honolulu is working to achieve a recycling and diversion goal of 50 percent of its waste stream by the year 2000. Presently, trucks with large quantities of yard trimmings and corrugated cardboard are banned from its disposal facilities, and so recycling must be an element of any new development. Commercial retail establishments produce a large volume of corrugated cardboard. The Department of Health requests that the developer commit to providing space for the collection of recyclable materials within the commercial development.

Furthermore, we request that the developer commit to incorporating locally produced compost for soil amendment and landscaping purposes, as well as using recycled content building materials whenever possible. Glasphalt may be used for paving purposes, and recycled plastic lumber may be used as a weather resistant building material.

Should you have any questions on this matter, please contact Ms. Carrie McCabe of the Office of Solid Waste Management at 586-4243.

Sincerely,

LAWRENCE MIIKE
Director of Health

c: WWB
Mr. William Dornbush

OSWM
Ms. Cheryl Soon

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 10, 1996

Dr. Lawrence Miike, Director
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Dr. Miike:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated May 2, 1996 on the Draft Environmental Assessment prepared for the subject project. Although postmarked after the 30-day comment period, we will include your letter in the Final Environmental Assessment.

The project's wastewater system is planned to be connected with the City's municipal sewer system, and a Sewer Connection Application will be submitted at the appropriate time. In addition, a City Department of Wastewater Management's letter, dated February 26, 1996, determined that the municipal sewer system is available and adequate to serve the subject project. Wastewater infrastructure improvements will conform to applicable rules and regulations.

Space within the commercial project for the collection of recyclable materials will be considered in the design of the development. The use of locally produced compost for soil amendment and landscaping, recycled content building materials, and other recycled products identified in you letter will be considered during the final design and construction of the commercial project.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515. Thanks.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

February 28, 1996

Mr. William E. Wanket
William E. Wanket, Inc.
Kapolei Building, Suite 320
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

LOG NO: 16556 ✓
DOC NO: 9602EJ38

Dear Mr. Wanket:

SUBJECT: **Development Plan Land Use Amendment Application and Draft Environmental Assessment for Makaha Retirement Community Commercial Project**
Mākaha, Wai'anae, O'ahu
TMK: 8-4-02:62

We commented to William J. Dornbush, President, Dornbush & Co., Ltd. on the development plan use map change for this project. Our comments consisted of the following:

> Thank you for the opportunity to comment on this project for the development of 14.975 acres for a medical facility and retail shopping complex. A review of our records shows that this area is within the site boundaries of site 50-80-07-776, a large complex of agricultural and habitation sites recorded in the late 1960s. However, aerial photos and an on-site inspection shows that this parcel has been graded and modified, most likely during the development of the Makaha resort, and it is unlikely that significant historic sites will be found. Therefore, we believe that this Plan Use Map change will have "no effect" on historic sites.

If you have any questions please call Elaine Jourdane at 587-0015.

Aloha,

Don Hibbard, Administrator
State Historic Preservation Officer

EJ:smf

cc: Cheryl Soon, Chief Planning Officer
Planning Department, City and County of Honolulu

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 9, 1996

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

Dear Mr. Hibbard:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated February 28, 1996 on the Draft Environmental Assessment prepared for the subject project. We note that your department believes the project will have "no effect" on historic sites.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

BENJAMIN J. CAYETANO
GOVERNOR

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
JERRY M. MATSUDA
GLENN M. OKIMOTO

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

MAR 20 1996

IN REPLY REFER TO:

HWY-PS
2.9494

Mr. William E. Wanket
William E. Wanket, Inc.
Kapolei Building, Suite 320
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Subject: Development Plan Land Use Amendment Application and Draft Environmental Assessment (EA) for Makaha Retirement Community Commercial Project Waianae, Hawaii; TMK: 8-4-02: 62

Thank you for requesting our review of the Draft EA. We have the following comments:

1. We have no plans to widen Farrington Highway at its intersection with Kili Drive.

2. Your EA needs to quantify the proposed development's impact on peak hour traffic, including turning movements, at the intersection of Kili Drive and Farrington Highway.

3. Construction plans for any work within the Farrington Highway right-of-way must be submitted for our review and approval.

Very truly yours,

for KAZU HAYASHIDA
Director of Transportation

Enclosure

DIR 0098

HWY-PS
2.8801

JAN 23 1996

Mr. William J. Dornbush
President
Dornbush & Co., Ltd.
3660 Waialae Avenue, Suite 418
Honolulu, Hawaii 96816

Dear Mr. Dornbush:

Subject: (1) Environmental Assessment (EA) for Proposed Recreational Facilities Makaha, Hawaii, TMK: 4-8-02: 45

(2) Environmental Assessment (EA) for Proposed Medical Facility and Retail Shopping Complex Makaha, Hawaii, TMK: 4-8-02: 62

Thank you for requesting our comments. Your EAs should address the proposed development's impact on peak hour traffic, including turning movements, at the intersection of Kili Drive and Farrington Highway.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 9, 1996

Mr. Kazu Hayashida, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Hayashida:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated March 20, 1996 on the Draft Environmental Assessment prepared for the subject project. Your comments on Farrington Highway are noted.

The Final Environmental Assessment will include a traffic study which addresses your concerns with the intersection of Farrington Highway with Kili Drive. Any improvements necessary within the State's Farrington Highway right-of-way would be coordinated as appropriate with your department.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515. Thanks.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

BENJAMIN J. CAYETANO
GOVERNOR

ESTHER UEDA
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
Room 104, Old Federal Building
335 Merchant Street
Honolulu, Hawaii 96813
Telephone: 587-3822

February 20, 1996

Mr. William E. Wanket
William E. Wanket Inc.
Kapiolani Building, Suite 320
1001 Kamokila Blvd.
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Subject: Development Plan Land Use Amendment Application and Draft Environmental Assessment for the Makaha Retirement Community Commercial, Waianae, Oahu

We have reviewed the subject document transmitted by your letter dated February 12, 1996.

Based upon our review of the location map, the northern boundary of the project site appears to be in close proximity to the State Land Use Conservation District. To ensure that the project site includes only those lands within the State Land Use Urban District, we suggest that a boundary interpretation request be submitted to our office to determine the location of the project site's boundary in relation to the State Land Use Conservation District boundary.

We have no further comments to offer at this time. We appreciate the opportunity to comment on this matter.

Should you have any questions, please feel free to call me or Bert Saruwatari of our office at 587-3822.

Sincerely,

ESTHER UEDA
Executive Officer

EU:th

cc: Cheryl Soon
OEQC

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 9, 1996

Ms. Esther Ueda, Executive Officer
Land Use Commission
Department of Business, Economic Development, and Tourism
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804-2359

Dear Ms. Ueda:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated February 20, 1996 on the Draft Environmental Assessment (EA) prepared for the subject project.

The project site is intended to be located entirely within the State's Urban District boundary. As shown on Figure 2.1, Site Development Plan, of the Draft EA, the commercial and medical facilities would not be developed up to the property line bordering the Conservation District boundary. A boundary interpretation request would be submitted to your department when rezoning for the project is sought.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET

HONOLULU, HAWAII 96843

PHONE (808) 527-6180

FAX (808) 533-2714

February 28, 1996

Mr. William E. Wanket
William E. Wanket, Inc.
Kapolei Building, Suite 320
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Subject: Your Letter of February 12, 1996 Regarding the Development Plan Land Use Amendment Application and Draft Environmental Assessment (DEA) for the Makaha Retirement Community Commercial Project

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

We have the following comments to offer:

1. There are no existing water services to the subject property.
2. The existing water system is presently adequate to accommodate the proposed development.
3. The availability of water will be confirmed when the building permit application is submitted for our review and approval.
4. The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.
5. If a three-inch or larger meter is required, the construction drawings showing the installation of the meter should be submitted for our review and approval.
6. The proposed project is subject to Board of Water Supply cross-connection control requirements prior to the issuance of the building permit application.

If there are any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

RAYMOND H. SATO
Manager and Chief Engineer

cc: Cheryl D. Soon, Chief Planning Officer
Planning Department

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 9, 1996

Mr. Raymond H. Sato, Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Sato:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated February 28, 1996 on the Draft Environmental Assessment prepared for the subject project.

Necessary water system facilities would be constructed on the site to serve the proposed commercial project. We note your comment that the existing water system is adequate to serve the project. On-site fire protection requirements will be coordinated with the Fire Department.

An application for water service along with necessary plans will be submitted to your department for review and approval at the appropriate time. Facilities would be constructed in accordance with pertinent standards and building codes. For water conservations purposes, the use of drought tolerant plants and xeriscape principles for landscaping will also be considered.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515. Thanks.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432

JEREMY HARRIS
MAYOR

PATRICK T. ONISHI
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

96-00899(DT)
'96 EA Comments Zone 8

March 22, 1996

Mr. William E. Wanket
William E. Wanket, Inc.
Kapolei Building, Suite 320
1001 Kamokila Blvd.
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Draft Environmental Assessment (EA)
Makaha Retirement Community Center
New Medical Facility and Retail Shopping Complex
Tax Map Key: 8-4-2: 62

This is in response to your letter dated February 12, 1996, requesting comments for the above-described project. We have the following comments:

1. Alternative sites should be discussed in the Final EA. Was a suitable property along Farrington Highway considered for the project?

2. Copies of correspondence received from other agencies, groups or interested parties during the 30-day Draft EA consultation period should be included in the Final EA. Your response to these comment letters should be included in the Final EA.

3. The Draft EA mentions that the project will increase surface runoff due to the construction of impervious surfaces, such as roads and buildings. A topographic map clearly showing elevation contours should be included so that we can analyze the drainage pattern on the project site. Existing elevation contours should be shown with dotted lines, while final elevation contours should be shown with solid lines.

Thank you for the opportunity to comment. If you have any questions regarding the UA, please call Mr. Mike Friedel of our Monitoring and Compliance Branch at 527-5873. Any other questions you may have regarding this letter may be answered by Ms. Dana Teramoto of our staff at 523-4648.

Very truly yours,

PATRICK T. ONISHI
Director of Land Utilization

PTO:dt

cc: Planning Department

9600899.djt

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 9, 1996

Mr. Patrick T. Onishi, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Onishi:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated March 22, 1996 on the Draft Environmental Assessment (EA) prepared for the subject project.

In response to your concern with alternative sites, there were no other suitable sites along Farrington Highway which would sufficiently achieve the project's objectives. The project site's location was selected because it would be conveniently located along Kili Drive and easily accessible to future residents of the retirement community planned for development along this street. Consequently, the project's medical facility would be centrally located for these residents and serves as an important element in the residential community's feasibility. Finally, other sites along Farrington Highway in the general vicinity are already utilized and would require these medical and commercial facilities to be situated near the tsunami inundation area.

Copies of all comments received during the 30-day consultation period along with responses will be included in the Final Environmental Assessment. Figure 2.1, Site Development Plan, of the Draft EA shows the finished elevations for the conceptual site plan, however, a topographic map of the present site will be included in the Final EA. More detailed design plans along with appropriate maps would be prepared when rezoning for the site is sought.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515. Thanks.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

'ARTMENT OF PARKS AND RECREATI

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR

DONA L. HANAIKE
DIRECTOR

ALVIN K.C. AU
DEPUTY DIRECTOR

February 26, 1996

Mr. William E. Wanket, President
William E. Wanket Inc.
1001 Kamokila Boulevard, Suite 320
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Subject: Development Plan Land Use Amendment Application and Draft Environmental Assessment for the Proposed Makaha Retirement Community Commercial Development Project, Waianae, Oahu, Hawaii
Tax Map Key 8-4-002:062

This is in response to your February 12, 1996 letter and transmittal of the above-described report requesting our review and comments.

We have reviewed the report and note that the project does not have any requirements for our department.

Thank you for the opportunity to review the project.

Should you have any questions, please contact Lester Lai of our Advance Planning Branch at 523-4696.

Sincerely,

For DONA L. HANAIKE
Director

DLH:ei

cc: Planning Department

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 9, 1996

Ms. Dona L. Hanaike, Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Ms. Hanaike:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated February 26, 1996 on the Draft Environmental Assessment prepared for the subject project. We note your comment that the project would not have any requirements from your department.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515. Thanks.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR

KENNETH E. SPRAGUE
DIRECTOR AND CHIEF ENGINEER

IN REPLY REFER TO:

96-14-0204

March 21, 1996

Mr. William E. Wanket
William E. Wanket, Inc.
Kapolei Building, Suite 320
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Subject: Your Letter of February 12, 1996, Relating to a Development Plan Public Facilities Map Amendment for Makaha Retirement Community Commercial, TMK: 8-4-2: 62

We have the following comments in response to your letter regarding the subject matter.

ENGINEERING:

Frontage improvements based on land use in accordance with City standards and the Americans with Disabilities Act Accessibility Guidelines shall be required. A minimum 24-foot wide pavement from the main road to the project site will be required. Adequate on-site parking must be provided. Should there be any questions, please contact Faith Kunimoto at 527-5084.

REFUSE COLLECTION:

None.

Very truly yours,

KENNETH E. SPRAGUE
Director and Chief Engineer

cc: Planning Department

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 9, 1996

Mr. Kenneth E. Sprague, Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Sprague:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated March 21, 1996 on the Draft Environmental Assessment prepared for the subject project.

Frontage improvements required for the commercial project would be constructed in conformance to both the City and the Americans with Disabilities Act standards. A 24-foot-wide pavement from the main road to the site will be provided. In addition, required off-street parking for each development will be provided in conformance to the Land Use Ordinance.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA
711 KAPIOLANI BOULEVARD, SUITE 1200
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR

CHARLES O. SWANSON
DIRECTOR

2/96-00763R

March 25, 1996

Mr. William E. Wanket
William E. Wanket, Inc.
Kapolei Building, Suite 320
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Subject: Development Plan Land Use Amendment Application and Draft Environmental Assessment for Makaha Retirement Community Commercial Project

In response to your letter dated February 12, 1996, the subject document was reviewed. We are concerned about the adequacy of Kili Drive to support the traffic generated by the proposed project and the outdoor recreational facility. It is our understanding that only one-half of the designed four-lane thoroughfare is improved. A traffic impact assessment that also addresses neighboring uses such as the planned retirement community should be provided with future submittals. Upon review of the assessment, we will be able to provide specific comments on the type of improvements required to support the project.

Should you have any questions regarding these comments, please call Faith Miyamoto of the Transportation System Planning Division at 527-6976.

Respectfully,

for CHARLES O. SWANSON
Director

cc: Cheryl Soon, Planning Department

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 9, 1996

Mr. Charles O. Swanson, Director
Department of Transportation Services
City and County of Honolulu
Pacific Park Plaza, Suite 1200
711 Kapiolani Boulevard
Honolulu, Hawaii 96813

Dear Mr. Swanson:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated March 25, 1996 on the Draft Environmental Assessment (EA) prepared for the subject project.

A traffic study will be included with the Final Environmental Assessment which should address your concerns. Further project details and necessary roadway improvements would be identified and provided to your department for review when rezoning for the site is sought.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

DEPARTMENT OF WASTEWATER MANAGEMENT
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR

FELIX B. LIMTIACO
DIRECTOR

CHERYL K. OKUMA-SEPE
DEPUTY DIRECTOR

In reply refer to:
WCC 96-24

February 26, 1996

Mr. William E. Wanket, President
William E. Wanket, Inc.
Kapolei Building, Suite 320
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Subject: **Development Plan Land Use Amendment Application and Draft Environmental Assessment for Makaha Retirement Community Commercial TMK: 8-4-02: 62**

Please reference the subject document, dated January 1996, regarding connection for the proposed Medical Facility and Convenience Shopping Complex on Parcel TMK: 8-4-02: 62 in Makaha. The municipal sewer system is available and adequate. This statement shall not be construed as confirmation of sewage capacity reservation. Sewage capacity reservation is contingent on submittal and approval of a "Sewer Connection Application" form. Also, this project is liable for payment of a Wastewater System Facility Charge.

If you have any questions, please contact Ms. Tessa Yuen of the Service Control Branch at 523-4956.

