First Assembly of God Windward Church Redevelopment/Expansion

TMK 4-7-025: 008 and 026
Kahalu'u, O'ahu, Hawai'i

Draft Environmental Assessment
and Portion of
Special Management Area Use Permit Application

October 2007

First Assembly of God Windward Church Redevelopment/Expansion

TMK 4-7-025: 008 and 026
Kahalu'u, O'ahu, Hawai'i

Draft Environmental Assessment and Portion of Special Management Area Use Permit Application

This environmental document is prepared in accordance with the requirements of Chapter 343, HRS and Hawai'i Administrative Rules, Title 11, Department of Health.

This EA portion of the application for Special Management Area Use Permit is prepared in accordance with the requirements of Chapter 25, Revised Ordinances of Honolulu (ROH).

Applicant:
First Assembly of God
3400 Moanalua Road
Honolulu, Hawai'i 96819

Accepting Authority:
Department of Planning and Permitting
City and County of Honolulu
650 King Street, 7th Floor
Honolulu, Hawai'i 96813

Prepared by:
Group 70 International, Inc.
Architecture • Planning • Interior Design • Environmental Services
925 Bethel Street, 5th Floor
Honolulu, Hawai'i

October 2007

TABLE OF CONTENTS

SECTION **PAGE**

List of Appendices ..... *iii*
List of Figures ..... *iii*
List of Tables ..... *iii*

1.0 INTRODUCTION
1.1 Project Information Summary 1-1
1.2 Overview of Proposed Project 1-6
1.3 Content of Environmental Assessment 1-7
1.4 Consulted Agencies, Organizations, and Individuals 1-7

2.0 DESCRIPTION OF PROPOSED PROJECT
2.1 Purpose and Need for Proposed Action 2-1
2.2 Project Construction and Use Characteristics 2-1
2.2.1 Existing Church Facilities 2-1
2.2.2 Site Development Plan 2-2
2.2.3 Proposed New Facilities Construction 2-7
2.2.4 Anticipated Use / Occupancy Levels for Various Church Functions 2-11
2.2.5 Utility Requirements 2-13
2.2.6 Project Phasing and Completion Schedule 2-13
2.2.7 Project Costs 2-14
2.3 Required Land Use Approvals/Permits 2-14
2.3.1 Special Management Area Use Permit 2-14
2.3.2 Conditional Use Permits 2-15
2.3.3 Concurrent or Separate SMP and CUP Application Processing 2-15

3.0 DESCRIPTION OF THE ENVIRONMENTAL SETTING, POTENTIAL IMPACTS, AND MITIGATION MEASURES
3.1 Climate 3-1
3.2 Geology, Topography, and Soil Conditions 3-1
3.3 Ground and Surface Water Resources, and Site Drainage 3-2
3.4 Flood and Other Natural Hazards 3-4
3.5 Flora and Wetland Resources 3-6
3.6 Fauna 3-7
3.7 Coastal Waters and Marine Ecology 3-7
3.8 Historic and Cultural Resources 3-8
3.8.1 Archaeological Assessment 3-8
3.8.2 Cultural Impact Assessment 3-9
3.9 Air Quality 3-10
3.10 Noise 3-11
3.11 Visual Resources 3-12
3.12 Project Site and Surrounding Area Land Use 3-12
3.13 Socio-Economic Characteristics 3-13
3.14 Roadways and Traffic 3-14

3.0 DESCRIPTION OF THE ENVIRONMENTAL SETTING, POTENTIAL IMPACTS, AND MITIGATION MEASURES (CONTINUED)
3.15 Utilities 3-18
3.15.1 Electrical, Telephone, and Cable TV Service 3-18
3.15.2 Water Supply 3-18
3.15.3 Wastewater Collection, Treatment, and Disposal 3-19
3.15.4 Stormwater Runoff and Drainage 3-19
3.16 Hazardous Materials 3-20
3.17 Potential Cumulative and Secondary Impacts 3-20

4.0 ALTERNATIVES TO THE PROPOSED PROJECT
4.1 Alternative A – Retention of Existing Church Facilities 4-1
4.2 Alternative B – Smaller Scale Church Redevelopment 4-1
4.3 Alternative C – Residential Development of the Project Site 4-2
4.4 Evaluation of Alternatives 4-2

5.0 APPLICABLE ENVIRONMENTAL AND LAND USE POLICIES AND PLANS
5.1 Hawai'i State Plan 5-1
5.2 Hawai'i State Land Use District Boundaries 5-2
5.3 Hawai'i Coastal Zone Management Program 5-3
5.4 Hawai'i State Environmental Policy 5-4
5.5 City and County of Honolulu – General Plan 5-6
5.6 City and County of Honolulu – Ko'olaupoko Sustainable Communities Plan 5-9
5.7 City and County of Honolulu – Land Use Ordinance 5-12
5.8 City and County of Honolulu – Special Management Area Guidelines 5-13

6.0 DETERMINATION OF SIGNIFICANCE
6.1 Anticipated Determination 6-1
6.2 Reasons Supporting the Anticipated Determination 6-1
6.3 Summary 6-4

7.0 CONSULTATION WITH AGENCIES, ORGANIZATIONS AND INDIVIDUALS 7-1

8.0 LIST OF REFERENCES 8-1

LIST OF APPENDICES

DESIGNATION AND TITLE

A Preliminary Engineering Report
B Survey of Botanical, Avian, and Mammalian Resources
C Archaeological Assessment
D Cultural Impact Assessment
E First Assembly of God Windward Church – Current Community Outreach
F Traffic Impact Analysis Report

LIST OF FIGURES

FIGURE **PAGE**

1-1 Project Location Map....1-2
1-2 Tax Map Key and Property Boundary Map....1-3
1-3 Existing Church Building (Photo)....1-4
1-4 Special Management Area....1-5

2-1 Existing Church Building and Parking Entry (Photo)....2-2
2-2 Project Site Development Plan....2-3
2-3 Project Entry View (Rendering)....2-4
2-4 Main Buildings Courtyard View (Rendering)....2-8
2-5 Retreat Center View (Rendering)....2-10

3-1 Project Site Flood Insurance Rate Map (FIRM) Designations....3-5
3-2 Projected 2013 Peak-Hour Traffic with Project Completion at Kahekili Highway–ʻĀhuimanu Road Intersection....3-17

LIST OF TABLES

TABLE **PAGE**

2-1 Parking Requirement for Proposed Project....2-5
2-2 Project Phasing and Completion Schedule....2-14

3-1 Summary of Existing and Future Traffic Conditions at Kahekili Highway–ʻĀhuimanu Road Intersection....3-16

Section 1.0
Introduction

1.0 INTRODUCTION

1.1 PROJECT INFORMATION SUMMARY

Type of Project:	Redevelopment/Expansion of First Assembly of God Windward Church
Required Applications/Approvals:	Environmental Assessment (EA) Special Management Area (SMA) Use Permit Conditional Use Permit (CUP)
Site Location & Address *(Figure 1.1)*:	Kahaluʻu, at intersection of ʻĀhuimanu Road and Kahekili Highway 47-323 ʻĀhuimanu Road, Kāneʻohe, Hawaiʻi 96744
Parcel Tax Map Keys and Size *(Figure 1.2)*:	4-7-025:008 – 1.219 acres / 53,100 SF (R-10) 4-7-025:026 – 2.738 acres / 119,267 SF (AG-2)
Total Project Land Area:	3.957 acres
Existing Use *(Figure 1.3)*:	Sanctuary, classroom, office and kitchen. Total floor area is ~2,060 SF. The congregation includes ~120 members. Part-time onsite staff = 2.
Existing Zoning (LUO):	Parcel 008 – R-10 Residential District Parcel 026 – AG-2 Agricultural District
Proposed Use:	<u>R-10 Residential District Parcel</u> - Redeveloped/Expanded Church Sanctuary & Multi-Purpose Room (Separate Buildings) - New Classroom Building - Total = ~21,350 SF <u>AG-2 General Agricultural District Parcel</u> - New Retreat Center (~5,040 SF) - New Covered Play Court (~6,960 SF) - Relocated and Expanded Off-Street Parking (~88 spaces)
Applicant/Recorded Fee Owner:	First Assembly of God 3400 Moanalua Road Honolulu, Hawaiʻi 96819 Contact Person: Pastor John Rogers Telephone: 836-2300
Authorized Agent:	Group 70 International, Inc. 925 Bethel Street, 5th Floor Honolulu, Hawaiʻi 96813 Contact Person: Ralph Portmore Telephone: 523-5866; 551-4439 direct Email: rportmore@group70int.com