Very truly yours,

Cheryl K. Okuma-Sepe

FELIX B. LIMTIACO
Director

cc: Ms. Cheryl Soon, Chief Planning Officer
Planning Department

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 9, 1996

Mr. Felix B. Limtiaco, Director
Department of Wastewater Management
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Limtiaco:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated February 26, 1996 on the Draft Environmental Assessment prepared for the subject project. We note that your department has determined that the minicipal sewer system is available and adequate to serve the subject project. A Sewer Connection Application will be submitted at the appropriate time.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H425
HONOLULU, HAWAII 96819-1869

JEREMY HARRIS
MAYOR

ANTHONY J. LOPEZ, JR.
FIRE CHIEF

ATTILIO K. LEONARDI
FIRE DEPUTY CHIEF

February 26, 1996

Mr. William E. Wanket
William E. Wanket, Inc.
Kapolei Building, Suite 320
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Wanket:

SUBJECT: Development Plan Land Use Amendment Application and Draft Environmental Assessment for the Makaha Retirement Community Commercial Project Waianae, Oahu

We have reviewed the subject material provided and foresee no adverse impact in Fire Department facilities or services. Fire protection services provided from Waianae and Nanakuli engine companies with ladder service from Waianae are adequate.

Access for fire apparatus, water supply and building construction shall be in conformance to existing codes and standards.

Should you have any questions, please call Assistant Chief Arthur Ugalde of our Administrative Services Bureau at 831-7774.

Sincerely,

ANTHONY J. LOPEZ, JR.
Fire Chief

AJL/TKP:ny

cc: Planning Department (Cheryl Soon)

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 9, 1996

Mr. Anthony J. Lopez, Jr., Fire Chief
Fire Department
City and County of Honolulu
3375 Koapaka Street, Suite H425
Honolulu, Hawaii 96819-1869

Dear Mr. Lopez:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated February 26, 1996 on the Draft Environmental Assessment (EA) prepared for the subject project.

We note that fire protection services in the area is adequate, and you foresee no adverse impact to your department's facilities or services resulting from the proposed project. The project would be developed in conformance to existing building codes and standards.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111

JEREMY HARRIS
MAYOR

MICHAEL S. NAKAMURA
CHIEF

HAROLD M. KAWASAKI
LEE DONOHUE
DEPUTY CHIEFS

OUR REFERENCE BS-DL

March 14, 1996

Mr. William E. Wanket
President
William E. Wanket Inc.
Kapolei Building, Suite 320
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Wanket:

We have received your letter dated February 12, 1996, concerning the Development Plan Land Use Amendment Application and Draft Environmental Assessment for the Makaha Retirement Community Commercial project.

This amendment/assessment should have no significant impact on the operations of the Honolulu Police Department.

Thank you for the opportunity to comment.

Sincerely,

MICHAEL S. NAKAMURA
Chief of Police

By Eugene Uemura
EUGENE UEMURA, Assistant Chief
Administrative Bureau

cc: Ms. Cheryl Soon
Planning Dept.

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 9, 1996

Mr. Michael S. Nakamura, Chief of Police
Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Nakamura:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated March 14, 1996 on the Draft Environmental Assessment prepared for the subject project. We note your comment that the project should not have a significant impact on your department's operations.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

William A. Bonnet
Manager
Environmental Department

March 1, 1996

Mr. William E. Wanket
William E. Wanket, Inc.
Kapolei Building, Suite 320
1001 Kamokila Blvd.
Kapolei, HI 96707

Dear Mr. Wanket:

Subject: **Makaha Retirement Community Commrecial Project**

Thank you for the opportunity to comment on your January 1996 Draft Environmental Assessment report for the Makaha Retirement Community Commrecial Project, as proposed by HRT, Ltd. We have reviewed the subject document and have no comments at this time on the proposed project. HECO shall reserve further comments pertaining to the protection of existing powerlines bordering the project area until construction plans are finalized. Again, thank you for the opportunity to comment on this Draft Environmental Assessment.

Sincerely,

cc. Ms. Cheryl Soon
Chief Planning Officer
Planning Department
City & County of Honolulu
650 South King Street
Honolulu, HI 96813

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 9, 1996

Mr. William A. Bonnet, Manager
Environmental Department
Hawaiian Electric Company, Inc.
P.O. Box 2750
Honolulu, Hawaii 96840-0001

Dear Mr. Bonnet:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated March 1, 1996 on the Draft Environmental Assessment prepared for the subject project. We note that you have no comments on the project at this time.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

Hawaiian Princess at Makaha Beach #1302
84-1021 Lahialhi Street
Waianae, Hawaii 96792
March 18, 1996

HRT Ltd
3660 Waialae Avenue
Honolulu, Hawaii 96816

Re: Makaha Retirement Community Commercial Project

Sirs:

I am writing in support of the above described project.

My wife and I reside in a large condominium in Makaha where many of the residents and visitors are also senior citizens. We feel that having a nearby medical facility and retail outlets perhaps even a restaurant would certainly be a positive addition to the community.

Sincerely,

Frank D Slocum

Frank D Slocum

cy:

Wm Wanket Inc
City/County Honolulu Planning Dept
OEQC

WILLIAM
E.
WANKET
INC.
Land Use Consultant

May 9, 1996

Mr. Frank D. Slocum
Hawaiian Princess at Makaha Beach, #1302
84-1021 Lahilahi Street
Waianae, Hawaii 96792

Dear Mr. Slocum:

Subject: Makaha Retirement Community Commercial Project

Thank you for your letter dated March 18, 1996 on the Draft Environmental Assessment prepared for the subject project. Your comments in support of the project are noted.

If you have any questions on this matter, please give me a call at 674-3517 or Mr. Ronald Sato of my office at 674-3515.

Sincerely,

William E. Wanket
President

Kapolei Building, Suite 320 • 1001 Kamokila Boulevard • Kapolei, Hawaii 96707
Phone: (808) 674-3517 • Fax: (808) 674-1064

APPENDIX B

Market Study For Potential Retirement Community

Prepared By: Dornbush & Company, Ltd.

DORNBUSH & CO., LTD.
Real Estate Consultants

3660 Waialae Avenue • Suite 418
Honolulu, Hawaii 96816
(808) 734-5279 • Fax: (808) 734-5964

William J. Dornbush, MAI, CRE
President

January 11, 1996

HRT, Ltd.
3660 Waialae Avenue, Suite 400
Honolulu, Hawaii 96816

Attention: Mr. Alvin Awaya, President

Gentlemen:

Re: **Market Study for Potential Retirement Community**
Makaha Valley, Waianae Coast, Oahu, Hawaii

The purpose of this report has been to complete a market study for a potential retirement community to be developed on your lands at Makaha Valley, Waianae Coast, Island of Oahu. As you are aware, your landholding totals almost 250 acres of fee simple land. Approximately 157 acres are zoned R-10, Residential, and are covered under Ordinance No. 88-79 and a unilateral agreement dated June 1988. When these lands were rezoned by a previous owner, the intent at that time was to create a retirement community. As part of the Unilateral Agreement, it was required that users of units situated on these lands be a minimum of 55 years of age. As discussed in this study, we recommend that the minimum age requirement be amended to 45 years of age to allow early retirees the opportunity to live in the potential retirement community. A summary of our investigations and recommendations is summarized below and on following pages.

I. EXECUTIVE SUMMARY

A. **Location** - The Makaha Valley area offers an excellent location for a retirement community as it has a desirable climate with limited rainfall and is in close proximity to numerous recreational amenities, including the Makaha Resort West Golf Course (formerly the Sheraton Golf Course), the Makaha Valley Country Club and Makaha Beach. Both of the nearby 18-hole championship golf courses are privately owned and available to the public.

B. **Market Demand** - According to the U.S. Census, as of 1990, there were over 173,000 individuals in Hawaii that are 60 years of age or older. This segment of the population increased by more than 52 percent between the 1980 and 1990 census periods. Our market research indicates that there are relatively few retirement projects on the Island of Oahu to serve the growing demands of its aging population. Further, the desirable climate of Hawaii will continue to attract substantial numbers of retirees from the U. S. Mainland and elsewhere provided that adequate facilities are available to serve their needs.

C. **Type of Project - Active Retirees** - Although the Makaha Valley location is less than one hour driving time from Downtown Honolulu, elderly individuals and retirees often require high quality medical facilities only found in Urban Honolulu. Therefore, based upon our market investigations and interviews, we recommend that the retirement community planned for the Makaha Valley be for active retirees in the typical age group of 50 to 65. This age group of retirees will find the surrounding amenities attractive and could commute to Urban Honolulu facilities by car, van and/or bus when necessary.

D. **Work With Qualified Developer/Consultants** - Research and analysis indicate that retirement projects are very specialized and require the skills of an experienced developer/operator or expert consultants. Therefore, we recommend that your company work with a well qualified developer that has had significant experience in retirement projects and/or assisted living facilities or such specialized consultants.

E. **Provide Medical Facility Site** - Our research and interviews indicate that a medical facility is an important component to a successful retirement community. Therefore, we recommend that you request rezoning for a minimum of five acres to serve as a medical facility, as a component of the proposed retirement community. A logical location would be a portion of the 14.975 acre site situated near Makaha Valley Towers and identified as Tax Map Key 8-4-02-62. This site is centrally located within your lands and would offer an excellent view across Makaha Valley West Golf Course to the ocean.

F. **Provide Retail Convenience Site** - Research indicates that there are no retail facilities within the Makaha Valley, excluding two golf pro-shops. Therefore, we suggest you request rezoning to provide a minimum of five acres for retail convenience shopping. Interviews with members of the Board of Directors of the Makaha Valley Towers Condominium Project revealed that they desire to have retail convenience facilities near their condominium project. Therefore, we suggest you consider rezoning a portion of Tax Map Key 8-4-02-62 from P-2, Preservation to B-1 or B-2, Business. In our opinion, it would be desirable to have the medical facility and the retail convenience site located adjacent to each other.

G. **Provide Outdoor Recreational Amenities** - We recommend that the retirement project be for active individuals and retirees and, therefore, suggest that a site be provided for outdoor recreational amenities. The exact nature of the recreational amenities needs further study. Potential examples would be lawn bowling, an 18-hole putting course, a community gardening facility, an outdoor exercise track for walking and jogging with physical fitness stations located along the way and/or a potential golf driving range or 9-hole par-3 golf course. A logical site for the outdoor recreational amenities would be the 22 acres situated along the lower portion of your property and identified as Tax Map Key 8-4-02-45. This site is currently zoned Ag-1. We recommend that you request redesignation to Preservation, P-2 to allow outdoor recreational facilities. Further study needs to be completed to identify the exact recreational facilities.

SUMMARY OF MAJOR RETIREMENT PROJECTS
Island of Oahu, State of Hawaii

Name of Project	Status	Type of Project	No. of Units	Availability
Existing Projects				
Arcadia Makiki, Honolulu	Built 1963	Lifecare/Life Interest Full Range of Services	245	Five year waiting list
Pohai Nani Kaneohe	Opened 1963	Owned by Lutheran Church Group Rental Units/Nursing Home	207	Fully occupied
Olaloa Mililani Town	Opened 1992	Residential Condominium Limited Services Available	360	78 unsold units
Proposed Projects				
One Kalakaua Honolulu	Planned 1996 - 1997	Residential Condominium with Skilled Nursing Facility	166	Over 80% sold
Hale O'Malia Waialae-Kahala	Proposed 1997 - 1998	Lifecare/Life Interest Full Services Planned	320	Planned for Marketing 1996
Ponds at Punalu'u Windward Oahu	Planned 1996 - 1997	Assisted Living Facility	138	Construction to start early 1996

somr1296

II. MAJOR PROJECTS INVESTIGATED

In completing this study, we investigated several major retirement projects and assisted living care facilities located on the Island of Oahu. These projects are summarized on the facing page and detailed information regarding each project is contained in the Addenda of this report.

As shown on the facing page, there are three major retirement projects located on Oahu. These include the Arcadia project built in 1963, the Pohai Nani nursing home located in Kaneohe and the Olaloa retirement community in Mililani Town. The Arcadia project located in Makiki has been a very successful life care/life interest project and currently has a five year waiting list for new residents. The Pohai Nani project is operated by the Lutheran Church group, Good Samaritan, and provides 207 rental units with nursing home facilities. This project remains full and has a waiting list. The Olaloa residential condominium project which contains 360 units in Mililani Town was developed during recent years and is currently 78 percent sold out. About 78 units remain available for sale.

Proposed retirement projects include the One Kalakaua Condominium project to start construction in early 1996 along Kalakaua Avenue near Beretania Street. The project will be developed as a residential condominium with a skilled care nursing facility. Over 80 percent of the units have been presold. The Hale O'Malia Life Care Life Interest project will contain 320 units and is planned for pre-marketing in early 1996. This project previously encountered financial difficulties in the early 1990s and is now being "resurrected" by Episcopal Homes of Hawaii. The life interest units will be presold during 1996 and the project is planned to start construction in 1997.

The Ponds at Punalu'u is reported to be the "first" assisted living facility developed on Oahu. Construction will start in early 1996. The project will provide 124 efficiency, studio, one and two bedroom units, plus 14 units for 26 Alzheimer patients.

III. OVERVIEW OF POTENTIAL MARKET IN HAWAII

A State House Concurrent Resolution drafted in 1994 reports that Hawaii's elderly population is increasing at two and one-half times the national average and further reports a critical shortage in Hawaii's nursing home bed supply. Further, there is no indication that this supply will improve in the near future. Statistics prepared by various Federal and State agencies concur with the State House Resolution. According to the 1990 U.S. Census, 173,733 or 15.7 percent of Hawaii's population was 60 years of age and older and approximately 120,000 individuals were over 65. The 60 and above age segment of the population increased by over 52 percent between 1980 and 1990.

The State of Hawaii Executive Office On Aging, 1993 Annual report states that 17.6 percent of adults 65 years of age and older have limited mobility or self care ability. According to statistics prepared by the State of Hawaii Assisted Living Task Force, there were 3,500 nursing

home beds in the state in 1990. This provides approximately 30 nursing beds per thousand of aging population aged 65 and over, less than one half the national average. Therefore, there appears to be a major opportunity in Hawaii to develop new retirement projects to serve Hawaii's aging population.

IV. DEFINITION AND SEGMENTATION OF THE RETIREMENT HOUSING MARKET

People aged 65 and over have traditionally been lumped into one group and assumed to have similar attitudes, interests and need for care. However, variation on all of these dimensions is as great among seniors as among younger people, and the variation is expanded when the pre-retirement market (ages 55 to 64) is included.

The senior citizens' population sometimes has been depicted as a four-dimensional market by the terms "Go-Go, Go-Slow, Slow-Go, and No-Go," which depicts an individual's ability to live independently. Although the categories correspond somewhat to age, each includes citizens of every age group.

- "Go-Go" refers to seniors who are able to lead totally independent lifestyles and participate in recreation. This market tends to be in the 65 starting age group with most under 75 years of age, and also includes almost all retirees under the age of 65.

- "Go-Slow" refers to seniors who can live independently, but are starting to slow down and often prefer to have help with personal tasks. These seniors are most commonly in the 75 - 85 age category, but many younger and older people also fall into this group.

- "Slow-Go" refers to seniors that are still healthy such that they do not need full-time nursing care, but often require more assistance with the activities of daily living and do require some modest health care services. This group also tends to be in the 75 - 85 age category.

- "No-Go" refers to seniors typically age 85 and over who require the full-time medical services provided in a nursing home or assisted living facility.

V. DISCUSSIONS WITH MAJOR RETIREMENT PROJECT DEVELOPERS/USERS

During recent months we conducted interviews and discussions with major retirement project developers and users regarding their potential interest in developing and operating a retirement project on the subject lands at Makaha Valley. A summary of these investigations is contained in the following paragraphs:

A. **ARV Assisted Living**

During October we met with Mr. John Booty, President of ARV Assisted Living based in Costa Mesa, California. ARV operates over 50 assisted living facilities located throughout the United States. ARV is currently studying the market in Hawaii and may be interested in developing and operating an assisted living facility on Oahu. Officials of ARV believe that there appears to be significant demand for additional assisted living facilities on Oahu based upon their preliminary investigations. ARV officials inspected the Makaha Valley site and believe it would be appropriate for the active retirement segment. However, ARV assisted living residents are typically elderly and need to live near suitable medical facilities.

B. **Retired Military Officers Association**

We recently met with officials of the Retired Military Officers Association regarding a potential retirement community at Makaha Valley. Retired military officers are typically active individuals, as they can retire at relatively early ages and are usually in relatively good health and physical condition. Therefore, the retired military officers may find the Makaha Valley suitable as a retirement community as it offers numerous outdoor recreational amenities, including two 18-hole golf courses, Makaha Beach and other recreational opportunities. The Retired Military Officers Association is now studying Makaha Valley as a potential retirement community.

C. **Kiewit Construction Company**

Officials of Kiewit Construction Company are interested in constructing a major retirement community for their clients on the Island of Oahu. Officials of Kiewit Construction are familiar with the Makaha Valley property and believe it would be a suitable location for an active retirement community. Kiewit is conducting further investigations to determine an appropriate developer and/or operator.

VI. RECOMMENDATIONS REGARDING POTENTIAL PROJECT

Based upon our market investigations and interviews with knowledgeable sources and companies involved in retirement communities and assisted living facilities, we summarize our recommendations as follows:

A. **Work With Experienced Developer and/or Specialized Consultants**

Due to the uniqueness of retirement projects and/or assisted living facilities, it is very important that the land owner work with an experienced developer and/or consultants in order to create a successful retirement project that will provide for the needs of its residents and be financially viable. Developing and operating retirement projects require

the skills of a qualified developer/operator that has long-term experience with such projects. Several mainland companies are currently studying retirement projects in Hawaii and we recommend that HRT associate with an experienced retirement developer or specialized consultants in the planning and construction of the potential retirement project.

B. **Rezone Land for Medical Facility and Retail**

Based upon market investigations and discussions with retirement project operators, we believe it is very important that medical facilities and convenience retail facilities be available for the residents of the retirement community, as well as residents of the surrounding area. Based upon our review of your lands at Makaha Valley, we recommend that Tax Map Key 8-4-02-62 containing 14.975 acres be redesignated from P-2 to B-1 or B-2, Business, in order to allow the construction of appropriate medical facilities and retail convenience facilities. Our investigations with members of the Board of Directors of the Makaha Valley Towers condominium project, located adjacent to this site, also revealed their desire to have convenience retail shopping facilities located near their condominium project to serve their residents.

C. **Provide Land for Outdoor Recreational Amenities**

Market investigations indicate that residents of active retirement communities desire to participate in outdoor recreational amenities as part of their life style. Therefore, we believe that HRT should set aside lands for such outdoor recreational activities. Based upon our review of your landholding, we believe that Tax Map Key 8-4-02-45 containing over 22 acres located at along Kili Drive near Farrington Highway be set aside as an outdoor recreational site. Further study needs to be completed to determine the exact nature of the outdoor recreational facilities. However, on a preliminary basis, such outdoor recreational facilities could include lawn bowling, an outdoor jogging/walking path with fitness stations located along the trail, a community gardening project, an 18-hole putting course, a golf driving range and possibly a 9-hole par-3 golf course. Considering that this 22+ acre site is relatively low-lying and serves as a quasi settlement basin, we believe this land is well suited for outdoor recreational amenities as its topography is relatively level and it could be grassed at a relatively modest cost.

D. **Reduce Minimum Age Requirement to 45 Years**

During the course of this study we reviewed the Unilateral Zoning Agreement covering your Makaha Valley lands. This agreement was enacted as part of Ordinance 88-79 in June 1988 by the City and County of Honolulu. One of the requirements of this agreement is that residents of units developed on your lands must be at least 55 years of age. Considering that many individuals are now retiring at younger ages and that

many military officers often retire in their late 40s or early 50s, we recommend that you request amendment for the minimum age requirement of 55 to 45 years of age.

The undersigned hereby certify that, to the best of our knowledge and belief, the statements of fact contained in this report are true and correct; the reported opinions and conclusions are our personal, unbiased professional opinions and conclusions. The undersigned has made an inspection of the property and surrounding area that is associated with the subject lands. The undersigned is currently serving as a consultant to HRT, Ltd. regarding its Makaha Valley property.

We appreciate the opportunity to complete this market study for your company with respect to potential development of a retirement community at Makaha Valley.

Sincerely,

DORNBUSH & CO., LTD.

William J. Dornbush, CRE
President

WJD:gf

Addenda:

Exhibit 1 - Summary of Subject Lands For Retirement Community
Exhibit 2 - Zoning Map Locating Subject Lands For Retirement Community
Exhibit 3 - Aerial Photo of Subject Lands
Exhibit 4 - Summary of Various Retirement Projects - Island of Oahu
Qualifications

ADDENDA

SUMMARY OF MAKAHA PARCELS
Island of Oahu, State of Hawaii

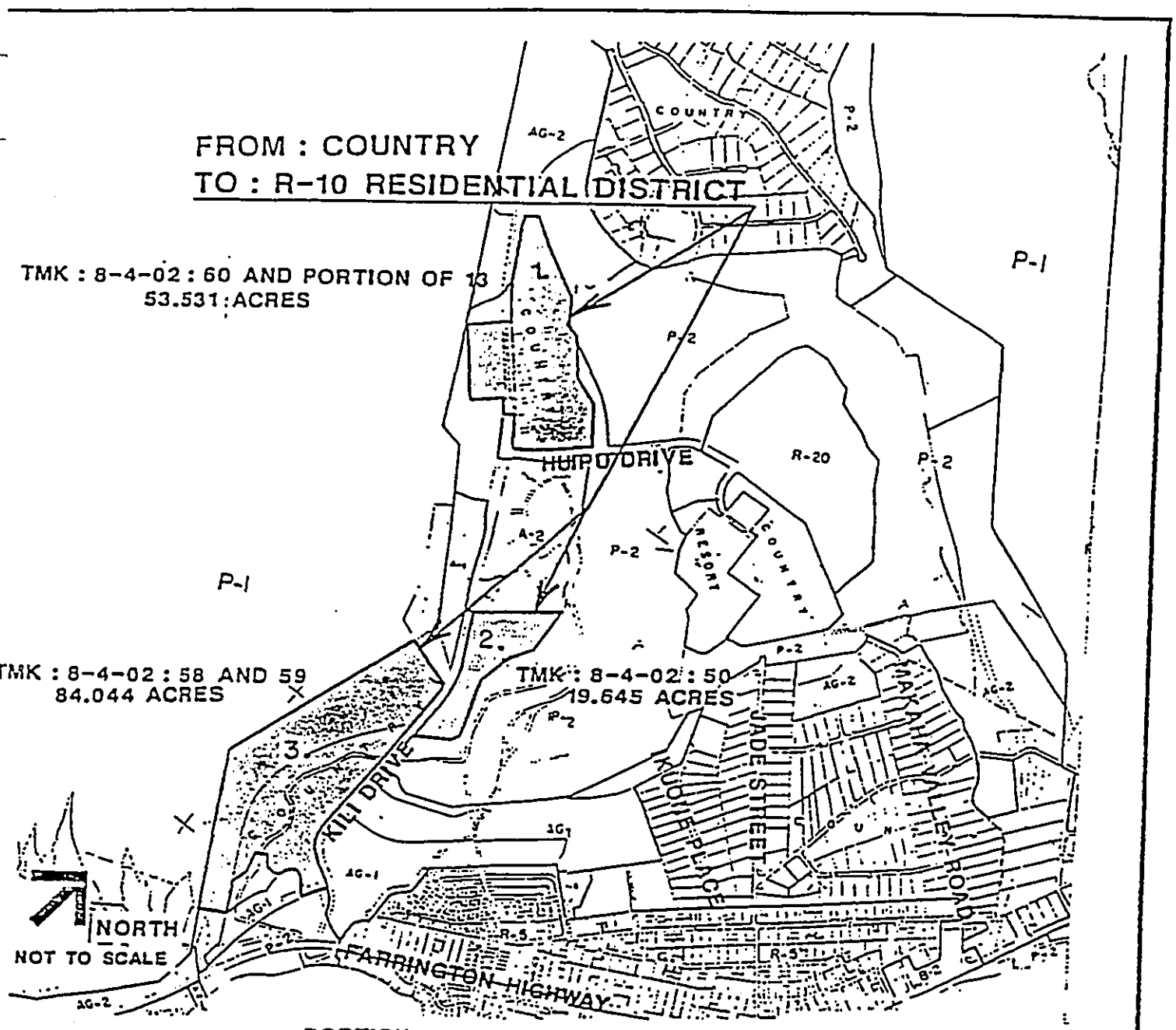
EXHIBIT 1

Lot No.	Acres	TMK	Primary Zoning	Land Use Designation State/County
Developable Land:				
1608	68.76	8-4-02-60	R-10*	Urban/Residential
1023	19.64	8-4-02-50	R-10*	Urban/Residential
1445	109.60	8-4-02-58	R-10*	Urban/Residential
Subtotal	198.00 (About 157 Acres Zoned R-10, Residential)			
Other Land:				
1241	22.25	8-4-02-45	AG-1	Urban/Agricultural
1606	13.96	8-4-02-04	AG-2	Urban/Agricultural
1237	14.98	8-4-02-62	P-2	Urban/Preservation
Subtotal	51.19			
Total	249.19			

* Conditional Zoning -- See "Conditional Zoning and Unilateral Agreement".
* See Zoning Map for R-10 zoned lands.

88-79

EXHIBIT 2



PORTION OF ZONING MAP NO. 15
LUALUALEI - MAKAHA

R-10 RESIDENTIAL DISTRICT

APPLICANT	:	MAKAHA VALLEY INC.
T.M.K.	:	8-4-02 : 50 8-4-02 : 58 AND 59 8-4-02 : 60 AND PORTION OF 13
LAND AREA	:	157.22 ACRES
FOLDER NO.	:	87/Z - 8
PREPARED BY	:	Department of Land Utilization City and County of Honolulu
PUBLIC HEARING	:	Planning Commission 10/1487 & 11/18/87 — City Council 3/9/88

C D.NO. 88-79 87/Z - 15

EFF.DATE: June 19, 1988

Bill 1 (CD-1)

EXHIBIT 3

Project Name: Arcadia Retirement Residence

Address/TMK	Land area	Developer	Sponsor	Operator
1434 Punahou St. 1-2-4-8-3	2.98 Acres	N/A	Central Union Church	Arcadia Retirement Residence, Inc Private Non-Profit Corp.

Included Services/Features

Meal Service	Medical	Maid Service	Activities	Units/ Kitchens	Transportation/ Other
3/Day	Emergency Service,5 free days per year/illness in skilled nursing ctr., apt. meal svc. post hospitalization	Weekly, includes linen service	Daily Planned: movies, outings, exercise	Stove, sink, refrigerator, A.C., lanais	No transportation. Maintenance, utilities, security, laundry on each floor

Extra Services

Medical	Other
Medical Director on staff. Residents may provide own doctor. Health Care Ctr. on site. Health Care Ctr. rates range between $104.75 - $125.05/day	Parking: $35 - $45/month

Resident Profile

Age Range	Origin	Motivations
65+	80% from Oahu	Most come on own accord. 80% owned homes before.

General Information

Year Opened	Floors	Density (Units/Acre)	Level Of Care	Total Units	Vacant Units
1967	12	82	Independent Living	245	0

Occupancy/ Turnover Rates	Unit Mix	Unit Size (S.F.)	Purchase Price	Monthly Service Charge	Monthly Rents
25 Units/Year	82 Studios/1Bth	400 S.F.	$73,000-$122,800	$1,073	N/A
	81 Alcove/1Bth	600 S.F.	$87,300-$155,700	$1,251-$1,947	N/A
	82 1Bd/1Bth	800 S.F.	$113,600-$211,000	$1,430-$2,126	N/A

Common Area Amenities	Service Payment Options	Comments
Rec. Rm, Gdn Area 2 TV Rm, Dining Rm 24 Hr skilled Nurse Social Director, Arts/Crafts, Library	Non-refundable lifetime entrance fee plus monthly service fee.	Project has a 3 to 5 year wait list. Appx. 320 residents. Staff numbers appx. 160.

Project Name: Pohai Nani

Address/TMK
45-090 Namoku St.
1-4-5-33-3

Land Area
16.1 Acres

Developer
Evangelical Lutheran Good Samaritan

Sponsor
N/A

Operator
Private Non Profit Corporation

Included Services/Features

Meal Service
3/Day

Medical
Will call ambulance if necessary.

Maid Service
Bi-weekly. Linens weekly.

Activities
Planned program.

Units/ Kitchens
Kitchenettes in all but smallest 2 plans

Transportation/ Other
2 buses for trips to Honolulu 3 times a week.

Extra Services

Medical
Nursing facility.

Other
Parking available.

Resident Profile

Age Range
62-98

Origin
85% from Oahu
15% other

Motivations
Family close by.
Most residents are single. Residents enjoy independence.

General Information

Year Opened
1963

Floors
14

Density (Units/Acre)
13

Level Of Care
Independent Living

Total Units
207

Vacant Units
0

Occupancy/ Turnover Rates
36/Year

Unit Mix
142 Studio/1Bth
35 1Bd/1Bth
9 2 Bd/2Bth
38 Semi-Pvt Nrs. Cr.
4 Private Nrs. Cr.

Unit Size (S.F.)
305-426 S.F.
600-830 S.F.
866 S.F.

Entrance Fee
$3,000-$4,000

Monthly Service Charge
N/A

Monthly Rents
$1,362-$2,328

Common Area Amenities
Lounge per/floor.
2 Solariums
Pl, Jczi, Gm Rm,
Dng Rm, Auditorium

Comments
Most residents have cars.
Rates will increase by 5% in 1996.

Project Name: Olaloa

Address/TMK	Land Area	Developer	Sponsor	Operator
95-150 Makaikai St. 1-9-5-49-7	21.02 Acre	Daiichi-Four Militani Joint Venture		

Included Services/Features

Meal Service	Medical	Maid Service	Activities	Units/ Kitchens	Transportation/ Other
Extra	Emergency call service.	None.	Fitness programs. Recreational/social activities.	Full kitchens. Lanais.	Shuttle service.

Extra Services

Medical	Other
Special needs as needed.	Meals available in central dining room at additional charge.

Resident Profile

Age Range	Origin	Motivations
55+	Most from Oahu	Many returning retirees.

General Information

Year Opened	Floors	Density (Units/Acre)	Level Of Care	Total Units	Unsold Units
1992	2	17	Independent Living	360	78

Occupancy/ Turnover Rates	Unit Mix	Unit Size (S.F.)	Entrance Fee	Monthly Service Charge	Monthly Rents
N/A	Studio	380			N/A
	1 Bedroom	529	From $155,000	$179.15	
	2 Bedroom	748-826	From $211,000	$253.33-$279.91	

Common Area Amenities	Service Payment Options	Comments
Wellness Center	Fee Simple Ownership Mortgage	Can buy before the age of 55 and rent to qualified tenants

Project Name: One Kalakaua Senior Living

Address/TMK	Land Area	Developer	Sponsor	Operator
1 Kalakaua Ave. 1-2-4-5-20	1.1 Acres	One Kalakaua Partners	N/A	Life Care Services

Included Services/Features

Meal Service	Medical	Maid Service	Activities	Units/ Kitchens	Transportation/ Other
2/Day	Quarterly exams, nutrition/health class	Weekly, includes linen service	Exercise classes arts/crafts, dancing planned outings.	Stove, sink, refrigerator, A.C.	*No transportation.*

Extra Services

Medical	Other
Skilled nursing Long term care.	Beauty salon Laundry service (dry cleaning)

Resident Profile

Age Range	Origin	Motivations
62+	90% Oahu 2% Japan 2% Mainland 4% Neighbor Island	Fee simple ownership via condominium ownership. Like to pay medical costs as needed.