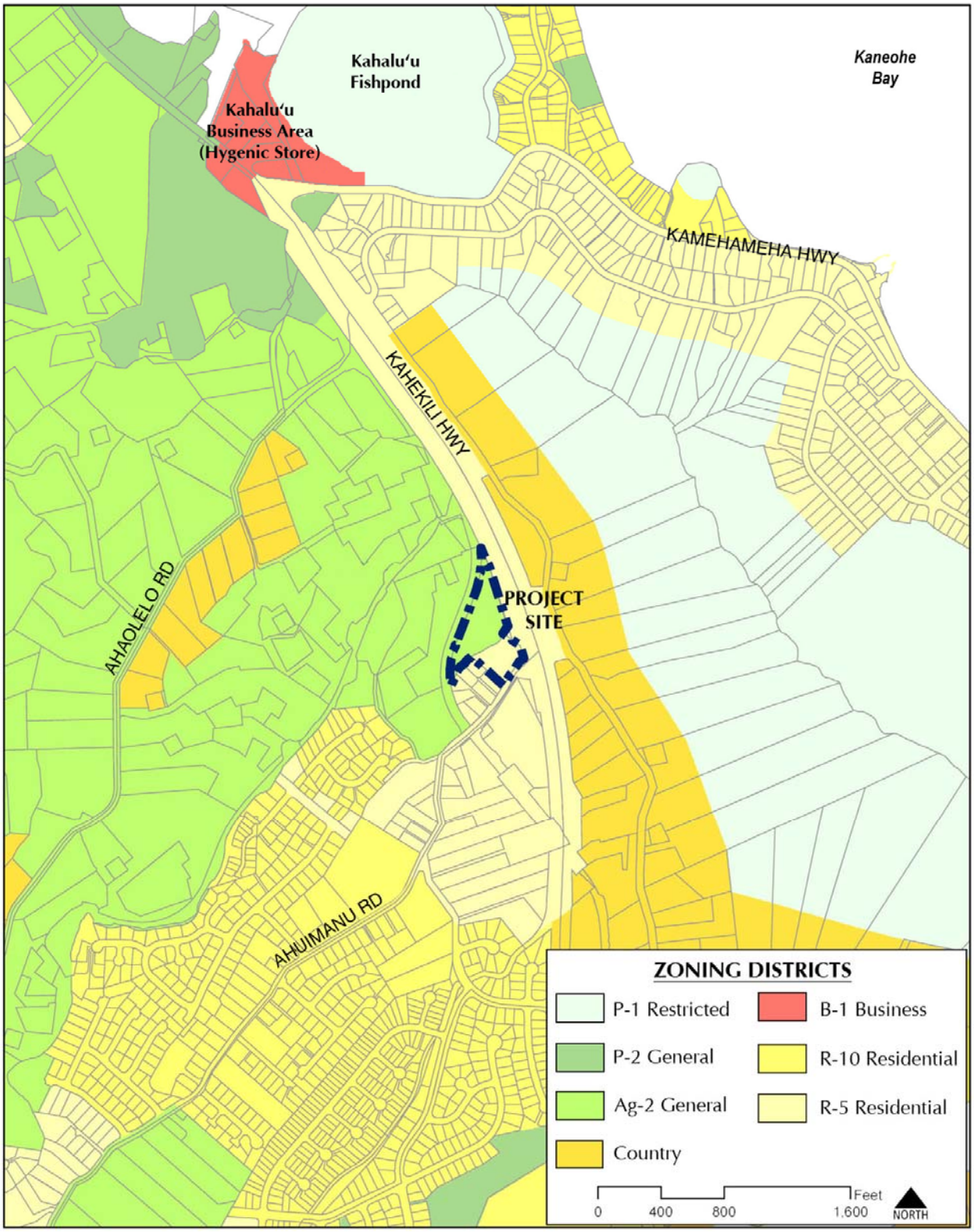


Figure 1.1: PROJECT LOCATION MAP

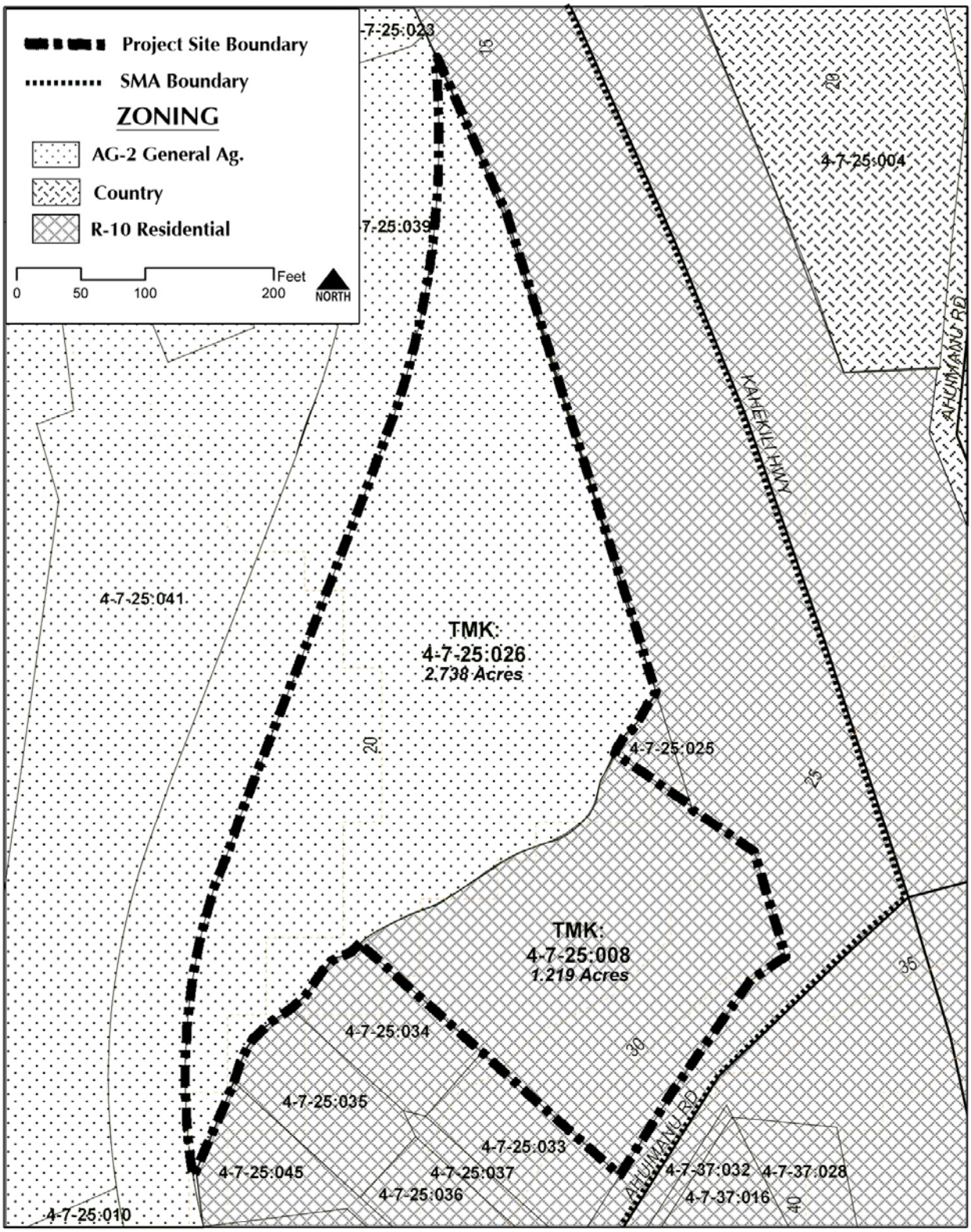


Figure 1.2: TAX MAP KEY AND PROPERTY BOUNDARY MAP

State Land Use District:	Urban (both parcels)
Sustainable Communities Plan (SCP):	Koʻolaupoko
SCP Land Use Map Designation:	Residential and Agriculture
SCP Public Facilities Map Designation:	None
Existing Zoning (LUO):	Parcel 008 – R-10 Residential District Parcel 026 – AG-2 Agricultural District
Special Management Area District:	Yes
Flood Zone Designation:	Parcel 008 – FIRM Zone XS, Areas of 500-year flood, and areas protected by levees for 100-year flood. Parcel 026 – FIRM Zone AE, 100-year flood hazard area with base flood elevations determined – shown as ranging from ~25 feet at north end to ~29 feet at south end of AG-2 zoned parcel.
Historic Register:	No Listing (both parcels)
EA Accepting Authority:	Department of Planning and Permitting
Anticipated Determination:	Finding of No Significant Impact (FONSI)

[Note: The symbol "~" is used throughout this report to indicate "approximately" or "about" when a quantity of something, such as a building size or use capacity, is being referenced.]

Figure 1.3: EXISTING CHURCH BUILDING

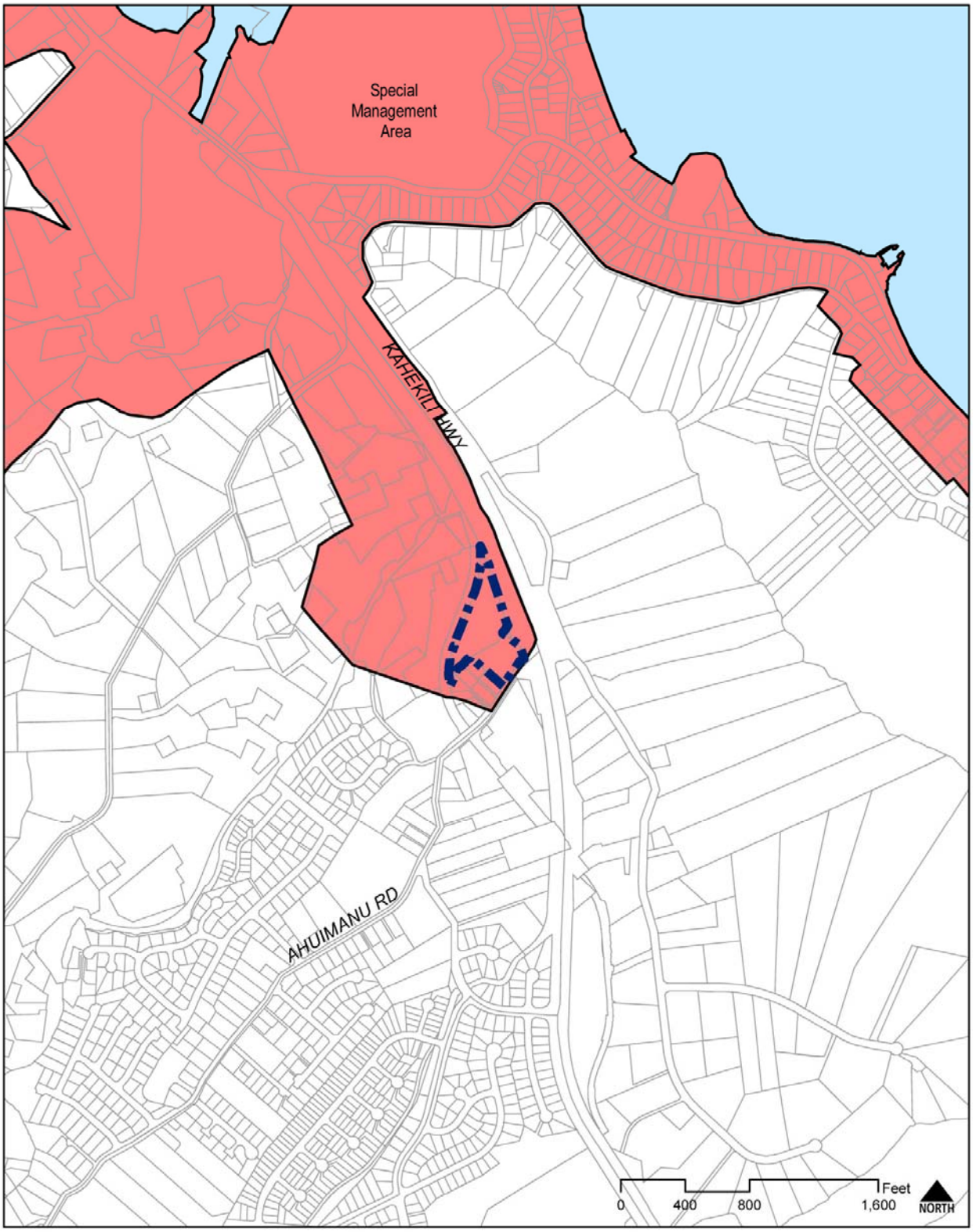


Figure 1.4: PROJECT LOCATION WITHIN SPECIAL MANAGEMENT AREA

1.2 OVERVIEW OF PROPOSED PROJECT

The First Assembly of God is proposing to completely replace its existing buildings and facilities at its Windward Oʻahu Church in Kahaluʻu *(Figure 1.1)*. All new facilities would be built on the existing nearly 4-acre site that is owned by the church *(Figure 1.2)*.

1.2.1 Proposed New Construction

Proposed new construction is briefly described as follows:

- The existing facility containing the sanctuary and multi-purpose room will be replaced with two separate buildings. The Sanctuary Building will contain the sanctuary and support spaces, and the Multi-Purpose Building will include a large multi-purpose room and kitchen.
- A Classroom Building that includes a pre-school on the ground floor and adult classrooms on a 2nd floor.

These three buildings will be connected to each other via covered walkways. They will all be located on the R-10 Residential zoned parcel *(Figure 1.2)*.

Other proposed new facilities, to be located on the AG-2 General Agricultural zoned parcel include:

- A Retreat Center where one to five day church retreats would be held for church members.
- A covered outdoor Play Court, which will be the size of a standard basketball court. It will be available for general community use when not being used by the church.
- A new paved and landscaped Parking Lot with a total of ~88 spaces.

A more detailed description of the proposed project is provided in *Section 2.2*, and a preliminary site plan of the entire project is shown on *Figure 2.2*.

1.2.2 Anticipated Impacts

This project will increase in the type and extent of church use at this site compared to the current level of use. However, church activities will generally continue to be at a relatively low level that is in keeping with the rural-residential character of the neighborhood in which the church is located.

In particular, it is anticipated that the impacts of church-generated traffic should be minimal even with the increase over existing levels. This is due to the fact that most church-related traffic will be generated during off-peak times when overall traffic volumes are low, such as Sunday mornings. The church's location adjacent to a signalized intersection on Kahekili Highway will also preclude there being any significant impacts on nearby residential areas.

In particular, it is anticipated that the impacts of church-generated traffic should be minimal even with the increase over existing levels. This is due to the fact that most church-related traffic will be generated during off-peak times when overall traffic volumes are low, such as on Sunday mornings. The church's location adjacent to a signalized intersection on Kahekili Highway will also preclude there being any significant impacts on nearby residential areas.