General Information

Year Opened	Floors	Density (Units/Acre)	Level Of Care	Total Units	Sales Status
N/A	16	151	Independent Living	166	66 Units unsold 40% of project

Occupancy/ Turnover Rates	Unit Mix	Unit Size (S.F.)	Entrance Fee	Monthly Service Charge	Monthly Rents
N/A	24 1Bd/1Bth	477-576 S.F.	$270,000-$381,000	$1,126-$1,235	N/A
	72 2Bd/1Bth	703-771 S.F.	$393,000-$480,000	$1,376-$1,452	
	70 2Bd/2Bth	826-928 S.F.	$477,000-$589,000	$1,539-$1,625	

Common Area Amenities	Service Payment Options	Comments
Business Ctr. Spa/Pools Library, Arts/Crfts Dining Room Game Room	Fee Simple Ownership, Mortgage	1) Project has not yet broken ground. 2) Project completion is estimated to be 08/97. 3) Pre-sales program reports 100 units sold under contract and 66 units available.

Project Name: Hale O'Malia (Proposed Project - Pending)

Address/TMK	Land Area	Developer	Sponsor	Operator
Star Of The Sea 1-3-5-17-2		Episcopal Diocese	N/A	N/A

Meal Service	Medical	Maid Service	Activities	Units/ Kitchens	Transportation/ Other
N/A	N/A	N/A	N/A	N/A	N/A

Extra Services

Medical	Other
N/A	N/A

Resident Profile

Age Range	Origin	Motivations
N/A	N/A	N/A

General Information

Year Opened	Floors	Density (Units/ACRE)	Level Of Care	Total Units	Vacant Units/Rate
Proposed	N/A	N/A	Life Care	320	N/A

Occupancy/ Turnover Rates	Unit Mix	Unit Size (S.F.)	Entrance Fee	Monthly Service Charge	Monthly Rents
N/A	N/A	N/A	$300,000 (avg.)	$1,500 (avg.)	N/A

Common Area Amenities	Service Payment Options
N/A	N/A

Comments

Propsed project will be a life care contract/life interest type. The project has been characterized as a "modern Arcadia" designed to serve elderly residents with continuing care. Proposed marketing is scheduled to begin in early 1996, with construction starting in 1997.

Lawmakers agree on some provisions of a telecommunications overhaul measure. B-4

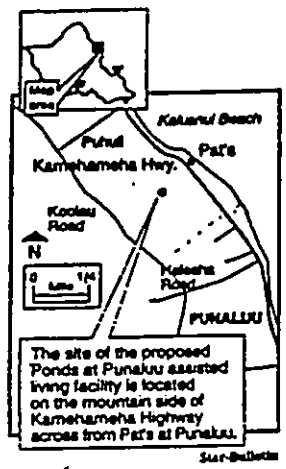
Honolulu Star-Bulletin

Hawaii Inc.

The Dow fell 5.42 points to end the week at 5,176.73. The S&P 500 index was off 0.58 at 616.34. B-3

DECEMBER 15, 1995 FRIDAY AFTERNOON • SECTION B

Punaluu project targets seniors



Star-Bulletin

A rental complex is designed to ease isles' nursing home crunch

BY JERRY TUNE
Star-Bulletin

A Seattle-based developer has received the go-ahead to introduce to Hawaii a new type of rental housing project for senior citizens that is designed to help ease the state's chronic nursing home shortage.

To be known as The Ponds at Punaluu, the four-story, 145-unit project, will be the first "assisted living" project in the state, said Stanley Snodgrass, the local consultant to developers Pan Pacific Medical Development Co. of Seattle, doing business as The Ponds at Punaluu Assisted Living Inc.

The idea behind assisted living projects, which are popular on the mainland, especially in Oregon and the West Coast, is to provide a place to live for seniors who need some help but do not need the constant care of a nursing home.

The state has been encouraging developers to build such projects lately due to the chronic shortage of nursing home beds in the islands.

Stanley Snodgrass

Hawaii has about 3,500 nursing home beds to serve an estimated 120,000 persons over the age of 65, according to a report by the assisted living task force to the last state Legislature. This ratio of 34 beds per thousand population is half the national average, the report said.

The state Health Planning and Development Agency reported last year that there were 345 "wait-listed patients" in acute care hospital beds unable to be placed in a nursing home.

"We are pretty close to a crisis situation," said Cullen Hayashida, assistant administrator at the Maluhia Long-Term Care Health Center, an agency of the state Department of Health.

In assisted living projects, seniors live in individual apartments, with staff checking up on them periodically. The care involves basic services such as helping residents with bathing, eating, and taking medications.

The person suitable to live at an assisted living facility may be unable to cook, have arthritis, Alzheimer's disease or other medical problems that make independent living impossible.

The Punaluu facility will be on 5½ leased acres mauka of Pat's at Punaluu, the community's landmark restaurant and condominium complex. Scheduled to open in early 1997, it will include 24 units for Alzheimer's patients, which will operate under administrative rules of the state Department of Health, Snodgrass said.

"We also will have a special three-quarter-acre Alzheimer's garden," he said. Gardening is one of the activities that is popular with Alzheimer's patients, he said.

The project took four years to get all approvals and is for people 62 years of age or older, Snodgrass said. He added that there will be one registered nurse who also can function as the manager, and one trained personal care attendant for every 15 residents.

For the Alzheimer's patients, there will be a licensed practical nurse or registered nurse, he said.

Creighton Mattoon, president of the Punaluu Community Association, said the group supports the assisted living facility. Although it will be four-stories tall, the facility will be at the base of the mountains and not be that visible from the highway, Mattoon said.

The Ponds at Punaluu project will include studio, one-bedroom and two-bedroom units. The charges have not been set, but Snodgrass said, as an example, there is a "target" average charge

PLEASE SEE PROJECT, B-4

PROJECT: Aims to ease nursing home crunch

FROM B-1

of $2,150 per month for a studio with three meals a day, snacks, cable TV and use of the fitness center and chapel. Telephone is extra.

"That is an average cost, we will have some places below that," Snodgrass said. Alzheimer's care will cost a minimum of $3,600 a month because that involves more care, he said.

Snodgrass, who was executive vice president and administrator at Convalescent Center of Honolulu for 11 years, said family members normally help out financially and with the actual care-taking.

The interest in assisted living facilities is high in Hawaii, health care officials say.

"I have developers in my office almost every week," said Mildred Ramsey, chairwoman of the Assisted Living Options Task Force, a grass-roots effort of community based health and social welfare professionals.

Ramsey, who is the gerontology administrator at the Child and Family Service, said that nursing homes can cost $5,000 to $6,000 a month, while assisted living facilities can be half of that cost.

The state Legislature supported the "assisted living" idea by authorizing the Department of Health to adopt regulations. The draft is under way and modeled after Oregon's laws, Ramsey said.

While Hawaii has been more slow on this type of health care solution, Ramsey said the state can benefit by a speed-up of developments. "I would like to see some low-cost loans for these projects," she said.

Construction on The Ponds at Punaluu is scheduled to begin on Jan. 27 and take 12 months to complete. The contractor is F. Kent Halborsen.

About assisted living

Assisted living refers to a new type of health care facility, designed to be more flexible and affordable than a nursing home. Features include:

- Smaller in scale than a nursing home; often fewer than 60 living units.
- Residential in feeling. People are encouraged to bring their own furnishings.
- Care-giving is done by professionals and families.
- People get only those services that are needed; not a uniform program set by a government regulation.
- The focus is on self-maintenance with assistance. Residents are encouraged to help themselves and one another.

Developers of the Punaluu project also have an agreement to build a smaller assisted living facility on the grounds of Ala Lani Methodist Church in central Maui, he added.

"We also will be building a 120-bed nursing home adjacent to the Punaluu facility," Snodgrass said. "That's at least a year away."

Final approval for The Ponds at Punaluu came earlier this week from the federal Department of Housing and Urban Development, which was needed to ensure the construction loan. The primary lender is Seattle Mortgage Co.

That company is one of only a few in the nation that has experience in getting HUD insurance for assisted living loans.

Another is Continental Wingate Mortgage Group West Inc., a large mortgage banker that has been getting funds from Wall Street investors for 20 years to develop hospitals, nursing homes and assisted living facilities.

"We opened an office in Hawaii in the spring and we're looking to do four or five assisted living facilities here," said David Tacheny, the company's regional manager. Continental Wingate, with headquarters in Boston, does three or four assisted living facilities a year on the East Coast and one or two a year on the West Coast, Tacheny said.

He is working with developers who have identified workable sites on the Big Island, Oahu and Maui. Tacheny said it would be "five or six months before illustrations could be shown" on other projects.

Hayashida, of the Health Department, said the nursing home shortage has the potential to get worse. "Other things are happening. There are reductions in Medicare and Medicaid coming. Hospitals will be highly motivated to get people out of there [into care facilities]," he said.

Hayashida has started a "wait-list" demonstration project to do just that — by moving carefully selected people to hospitals into under-utilized private home care facilities. He said he was able to get a waiver from federal restrictions that prohibited Medicaid money from going to care facilities.

There is a rapid increase of older people in Hawaii, said Hayashida. "The greatest explosion is in the over 85 group — the most likely to need long-term care."

QUALIFICATIONS OF WILLIAM J. DORNBUSH, MAI, CRE
REAL ESTATE CONSULTANT

President and Founder (1994), Dornbush & Co., Ltd.
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3660 Waialae Avenue, Suite 418
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Senior Vice President, McCormack Properties, Ltd.,
Real Estate Development and Acquisitions (1990-Present)

Member, American Institute of Real Estate Appraisers (MAI)
(Now known as Appraisal Institute)
Certificate No. 6317, Honolulu Chapter No. 15

Member, American Society of Real Estate Counselors, (CRE)

Licensed Real Estate Broker, State of Hawaii

Member, Honolulu Board of Realtors

PROFESSIONAL BACKGROUND

Vice President and Co-Founder (1975-1990), Cowell & Co., Inc., Real Estate Consultants, Honolulu, Hawaii

Real Estate Appraiser (1971-1975), Don R. Cowell & Associates, Urban Land Economists, Honolulu, Hawaii

Project Manager, Residential Condominium and Neighbor Island Resort Development (1974-1975), at Blackfield Hawaii Corp., Honolulu, Hawaii

EDUCATION

B.A., University of Illinois, 1968 (Finance, Major; Mathematics, Minor)
Real Estate Courses: Property Valuation, Real Estate Development and Finance, Urban Land Problems.

SPECIAL REAL ESTATE COURSES AND SEMINARS

Real Estate Law Update & Ethics, Purchase Ownership & Management of Condominiums, Residential Property Management & Laws & Rules, University of Hawaii at Manoa Small Business Management Program, October & November 1994.
Resort Development Conference, Urban Land Institute, Pebble Beach, California, June 1993.
Various Real Estate Seminars, Urban Land Institute, Los Angeles, California, October 1992.
Pacific Rim Japan-America Resort and Golf Executive Conference, Sponsored by Pannell Kerr & Forster, Honolulu, Hawaii, May 1991.
Various Real Estate Seminars, Urban Land Institute, Tucson, Arizona, January 1991.
Various Real Estate Seminars, Urban Land Institute, Chicago, Illinois, November 1990.
Real Estate Law Update and Ethics, Real Estate Contracts, Real Estate Finance, Real Estate Continuing Education Company, January 1990, Honolulu, Hawaii.
Various Real Estate Seminars, Southwest Regional Conference, American Institute of Real Estate Appraisers, July 1989, Anaheim, California.

Litigation Valuation, American Institute of Real Estate Appraisers, October 1988, Scottsdale, Arizona.
Moderator and Instructor, 1987 Annual Convention, American Institute of Real Estate Appraisers, November 1987, Honolulu, Hawaii.
Valuation Under FHLBB Regulations, American Institute of Real Estate Appraisers, November 1987, Honolulu, Hawaii.
Standards of Professional Practice Update, American Institute of Real Estate Appraisers, November 1987, Honolulu, Hawaii.
Standards of Professional Practice Seminar, American Institute of Real Estate Appraisers, September 1984, Honolulu, Hawaii.
Various Seminars, Southwest Regional Conference, American Institute of Real Estate Appraisers, May 1984, Sacramento, California.
Various Seminars, Southwest Regional Conference, American Institute of Real Estate Appraisers, June 1983, Honolulu, Hawaii.
GRI Course VI, Investment Real Estate, Small Business Management Program, University of Hawaii, 1975.
American Institute of Real Estate Appraisers Course VI, Investment Analysis (Ellwood Course), 1975, Honolulu.
Construction Management Seminar by AMR International, Inc., 1974, San Francisco.
Investment Analysis Seminar by the American Institute of Real Estate Appraisers, 1973, Honolulu.

MILITARY AND AVIATION

U.S. Navy Reserve, Active Duty 1969-1971. Graduated from Aviation Officer Candidate School, Pensacola, Florida, Commissioned Ensign May 1969. Designated Naval Flight Officer, December 1969.
FAA Rated Commercial Pilot.

PROFESSIONAL EXPERIENCE

Involved in the creation and development of Ewa Beach International Golf Club from 1987 through its opening in 1992. President of Puuloa Homes, Ltd., a partner in the development.
Involved in real estate developments as Senior Vice President of McCormack Properties, Ltd. Major projects include Embassy Suites Resort Hotel at Kaanapali, Island of Maui and other major real estate developments throughout the State of Hawaii.
Engaged in real estate valuation since 1971 including ten months at Guam office of Don R. Cowell & Associates.
State of Hawaii assignments include appraisals, feasibility analyses, market studies and counseling regarding office buildings, industrial properties, residential condominiums, restaurants, shopping centers, hotels, resort areas, golf courses, and large scale land developments. Geographical areas covered include the Islands of Oahu, Maui, Hawaii, Kauai, Molokai and Lanai.
Territory of Guam assignments include the valuation of private land parcels on Guam for tax assessment purposes for the Department of Revenue & Taxation, Government of Guam; valuation studies regarding resort hotels, industrial properties, rental apartments, condominium apartments, commercial developments including office buildings and restaurants, and residential tract projects.
Other experience includes assignments and research in California, American Samoa, Fiji, Ponape, Truk and the Island of Saipan, Marianas Islands.
Co-Author, An Analysis of Hawaii Land Reform Acts, published June 1977.

APPENDIX C

Traffic Impact Analysis Report
Makaha Valley Retirement Community

Prepared By: Phillip Rowell and Associates

TRAFFIC IMPACT ANALYSIS REPORT

MAKAHA VALLEY RETIREMENT COMMUNITY

IN HONOLULU, HAWAI'I

Prepared For

HRT, Ltd.

Prepared By

Phillip Rowell and Associates
47-273 'D' Hui Iwa Street
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May 13, 1996

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1. INTRODUCTION

Phillip Rowell and Associates has been retained by HRT, Ltd. to prepare a Traffic Impact Analysis Report (TIAR) for a proposed residential retirement community and a potential nine-hole golf course in the Makaha Valley area of Oahu, Hawai'i.

The following report has been prepared to describe the traffic characteristics of the project and likely impacts to the adjacent roadway network. This introductory chapter discusses the location of the project, the proposed development, and the study methodology.

Project Location and Description

The location of the proposed project is shown on Figure 1. The project is located east of Farrington Highway along Kili Drive. The site is currently vacant.

The proposed retirement community will consist of 350 to 600 dwelling units with supporting medical and retail facilitites. The medical and retail uses are intended for use primarily by retirement community residents. In addition, there may be a nine-hole golf course intended primarily for retirement community residents.