It is also anticipated that other potential environmental impacts resulting from church operation, as well as from construction of the new church facilities, will not be significant. Construction-related traffic, air and noise impacts will be limited and short-term in nature. The

project will fully comply with government regulations during construction to mitigate any potential impacts.

In summary, no significant impacts are expected, and a Finding of No Significant Impact (FONSI) is anticipated.

1.3 CONTENT OF ENVIRONMENTAL ASSESSMENT

This report serves the dual functions of an Environmental Assessment (EA) and Special Management Area Use Permit (SMA Use Permit or SMP) application for the proposed project. It has been prepared in accordance with the provisions of Revised Ordinances of Honolulu (ROH) Chapter 25, Special Management Area, and the "Content Guide for Preparing an EA Required with a SMP Application", as published by the City Department of Planning and Permitting (DPP). Preparation and processing was also done in compliance with the procedural requirements and steps set forth in Chapter 343 Hawai'i Revised Statutes (HRS), and in the State of Hawai'i Administrative Rules, Title 11, Department of Health.

This EA report is presented in eight sections. General information on the proposed project is summarized in this section. *Section 2* presents a detailed description of the project, including site characteristics, proposed construction, anticipated levels of use and occupancy, estimated project costs, anticipated construction schedules, and required land use approvals. *Section 3* describes the environment setting, potential impacts and mitigation measures. Description and an analysis of alternatives are provided in *Section 4*. *Section 5* relates the project to existing State and City and County of Honolulu (City) plans and policies, including the State of Hawai'i Coastal Zone Management (CZM) Program. The anticipated determination of no significant impact and reasons in support of this finding are given in *Section 6*. *Section 7* lists the agencies, and organizations that were consulted in connection with the preparation and/or received copies of the Draft EA. A list of references is provided in *Section 8*.

1.4 CONSULTED AGENCIES, ORGANIZATIONS, AND INDIVIDUALS

The following government agencies, elected officials, and community organizations were contacted as part of the EA pre-assessment consultation process:

State of Hawai'i Agencies and Elected Officials

Office of Environmental Quality Control
Department of Transportation
Department of Business, Economic Development & Tourism, Office of Planning
Department of Land and Natural Resources, Office of Conservation and Coastal Lands
Department of Land and Natural Resources, State Historic Preservation Division
O'ahu Island Burial Council
Office of Hawaiian Affairs
University of Hawai'i Environmental Center
State Senator Clayton Hee, 23rd Senate District
State Representative Coleen Meyer, 47th House District

City and County of Honolulu Agencies and Elected Officials

Department of Planning and Permitting
Department of Transportation Services
Department of Environmental Services
Board of Water Supply
Honolulu Fire Department
Honolulu Police Department
City Councilmember Donovan Dela Cruz, 2nd Council District

Community Organizations

Kahaluʻu Neighborhood Board No. 29
- Chair Amy Luersen
- 4th District Representative Kenneth LeVasseur
- 4th District Representative Wayne K. Panoke

KEY Project

Copies of the pre-assessment consultation letter and accompanying Project Information Summary are provided in *Section 7.0*.

In addition, letters and a General Project Information handout were sent to adjacent and nearby property owners, the residents association for the Hoʻokipa housing development across ʻĀhuimanu Road from the project site, and several Kahaluʻu community and church leaders that were identified by the Chair of the Kahaluʻu Neighborhood Board and the KEY Project Executive Director. The following individuals were included on this mailing list:

Mrs. Filomena Parubrub (adjacent property owner)
Mr. and Mrs. Timothy and Eileen Lum (Mrs. Parubrub family member)
Ms. Polly S. Yamamoto (adjacent property owner)
Mr. Cliford Nakaoka (adjacent property owner)
Mr. Letwell T. A. Pauole (adjacent property owner)
Mr. Robert Bohol (nearby property owner)
Ms. Roylene Kamanu, Hoʻokipa Kahaluʻu Residents Association (property across the street)
Mr. Nelson Rodriguez, Hawaiʻi Affordable Properties (Hoʻokipa property manager)
Mr. Hiroshi Kato (nearby property owner)
Mr. Richard Garcia, Waiʻahole-Waikane Community Association
Pastor Robert Nakata, Kahaluʻu United Methodist Church
Pastor Eldean Kukahiko, Hope Chapel Kahaluʻu Church
Pastor Keith Rider, Light of Promise Ministry

Copies of the letter and General Project Information handout that was mailed to these individuals are provided in *Section 7.0*.