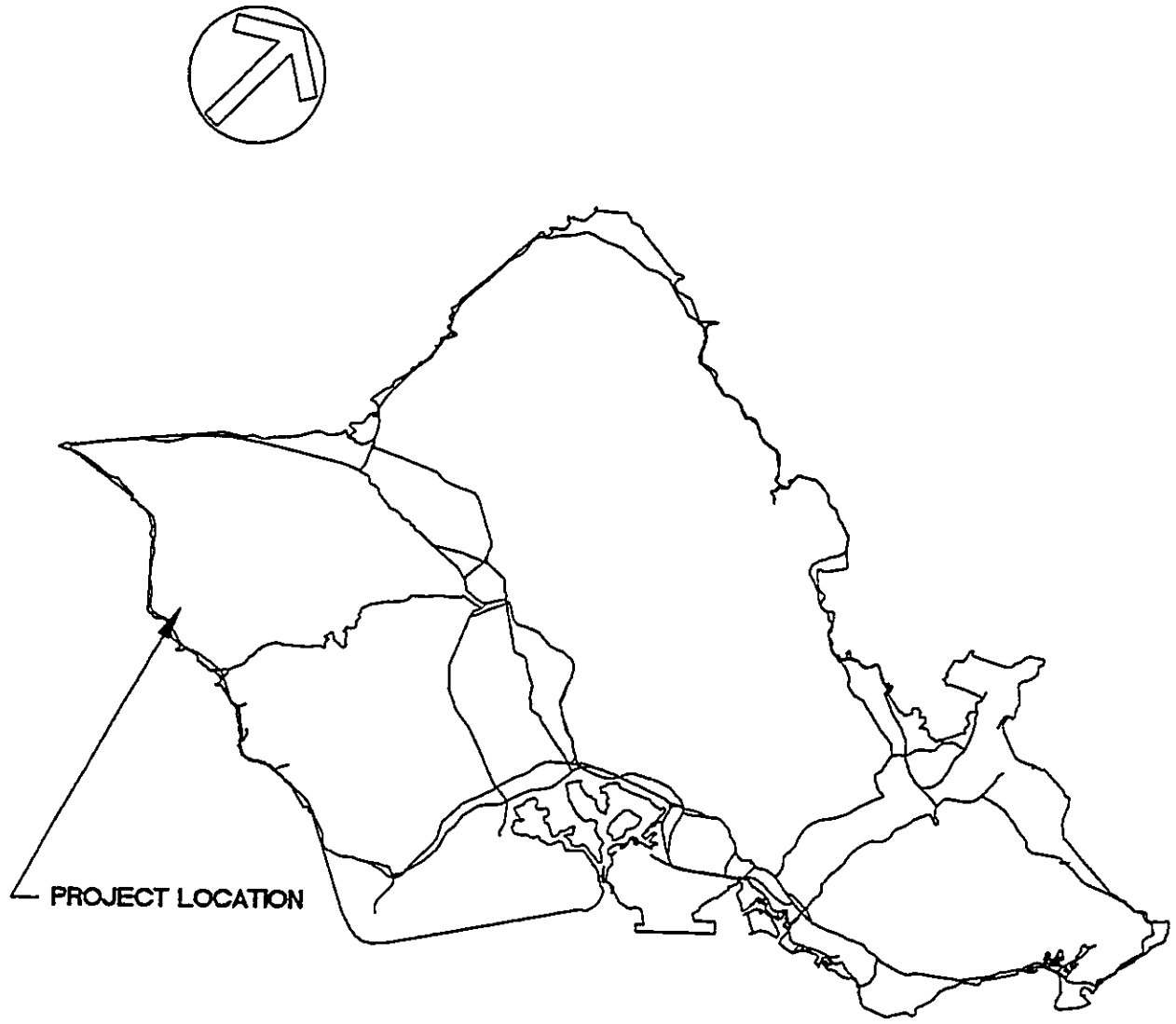

Figure 1

Location Map

Study Methodology and Order of Presentation

In order to conduct this traffic study, a number of tasks were performed. These tasks are discussed in the following paragraphs.

1. Analysis of Existing Traffic Conditions

Existing traffic volumes at the study intersections were determined from traffic counts performed in May 1996 specifically for this study. Intersection configurations and traffic signal information was also collected in the field at the time of the traffic counts.

Using the data collected, existing traffic operating conditions in the vicinity of the project were determined. The methodology described in the 1994 *Highway Capacity Manual* (HCM) was used to determine the level-of-service (LoS) at the study intersections.

Existing traffic conditions, the LoS concept and the results of the LoS analysis of existing conditions is presented in Chapter 2.

3. Determination of Cumulative Traffic Projections

The year 2001 was used as the design year. This does not necessarily represent the project completion date. It represents occupancy for purposes of conducting the impact analysis. Cumulative traffic conditions are defined as future traffic conditions without the proposed project. A description of the process used to estimate 2001 cumulative traffic volumes and the resulting cumulative traffic projections are presented in Chapter 3.

4. Analysis of Project-Related Traffic Impacts

The next step in the traffic analysis was to estimate the peak-hour traffic that would be generated by the proposed development. This was done using standard trip generation rates published by the Institute of Transportation Engineers.

These trips were distributed based on the available approach and departure routes. The project-related traffic was then superimposed on 2001 cumulative traffic volumes at the subject intersections. The HCM methodology was used again to conduct a LoS analysis for cumulative plus project conditions. The results of this analysis was compared to 2001 cumulative conditions to determine the impacts of this project.

The 2001 cumulative plus project traffic projections are presented in Chapter 4. The analysis of the project-related impacts and the conclusions of the analyses are presented in Chapter 5.

2. ANALYSIS OF EXISTING CONDITIONS

This chapter presents the existing traffic conditions and volumes on the roadways adjacent to the proposed project. The level-of-service concept and the results of the level-of-service analysis for existing conditions are also presented. The purpose of this analysis is to establish the base conditions for the determination of the impacts of the project which are described in a subsequent chapter.

Description of Existing Streets and Intersection Controls

Farrington Highway and Kili Drive are two-lane, two-way roadways. Photographs of the roadways and the intersection of Farrington Highway at Kili Drive are presented as Appendix A.

The intersections of Farrington Highway at Kili Drive is controlled by a STOP sign. There is a crosswalk across Kili Drive at the intersection.

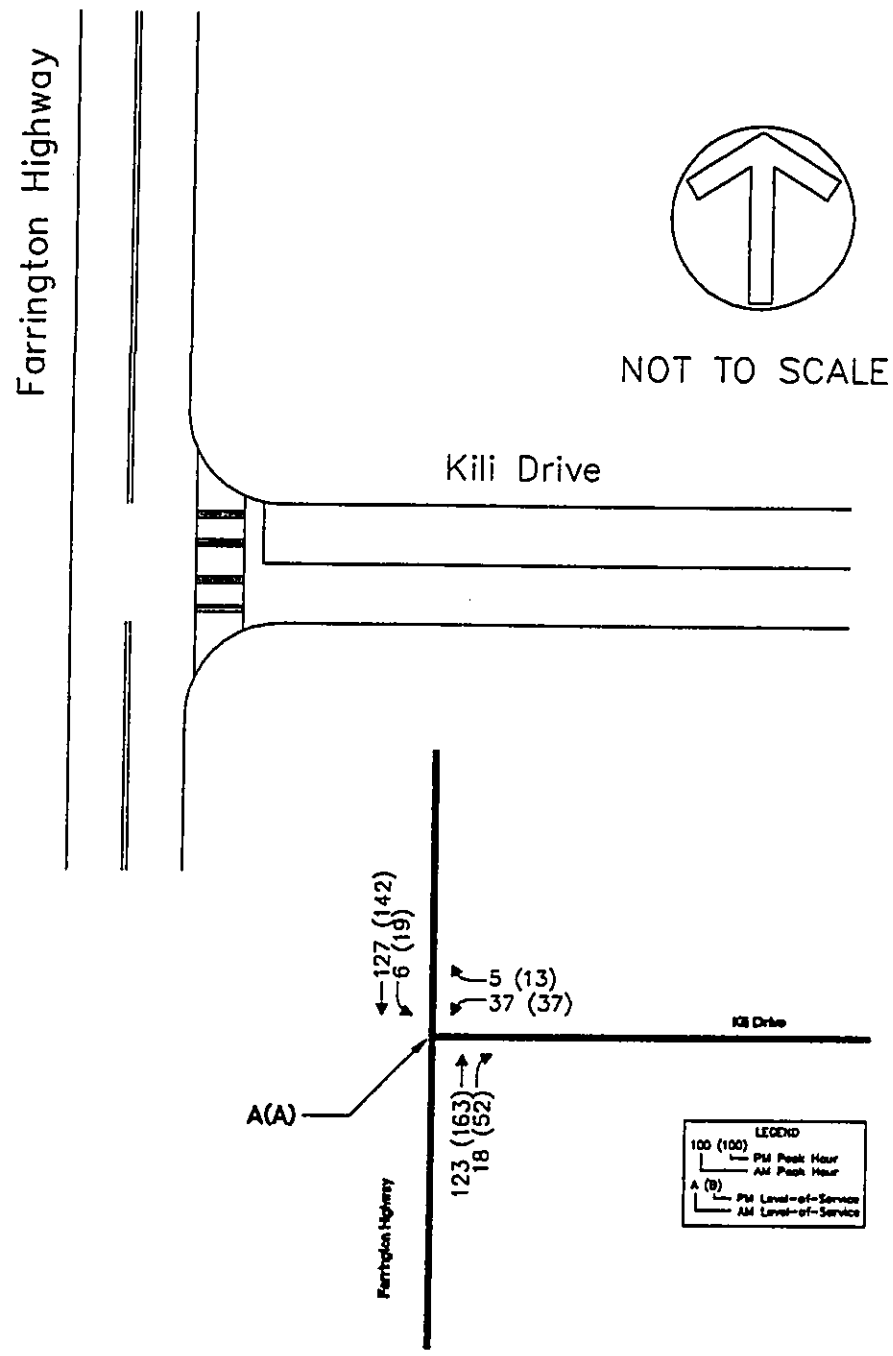

Figure 2

Existing Conditions

Existing Peak Hour Traffic Volumes

Morning and afternoon peak hour traffic volumes were obtained from traffic counts conducted for this study in May 1996. The time periods for these manual count were determined by the peak hours identified by 24-hour machine counts along Farrington Highway performed and published by Hawaii Department of Transportation (HDOT). The most recent HDOT counts is the vicinity of the study intersection were performed in 1993. One one location is approximately 3.0 miles north of the intersection of Farrington Highway at Kili Drive. A second count location is 1.5 miles south of the intersection.

These counts determined that the morning peak hour was between 11:00 AM and noon. At the count station to the north, the afternoon peak hour was between 2:30 PM and 3:30 PM. At the southern station, the peak hour was between 4:00 PM and 5:00 PM. The counts for this study identified the morning and afternoon peak hours to be between 10:30 AM and 11:30 AM and between 5:00 PM and 6:00 PM, respectively.

The peak hour traffic volumes calculated from the manual counts are also shown in Figure 2.

Level-of-Service Concept

Signalized Intersections

The planning method described in the *1994 Highway Capacity Manual* (HCM) was used to analyze the operating efficiency of the signalized intersections adjacent to the study site. This method involves the calculation of a volume-to-capacity (V/C) ratio which is related to a level-of-service. A maximum intersection capacity based on the number of phases was used for the V/C calculations.

"Level-of-Service" is a term which denotes any of an infinite number of combinations of traffic operating conditions that may occur on a given lane or roadway when it is subjected to various traffic volumes. Level-of-service (LoS) is a qualitative measure of the effect of a number of factors which include space, speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience.

There are six levels-of-service, A through F, which relate to the driving conditions from best to worst, respectively. The characteristics of traffic operations for each level-of-service are summarized in Table 1. In general, LoS A represents free-flow conditions with no congestion. LoS F, on the other hand, represents severe congestion with stop-and-go conditions. Level-of-service D is typically considered acceptable for peak hour conditions in urban areas.

Table 1 Level-of-Service Definitions for Signalized Intersections[1]

Level of Service	Interpretation	Volume-to-Capacity Ratio[2]	Stopped Delay (Seconds)
A, B	Uncongested operations; all vehicles clear in a single cycle.	0.000-0.700	<15.0
C	Light congestion; occasional backups on critical approaches	0.701-0.800	15.1-25.0
D	Congestion on critical approaches but intersection functional. Vehicles must wait through more than one cycle during short periods. No long standing lines formed.	0.801-0.900	25.1-40.0
E	Severe congestion with some standing lines on critical approaches. Blockage of intersection may occur if signal does not provide protected turning movements.	0.901-1.000	40.1-60.0
F	Total breakdown with stop-and-go operation	>1.001	>60.0

Notes:
(1) Source: *Highway Capacity Manual*, 1994.
(2) This is the ratio of the calculated critical volume to Level-of-Service E Capacity.

Corresponding to each level-of-service shown in the table is a volume/capacity ratio. This is the ratio of either existing or projected traffic volumes to the capacity of the intersection. Capacity is defined as the maximum number of vehicles that can be accommodated by the roadway during a specified period of time. The capacity of a particular roadway is dependent upon its physical characteristics such as the number of lanes, the operational characteristics of the roadway (one-way, two-way, turn prohibitions, bus stops, etc.), the type of traffic using the roadway (trucks, buses, etc.) and turning movements.

Unsignalized Intersections

Like signalized intersections, the operating conditions of intersections controlled by stop signs can be classified by a level-of-service from A to F. However, the method for determining level-of-service for unsignalized intersections is based on the use of gaps in traffic on the major street by vehicles crossing or turning through that stream. Specifically, the capacity of the controlled legs of an intersection is based on two factors: 1) the distribution of gaps in the major street traffic stream, and 2) driver judgement in selecting gaps through which to execute a desired maneuver. The criteria for level-of-service at an unsignalized intersection is therefore based on delay of each turning movement. Table 2 summarizes the definitions for level-of-service and the corresponding delay. A subsequent calculation to determine an overall LoS was made, and these results are presented in tables to summarize traffic conditions using parameters similar to those used for signalized intersections.

Table 2 Level-of-Service Definitions for Unsignalized Intersections[1]

Level-of-Service	Expected Delay to Minor Street Traffic	Delay (Seconds)
A	Little of no delay	>5
B	Short traffic delays	5.1 to 10.0
C	Average traffic delays	10.1 to 20.0
D	Long traffic delays	20.1 to 30.0
E	Very long traffic delays	30.1 to 45.0
F	See note (2) below	>45.1

Notes:
(1) Source: *Highway Capacity Manual*, 1994.
(2) When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement of the intersection.

Existing Level-of-Service Analysis

The Level-of-Service analysis for the unsignalized intersection is presented in Table 3. All movements operate at LOS 'B' or better during the peak periods.

Table 3 Summary of Level-of-Service Analysis for Existing Conditions

Approach and Movement	AM Peak Hour		PM Peak Hour	
	Delay (Sec)	LoS	Delay (Sec)	LoS
WB Total	5.3	B	5.8	B
SB Left	2.5	A	2.7	A
Intersection Total	0.7	A	0.7	A

Note: See appendices for calculations.

3. PROJECTED CUMULATIVE TRAFFIC CONDITIONS

The purpose of this chapter is to discuss the assumptions and data used to estimate 2001 cumulative project traffic conditions. Cumulative traffic conditions are defined as the traffic conditions resulting from background growth and related projects.

Future traffic growth consist of two components. The first is ambient background growth that is a result of regional growth and cannot be attributed to a specific project. This growth rate is typically estimated by analyzing historical counts taken over a period of several years. The second component is estimated traffic that will be generated by other development projects in the vicinity of the proposed project.

Background Traffic Growth Rate

The background growth rate of traffic in the study area was estimated from historical traffic counts provided by HDOT. The HDOT counts to the south indicated a steady decrease since 1990. However, the counts at the other station indicated a 4% increase per year since 1980. Therefore, existing (1996) peak hour traffic volumes were expanded by 4% per year for five years to estimate 2001 background growth between 1996 and 2001.

Related Project Generated Traffic

The second component in estimating cumulative traffic volumes is the traffic generated by other proposed projects in the vicinity. Related projects are defined as those projects that are under construction or have been approved for construction by the City and would significantly impact traffic in the study area.

No related projects were identified within the study area that would impact the study intersections in the time frame of this project.

2001 Cumulative Traffic Volumes

Estimated 2001 cumulative traffic volumes are calculated by applying the background growth rate to existing traffic volumes. The resulting 2001 cumulative peak hour traffic projections are shown in Figure 3.

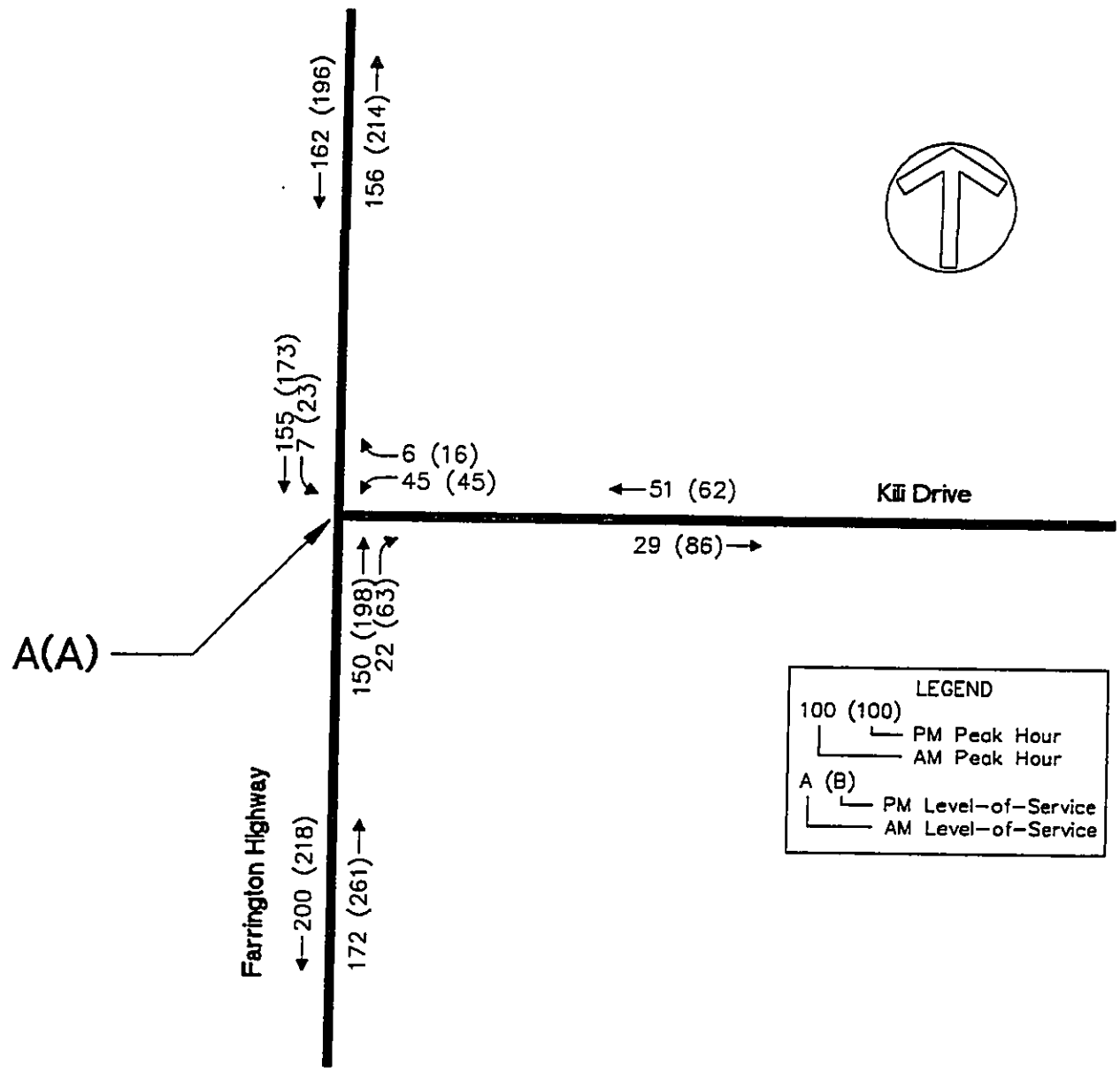

Figure 3

Cumulative Peak Hour Traffic Volumes Without Project

4. PROJECT-RELATED TRAFFIC CONDITIONS

This chapter discusses the methodology used to identify the traffic-related impacts of the proposed project. Generally, the process involves the determination of weekday and peak-hour trips that would be generated by the proposed project, distribution and assignment of these trips on the approach and departure routes, and finally, determination of the levels-of-service at affected intersections subsequent to implementation of the project.

Trip Generation

Future traffic volumes generated by the project were determined using trip generation rates contained in *Trip Generation*, Fifth Edition, prepared by the Institute of Transportation Engineers. The assumptions used to estimate the trips that the proposed project will generate are as follows:

1. Trip generation rates for a retirement community (land use code 250) were used to estimate trips generated by the residential uses of the project.

2. The commercial and medical facilities are for residents of the retirement community and will not attract trips from Farrington Highway. This is consistent with the definition of a retirement community as defined by the Institute of Transportation Engineers in *Trip Generation, Fifth Edition*. The definition of a retirement community for trip generation purposes is as follows:

   "Retirement communities - restricted to adults or senior citizens - contain residential units similar to apartments or condominums, and are usually self-contained villages. They may

also contain special services such as medical facilities, dining facilities, and some limited supporting retail facilities."[1]

3. Trip generation rates for a golf course (land use code 430) were used to estimate trips generated by the golf course.

4. The golf course is intended to be used primarily by residents of the retirement community but will be available to the public. The trip generation rates were not discounted to account for use by residents to be conservative.

5. Trip generation calculations were performed for 350 units plus the golf course and for 600 units plus the golf course.

The trip generation analysis and the resulting daily and peak hour volumes are summarized in Table 4.

Trip Distribution

The project-related trips were distributed along the anticipated approach routes to the project site. The approach and departure distributions are shown as percentages in Figure 4.

2001 Cumulative Plus Project Peak Hour Traffic Volumes

Using the trip generation and trip distribution previously discussed, project-related traffic was assigned to the various traffic movements at the study intersection. Separate assignments were prepared for the 350 and 600 unit scenarios. Future traffic volumes with the project were then determined by superimposing the project-generated traffic on the 2001 cumulative traffic volumes presented in Chapter 3. The resulting peak hour traffic volumes for 2001 cumulative plus project conditions are shown Figure 5.

The traffic projection worksheets are presented as Appendix B.

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[1]Institute of Transportation Engineers, Trip Generation, Fifth Edition, 1991, p. 463.

Table 4

TRIP GENERATION CALCULATIONS

Makaha Valley Retirement Community
May 1996

	Retirement Community Land Use Code 250				Golf Course Land Use Code 430		
Period	Trips/Unit	Trips For Phase 1 350 Units		Trips For Phase 2 600 Units	Trips/Unit	Trips For Golf Course 9 Holes	
Weekday Total	Not Available	0		0	3759%	338	
AM Peak Hour of Adj Street	0.17	60		102	3.22	29	
AM In	45%		27	46	83%		24
AM Out	55%		33	56	17%		5
PM Peak Hour of Adj Street	0.28	98		168	3.36	30	
PM In	56%		55	94	52%		16
PM Out	44%		43	74	48%		14
AM Peak Hour of Generator	0.29	102		174	Not Available	0	
AM In	51%		52	89	Not Available		0
AM Out	49%	0	50	85	Not Available	0	0
PM Peak Hour of Generator	0.34	119		204	Not Available	0	
PM In	56%		67	114	Not Available		0
PM Out	44%		52	90	Not Available		0
Saturday Total	2.76	966		1,656	42.43	382	
Saturday Peak Hour	Not Available	0		0	4.6	41	
Sat In	Not Available		0	0	72%		30
Sat Out	Not Available		0	0	28%		11
Sunday Total	2.32	812		1,392	41.7	375	
Sunday Peak Hour	0.22	77		132	4.3	39	
Sun In	49%		38	65	Not Available		0
Sun Out	51%		39	67	Not Available		0

Source: Institute of Transportation Engineers, Trip Generation, Fifth Edition, 1991

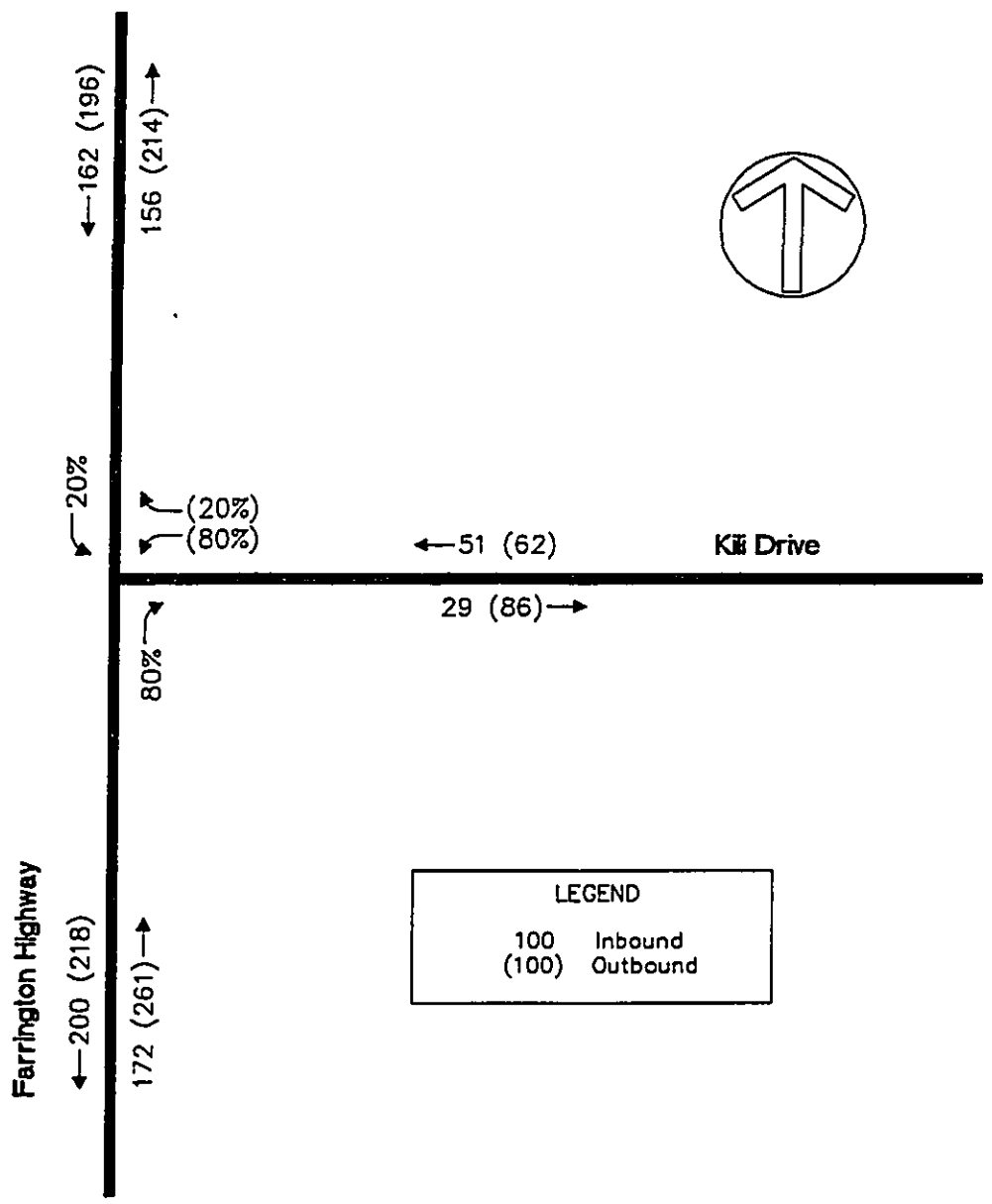

Figure 4

Trip Distribution

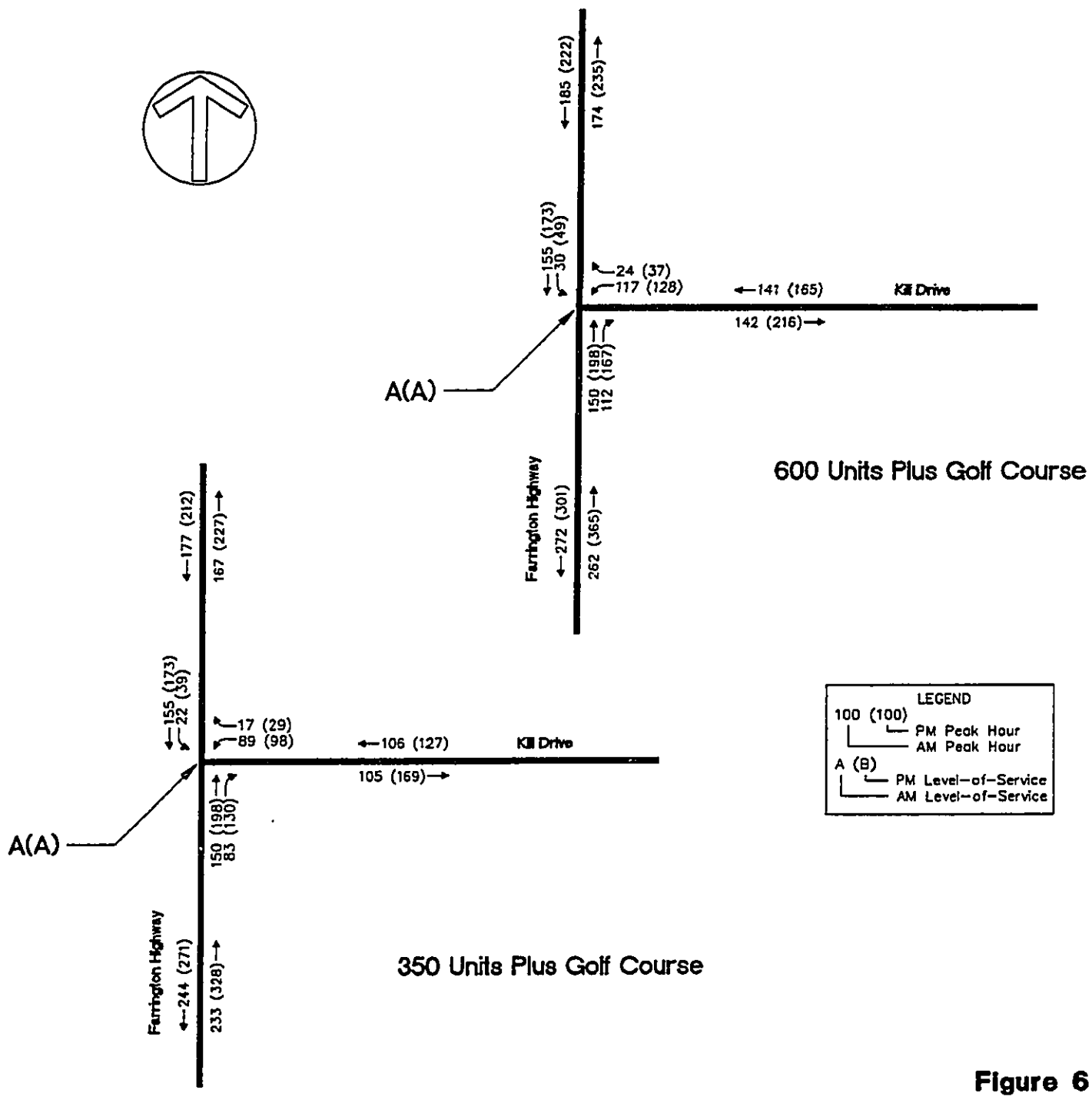

Figure 6

Cumulative Peak Hour Traffic Volumes With Project

5. CONCLUSIONS AND RECOMMENDATIONS

The purpose of this chapter is to present the results of the level-of-service analysis, which identifies the project-related impacts. In addition, any mitigation measures necessary and feasible are identified and other access, egress and circulation issues are discussed.

Definition of Significant Impacts

Criteria for determining if a project has a significant traffic impact for which mitigation measures must be investigated have been established based on traffic impact study guidelines used in other traffic studies. Generally, the criteria are as follows: if the level-of-service (LOS) without the project is E or F and the volume/capacity (V/C) ratio changes less than 0.020, the project's traffic impacts are considered insignificant. However, if the V/C ratio change is greater than 0.020, then mitigation measures which will reduce the V/C ratio change to less than 0.020 must be identified. If the LOS with the project is D or better, then no mitigation measures need to be identified.

The above criteria has been used in the traffic impact studies for the Hawaii Convention Center and the Waikiki Regional Traffic Impact Study prepared for the City and County of Honolulu Department of Transportation Service and therefore has been used for this study.

Project Related Traffic Impacts and Mitigation Measures

A level-of-service analysis was perfomed for 2001 cumulative plus project conditions. The assumptions used for this analysis are:

1. The study intersection will not be signalized. Therefore, the methodology for unsignalized intersection was used.

2. The intersection geometry will not be modified as part of the project.

The results of the level-of-service analysis for 2001 cumulative plus project conditions are summarized in Table 5. As shown, all intersection movements will operate at LOS 'C' or better during peak hours for either the 350 or 600 unit scenario.

Conclusions and Summary

Traffic related impacts at the study intersections are minimal and no mitigation measures are required. All intersections should operate at better than acceptable levels-of-service upon completion of the project with existing intersection configuration and right-of-way control.

The existing one-lane approach provides sufficient capacity to accommodate existing traffic plus anticipated traffic resulting from the proposed project.

A traffic signal warrant analysis concluded that the peak hour volume did not meet the minimum warrants to justify a traffic signal.

Table 5
Level-of-Service Analysis for 2001 Conditions

Approach & Movement	Cumulative				Cumulative Plus 350 Units Scenario				Cumulative Plus 600 Units Scenario			
	AM		PM		AM		PM		AM		PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
WB Total	6.0	B	6.8	B	8.1	B	11.3	C	10.4	C	17.5	C
SB Left	2.6	A	2.9	A	2.8	A	3.2	A	2.9	A	3.3	A
SB Total	0.1	A	0.3	A	0.3	A	0.5	A	0.4	A	0.6	A
Intersection Total	0.8	A	0.9	A	1.7	A	2.2	A	2.5	A	3.9	A

APPENDIX A

PHOTOGRAPHS OF STUDY INTERSECTIONS

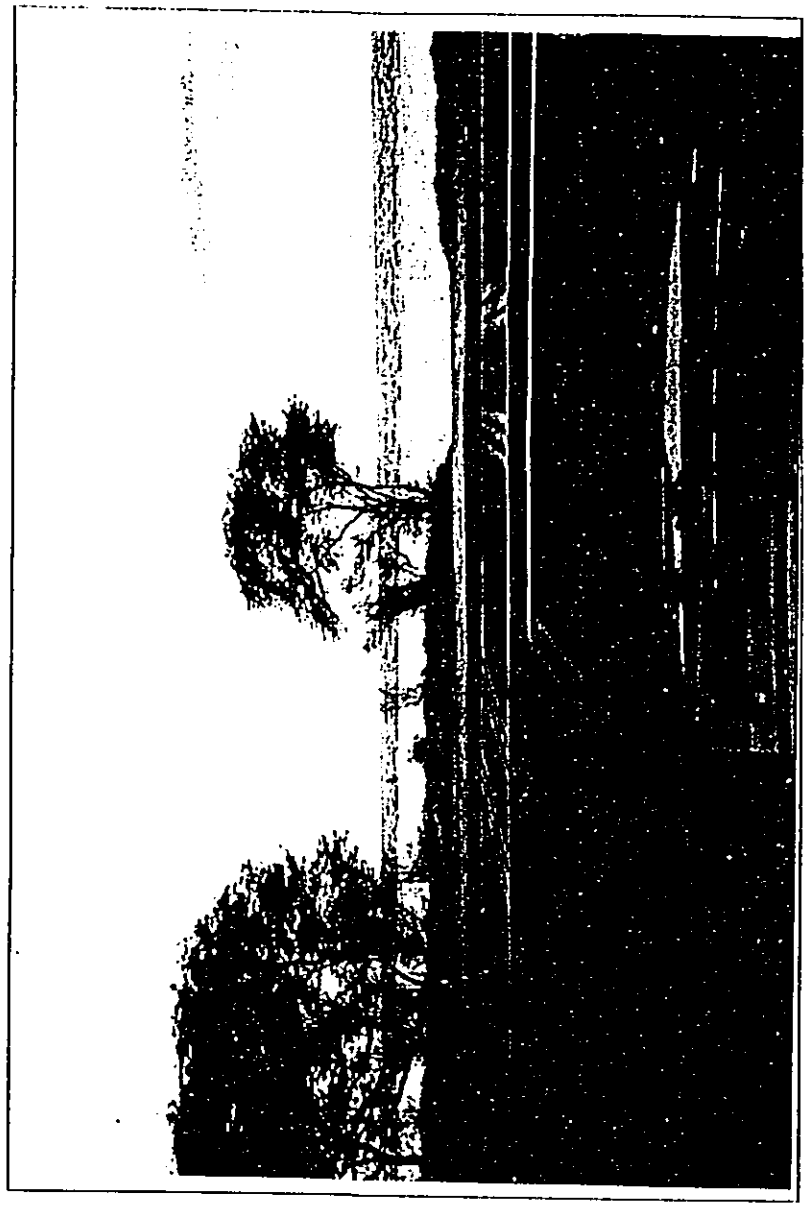

Figure A1 Looking West Along Kili Drive Across Farrington Highway.

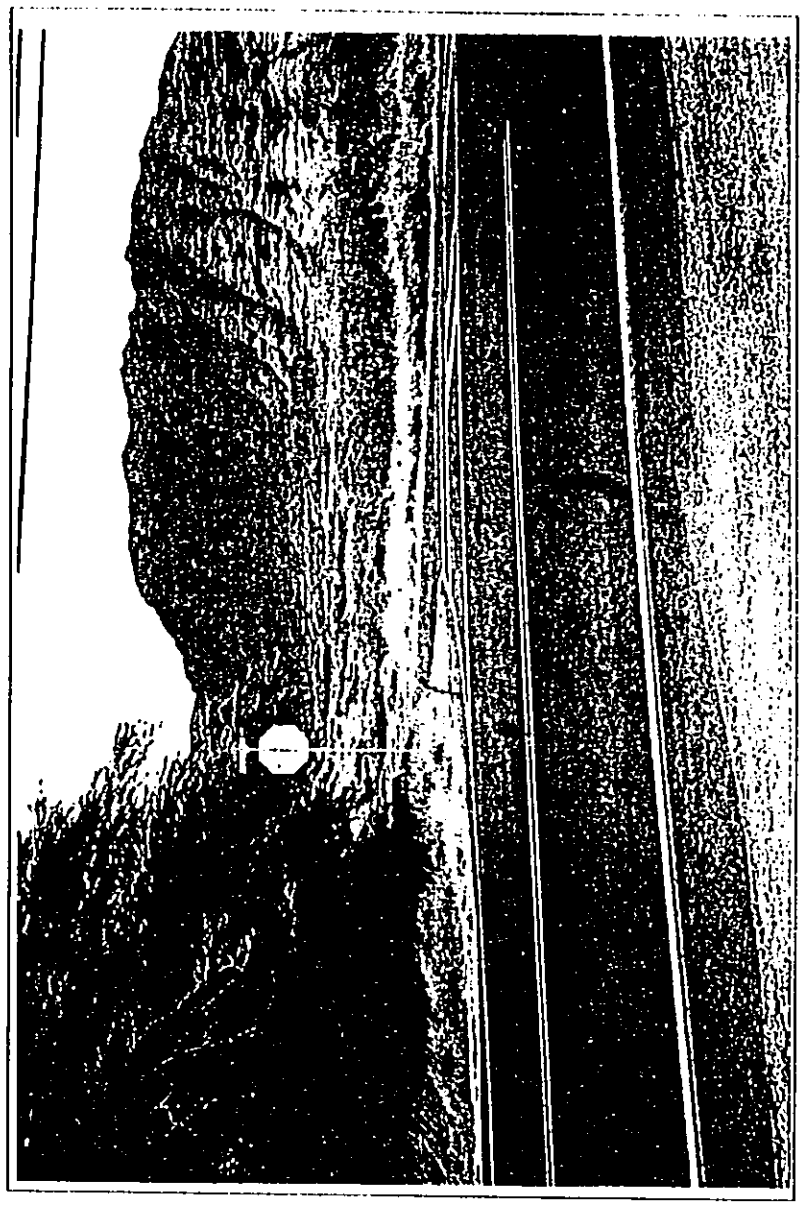

Figure A2 Looking East Across Farrington Highway.

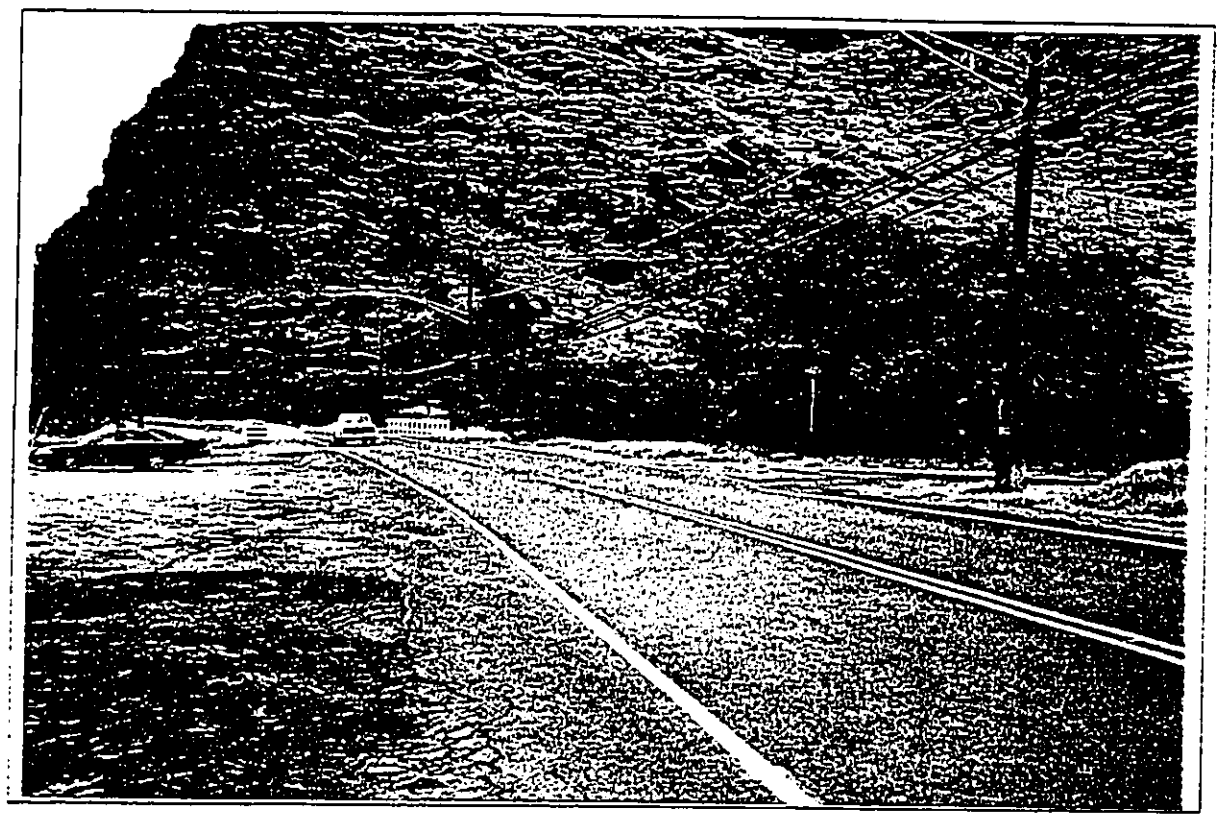

Figure A3 Looking North Along Farrington Highway.

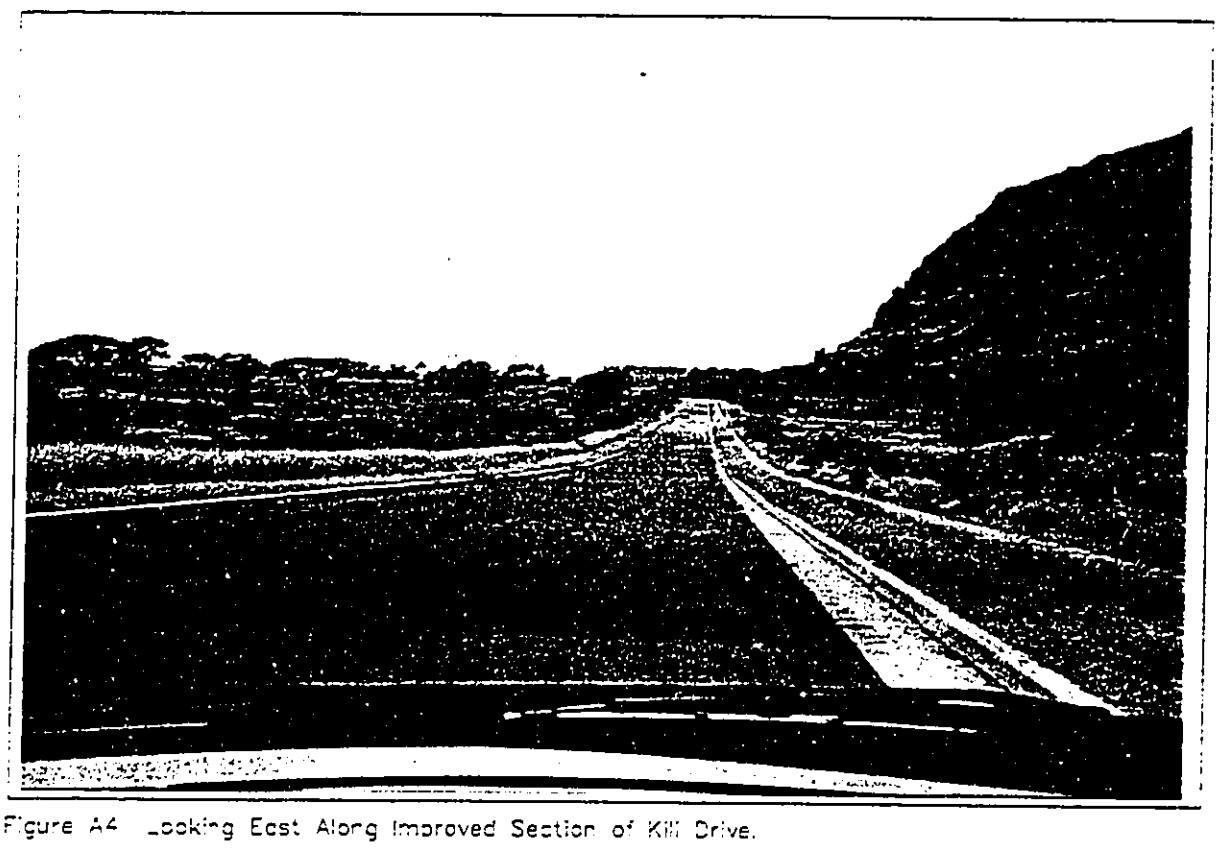

Figure A4 Looking East Along Improved Section of Kili Drive.

APPENDIX B

TRAFFIC PROJECTION WORKSHEETS

Part 1
Input Data
PROJECT: Makaha Valley Retirement Community
DATE: May 1996

NO	INTERSECTION
1	Farrington Highway at Kili Drive
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

LEVEL-OF-SERVICE CRITERIA AND PRECISION

V/C RATIO	LoS
0.0000	A
0.6000	B
0.7001	C
0.8001	D
0.9001	E
1.0001	F

3	V/C Round Off (decimals)
1500	Default Lane Capacity
10	Default Left Turn Penalty (%)

OTHER DATA

1996	Base Year
2001	Design Year
4.00%	Per Cent Growth Per Year (AM Peak)
1.217	Growth Factor (Compounded)
4.00%	Per Cent Growth Per Year (PM Peak)
1.217	Growth Factor (Compounded)

Part 2 (Table 5)
TRIP GENERATION CALCULATIONS
Makaha Valley Retirement Community
May 1996

Period	Retirement Community Land Use Code 250					Golf Course Land Use Code 430		
	Trips/Unit	Trips For Phase 1 350 Units		Trips For Phase 2 600 Units		Trips/Unit	Trips For Golf Course 9 Holes	
Weekday Total	Not Available	0		0		3759%	338	
AM Peak Hour of Adj Street	0.17	60		102		3.22	29	
AM In	45%		27		46	83%		24
AM Out	55%		33		56	17%		5
PM Peak Hour of Adj Street	0.28	98		168		3.36	30	
PM In	56%		55		94	52%		16
PM Out	44%		43		74	48%		14
AM Peak Hour of Generator	0.29	102		174		Not Available	0	
AM In	51%		52		89	Not Available		0
AM Out	49%	0	50		85	Not Available	0	0
PM Peak Hour of Generator	0.34	119		204		Not Available	0	
PM In	56%		67		114	Not Available		0
PM Out	44%		52		90	Not Available		0
Saturday Total	2.76	966		1,656		42.43	382	
Saturday Peak Hour	Not Available	0		0		4.6	41	
Sat In	Not Available		0		0	72%		30
Sat Out	Not Available		0		0	28%		11
Sunday Total	2.32	812		1,392		41.7	375	
Sunday Peak Hour	0.22	77		132		4.3	39	
Sun In	49%		38		65	Not Available		0
Sun Out	51%		39		67	Not Available		0

Source: Institute of Transportation Engineers, Trip Generation, Fifth Edition, 1991

Part 3

TRIP DISTRIBUTION TABLE

Makaha Valley Retirement Community
May 1996

Route	% In	% Out	Route Description
A	20%	20%	North along Farrington
B	80%	80%	South along Farrington
C	0%	0%	
D	0%	0%	
E	0%	0%	
F			
G			
H			
I			
J			
K			
L			
M			
N			
O			
P			
Q			
R			
S			
T			
Total	100%	100%	

Part 4

TRIP ASSIGNMENT WORKSHEET

Makaha Valley Retirement Community
May 1998

INTERSECTION NO
INTERSECTION OF

No	Approach & Mvt	Existing AM	Existing PM	2001 Background AM	2001 Background PM	Related Trips AM	Related Trips PM	2001 Cumulative AM	2001 Cumulative PM	Project Trips: 350 Units % IN	350 Units %OUT	350 Units AM	350 Units PM	600 units % IN	600 units %OUT	600 units AM	600 units PM	Golf Course % IN	Golf Course %OUT	Golf Course AM	Golf Course PM	2001 Cumulative Plus Project: 350 Units Plus Golf Course AM	350 Units Plus Golf Course PM	600 Units Plus Golf Course AM	600 Units Plus Golf Course PM
1	N- RT	0	0	0	0	0	0	0	0			0	0			0	0			0	0	0	0	0	0
2	TH	127	142	155	173	0	0	155	173			0	0			0	0			0	0	155	173	155	173
3	LT	6	19	7	23	0	0	7	23	0.20		10	13	0.20		18	23	0.20		5	3	22	39	30	49
4	E- RT	5	13	6	16	0	0	6	16		0.20	10	10		0.20	17	18		0.20	1	3	17	29	24	37
5	TH	0	0	0	0	0	0	0	0			0	0			0	0			0	0	0	0	0	0
6	LT	37	37	45	45	0	0	45	45		0.80	40	42		0.80	68	72		0.80	4	11	89	98	117	128
7	S- RT	18	52	22	63	0	0	22	63	0.80		42	54	0.80		71	91	0.80		19	13	83	130	112	167
8	TH	123	163	150	198	0	0	150	198			0	0			0	0			0	0	150	198	150	198
9	LT	0	0	0	0	0	0	0	0			0	0			0	0			0	0	0	0	0	0
10	W- RT	0	0	0	0	0	0	0	0			0	0			0	0			0	0	0	0	0	0
11	TH	0	0	0	0	0	0	0	0			0	0			0	0			0	0	0	0	0	0
12	LT	0	0	0	0	0	0	0	0			0	0			0	0			0	0	0	0	0	0
TOTAL		316	426	385	518	0	0	385	518			102	119			174	204			29	30	516	667	588	752
								0.149 A	0.215 A													0.226 A	0.304 A	0.269 A	0.353 A
Approach Totals																									
From North		133	161	162	196	0	0	162	196			10	13			18	23			5	3	177	212	185	222
From East		42	50	51	61	0	0	51	61			50	52			85	90			5	14	108	127	141	165
From South		141	215	172	261	0	0	172	261			42	54			71	91			19	13	233	328	262	365
From West		0	0	0	0	0	0	0	0			0	0			0	0			0	0	0	0	0	0
Total		316	426	385	518	0	0	385	518			102	119			174	204			29	30	516	667	588	752
Departure Totals																									
To North		128	176	156	214	0	0	156	214			10	10			17	18			1	3	167	227	174	235
To East		24	71	29	86	0	0	29	86			52	67			89	114			24	16	105	169	142	216
To South		164	179	200	218	0	0	200	218			40	42			68	72			4	11	244	271	272	301
To West		0	0	0	0	0	0	0	0			0	0			0	0			0	0	0	0	0	0
Total		316	426	385	518	0	0	385	518			102	119			174	204			29	30	516	667	588	752
Leg Totals																									
North		261	337	318	410	0	0	318	410			20	23			35	41			6	6	344	439	359	457
East		66	121	80	147	0	0	80	147			102	119			174	204			29	30	211	296	283	381
South		305	394	372	479	0	0	372	479			82	96			139	163			23	24	477	599	534	666
West		0	0	0	0	0	0	0	0			0	0			0	0			0	0	0	0	0	0
Total		632	852	770	1036	0	0	770	1036			204	238			348	408			58	60	1032	1334	1176	1504

APPENDIX C

LEVEL-OF-SERVICE CALCULATIONS

****

File Name EXIST.HC0
Streets: (N-S) Farrington Highway (E-W) Kili Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst.....
Date of Analysis..... 5/9/96
Other Information..... Existing AM Peak Hour

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>	1<	0
Stop/Yield			N			N						
Volumes		123	18	6	127					37	0	5
PHF		.8	.8	.8	.8					.5	.5	.5
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0	0	0
SU/RV's (%)		0	0	0	0					0	0	0
CV's (%)		0	0	0	0					0	0	0
PCE's		1.1	1.1	1.1	1.1					1.1	1.1	1.1

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)	132	
Potential Capacity: (pcph)	1187	
Movement Capacity: (pcph)	1187	
Prob. of Queue-free State:	0.99	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	141	
Potential Capacity: (pcph)	1469	
Movement Capacity: (pcph)	1469	
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 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	265	
Potential Capacity: (pcph)	792	
Capacity Adjustment Factor due to Impeding Movements	0.99	
Movement Capacity: (pcph)	787	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	265	
Potential Capacity: (pcph)	744	
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)	739	

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	81	739	774	5.3	B	5.3
WB	R	11	1187				
SB	L	8	1469		2.5	A	0.1

Intersection Delay = 0.7

****

File Name EXIST.HC0
Streets: (N-S) Farrington Highway (E-W) Kili Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst.....
Date of Analysis..... 5/9/96
Other Information..... Existing PM Peak Hour

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>	1<	0
Stop/Yield			N			N						
Volumes		163	52	19	142					37	0	13
PHF		.8	.8	.8	.8					.5	.5	.5
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0	0	0
SU/RV's (%)		0	0	0	0					0	0	0
CV's (%)		0	0	0	0					0	0	0
PCE's		1.1	1.1	1.1	1.1					1.1	1.1	1.1

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)	189	
Potential Capacity: (pcph)	1111	
Movement Capacity: (pcph)	1111	
Prob. of Queue-free State:	0.97	
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	215	
Potential Capacity: (pcph)	1354	
Movement Capacity: (pcph)	1354	
Prob. of Queue-free State:	0.98	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:	0.98	
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	350	
Potential Capacity: (pcph)	715	
Capacity Adjustment Factor due to Impeding Movements	0.98	
Movement Capacity: (pcph)	699	
Prob. of Queue-free State:	1.00	
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	350	
Potential Capacity: (pcph)	664	
Major LT, Minor TH Impedance Factor:	0.98	
Adjusted Impedance Factor:	0.98	
Capacity Adjustment Factor due to Impeding Movements	0.98	
Movement Capacity: (pcph)	650	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	81	650 >		>	>	
				730	5.8	B	5.8
WB	R	29	1111 >		>	>	
SB	L	26	1354		2.7	A	0.3

Intersection Delay = 0.7

****

File Name EXIST.HC0
Streets: (N-S) Farrington Highway (E-W) Kili Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst.....
Date of Analysis..... 5/9/96
Other Information..... Cumulative AM Peak Hour

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>	1<	0
Stop/Yield			N			N						
Volumes		150	22	7	155					45	0	6
PHF		.8	.8	.8	.8					.5	.5	.5
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0	0	0
SU/RV's (%)		0	0	0	0					0	0	0
CV's (%)		0	0	0	0					0	0	0
PCE's		1.1	1.1	1.1	1.1					1.1	1.1	1.1

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)	161	
Potential Capacity: (pcph)	1148	
Movement Capacity: (pcph)	1148	
Prob. of Queue-free State:	0.99	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	172	
Potential Capacity: (pcph)	1419	
Movement Capacity: (pcph)	1419	
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 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	323	
Potential Capacity: (pcph)	738	
Capacity Adjustment Factor due to Impeding Movements	0.99	
Movement Capacity: (pcph)	732	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	323	
Potential Capacity: (pcph)	688	
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)	682	

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)		Avg.Total Delay		LOS		Delay By App
WB	L	99	682	>		>		>			
					716		6.0		B		6.0
WB	R	13	1148	>		>		>			
SB	L	10	1419			2.6		A			0.1

Intersection Delay = 0.8

Center For Microcomputers In Transportation
HCS: Unsignalized Intersection Release 2.1
****

File Name EXIST.HC0
Streets: (N-S) Farrington Highway (E-W) Kili Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst.....
Date of Analysis..... 5/9/96
Other Information..... Cumulative PM Peak Hour

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>	1<	0
Stop/Yield			N			N						
Volumes		198	63	23	173					45	0	16
PHF		.8	.8	.8	.8					.5	.5	.5
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0	0	0
SU/RV's (%)		0	0	0	0					0	0	0
CV's (%)		0	0	0	0					0	0	0
PCE's		1.1	1.1	1.1	1.1					1.1	1.1	1.1

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)	230	
Potential Capacity: (pcph)	1059	
Movement Capacity: (pcph)	1059	
Prob. of Queue-free State:	0.97	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	261	
Potential Capacity: (pcph)	1287	
Movement Capacity: (pcph)	1287	
Prob. of Queue-free State:	0.98	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:	0.97	

Step 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	426	
Potential Capacity: (pcph)	652	
Capacity Adjustment Factor due to Impeding Movements	0.97	
Movement Capacity: (pcph)	633	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	426	
Potential Capacity: (pcph)	600	
Major LT, Minor TH Impedance Factor:	0.97	
Adjusted Impedance Factor:	0.97	
Capacity Adjustment Factor due to Impeding Movements	0.97	
Movement Capacity: (pcph)	583	

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	99	583	>		>	>	
					661	6.8	B	6.8
WB	R	35	1059	>		>	>	
SB	L	32	1287			2.9	A	0.3

Intersection Delay = 0.9

****

File Name EXIST.HC0
Streets: (N-S) Farrington Highway (E-W) Kili Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst.....
Date of Analysis..... 5/9/96
Other Information..... 350 Units Plus Golf Course, AM Peak Hour

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>	1<	0
Stop/Yield			N			N						
Volumes		150	83	22	155					89	0	17
PHF		.8	.8	.8	.8					.5	.5	.5
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0	0	0
SU/RV's (%)		0	0	0	0					0	0	0
CV's (%)		0	0	0	0					0	0	0
PCE's		1.1	1.1	1.1	1.1					1.1	1.1	1.1

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)	192	
Potential Capacity: (pcph)	1107	
Movement Capacity: (pcph)	1107	
Prob. of Queue-free State:	0.97	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	233	
Potential Capacity: (pcph)	1328	
Movement Capacity: (pcph)	1328	
Prob. of Queue-free State:	0.98	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:	0.97	

Step 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	368	
Potential Capacity: (pcph)	699	
Capacity Adjustment Factor due to Impeding Movements	0.97	
Movement Capacity: (pcph)	681	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	368	
Potential Capacity: (pcph)	648	
Major LT, Minor TH Impedance Factor:	0.97	
Adjusted Impedance Factor:	0.97	
Capacity Adjustment Factor due to Impeding Movements	0.97	
Movement Capacity: (pcph)	631	

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	196	631	>	677	8.1	B	8.1
WB	R	37	1107	>				
SB	L	30	1328			2.8	A	0.3

Intersection Delay = 1.7

****

File Name EXIST.HC0
Streets: (N-S) Farrington Highway (E-W) Kili Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst.....
Date of Analysis..... 5/9/96
Other Information..... 350 Units Plus Golf Course, PM Peak Hour

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>	1<	0
Stop/Yield			N			N						
Volumes		198	130	39	173					98	0	29
PHF		.8	.8	.8	.8					.5	.5	.5
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0	0	0
SU/RV's (%)		0	0	0	0					0	0	0
CV's (%)		0	0	0	0					0	0	0
PCE's		1.1	1.1	1.1	1.1					1.1	1.1	1.1

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)	263	
Potential Capacity: (pcph)	1019	
Movement Capacity: (pcph)	1019	
Prob. of Queue-free State:	0.94	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	328	
Potential Capacity: (pcph)	1196	
Movement Capacity: (pcph)	1196	
Prob. of Queue-free State:	0.95	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:	0.95	

Step 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	475	
Potential Capacity: (pcph)	614	
Capacity Adjustment Factor due to Impeding Movements	0.95	
Movement Capacity: (pcph)	582	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	475	
Potential Capacity: (pcph)	562	
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)	532	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	216	532	>	>	>	
				597	11.3	C	11.3
WB	R	64	1019	>	>	>	
SB	L	54	1196		3.2	A	0.5

Intersection Delay = 2.2

****

File Name EXIST.HC0
Streets: (N-S) Farrington Highway (E-W) Kili Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst.....
Date of Analysis..... 5/9/96
Other Information..... 600 Units Plus Golf Course, AM Peak Hour

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>	1<	0
Stop/Yield			N			N						
Volumes		150	112	30	155					117	0	24
PHF		.8	.8	.8	.8					.5	.5	.5
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0	0	0
SU/RV's (%)		0	0	0	0					0	0	0
CV's (%)		0	0	0	0					0	0	0
PCE's		1.1	1.1	1.1	1.1					1.1	1.1	1.1

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)	206	
Potential Capacity: (pcph)	1089	
Movement Capacity: (pcph)	1089	
Prob. of Queue-free State:	0.95	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	262	
Potential Capacity: (pcph)	1286	
Movement Capacity: (pcph)	1286	
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:	0.96	

Step 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	391	
Potential Capacity: (pcph)	680	
Capacity Adjustment Factor due to Impeding Movements	0.96	
Movement Capacity: (pcph)	655	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	391	
Potential Capacity: (pcph)	629	
Major LT, Minor TH Impedance Factor:	0.96	
Adjusted Impedance Factor:	0.96	
Capacity Adjustment Factor due to Impeding Movements	0.96	
Movement Capacity: (pcph)	606	

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Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	257	606	656	10.4	C	10.4
WB	R	53	1089				
SB	L	41	1286		2.9	A	0.4

Intersection Delay = 2.5

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File Name EXIST.HC0
Streets: (N-S) Farrington Highway (E-W) Kili Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst.....
Date of Analysis..... 5/9/96
Other Information..... 600 Units Plus Golf Course, PM Peak Hour

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>	1<	0
Stop/Yield			N			N						
Volumes		198	167	49	173					128	0	37
PHF		.8	.8	.8	.8					.5	.5	.5
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0	0	0
SU/RV's (%)		0	0	0	0					0	0	0
CV's (%)		0	0	0	0					0	0	0
PCE's		1.1	1.1	1.1	1.1					1.1	1.1	1.1

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)	282	
Potential Capacity: (pcph)	996	
Movement Capacity: (pcph)	996	
Prob. of Queue-free State:	0.92	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	365	
Potential Capacity: (pcph)	1149	
Movement Capacity: (pcph)	1149	
Prob. of Queue-free State:	0.94	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:	0.93	

Step 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	504	
Potential Capacity: (pcph)	593	
Capacity Adjustment Factor due to Impeding Movements	0.93	
Movement Capacity: (pcph)	553	
Prob. of Queue-free State:	1.00	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	504	
Potential Capacity: (pcph)	541	
Major LT, Minor TH Impedance Factor:	0.93	
Adjusted Impedance Factor:	0.93	
Capacity Adjustment Factor due to Impeding Movements	0.93	
Movement Capacity: (pcph)	504	

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	282	504	566	17.5	C	17.5
WB	R	81	996				
SB	L	67	1149		3.3	A	0.6

Intersection Delay = 3.9