Section 2.0
Description of Proposed Project

2.0 DESCRIPTION OF THE PROPOSED PROJECT

2.1 PURPOSE AND NEED FOR PROPOSED ACTION

As noted in *Sections 1.1 and 1.2*, the First Assembly of God is proposing to completely replace the existing building and parking area at its Windward Oahu Church in Kahalu'u *(Figure 1.1)*. All of the new facilities would be built on the existing 3.957-acre site that is owned by the church *(Figure 1.2)*. Total size of the new facilities would be significantly larger than the existing building in order to adequately serve both the existing congregation and anticipated future growth in church membership.

Total replacement of the existing church building, as opposed to its renovation and expansion, is being proposed for the following reasons:

- The existing building is in substandard condition and would need extensive and very costly repairs if it is not replaced. Problem areas include structural defects, major termite damage and a leaking roof.
- The overall size and types of spaces within the existing building are not adequate to serve the existing ~120 member congregation, much less any future growth. Worship services and Sunday School classes must now be held at different times, rather than at the same time as preferred. Even then, there are not enough rooms or semi-private spaces to conduct separate Sunday School classes for the appropriate number of different age groups. The sanctuary and multi-purpose rooms are also not large enough to allow for most Church members to join together at the same time for a service, workshop, social get-together, or other type of event.
- The combination of retaining and renovating the existing building and the addition of new facilities is not considered a viable option because of inherent inefficiencies in both the use of the existing building spaces and in a site layout involving both the existing and new facilities. Incorporating the existing building into the overall plan would be significantly more costly both to construct and to operate.

[Note: The symbol "~" is used throughout this report to indicate "approximately" or "about" when a quantity of something, such as a building size or use capacity, is being referenced.]

2.2 PROJECT CONSTRUCTION AND USE CHARACTERISTICS

2.2.1 Existing Church Facilities

The existing church occupies a single building that fronts on 'Āhuimanu Road, on the R-10 Residential zoned portion of the church property *(Figures 1.3 and 2.1)*. It includes the church sanctuary, a multi-purpose/classroom, an office, a kitchen, and restrooms. Total floor area is ~2,060 square feet (SF).

Gravel and overflow parking area with a capacity of up to ~30 parking spaces are located adjacent to the existing building. Access to the parking lot is provided at its east end, near to the 'Āhuimanu Road/Kahekili Highway intersection *(Figure 2.1)*.

The church building, parking area, and all other existing facilities on the site will be completely demolished.

2.2.2 Site Development Plan

General Site Layout – The proposed site layout for the new church facilities is shown on *Figure 2.2*. Detailed descriptions of the new facilities construction is provided *in Section 2.2.3* below.

The three main church buildings – the church sanctuary, multi-purpose building, and classroom building – will be located on the "front" portion of the project site, or on the portion of the property that is zoned R-10 Residential *(Figure 1.2)*. A retreat center, small outdoor amphitheater, covered basketball court, and off-street parking will be located "behind" the main buildings, on the area that is zoned AG-2 General Agricultural *(Figure 1.2)*.

Building Area – The maximum allowable building floor area in the R-10 Residential District is 50% of the zoning lot area. For this project, total floor area for the three main church buildings that are planned for the R-10 zoned parcel (TMK 4-7-025: 008, 1.219 acres) could be up to a maximum of 26,550 SF. Total floor area for the proposed buildings is ~14,240 SF, or 26.8% of the R-10 zoned portion of the project site.

The maximum allowable building area in the AG-2 General Agricultural District is 10% of the zoning lot area (TMK 4-7-025: 026, 2.738 acres). Total floor area for the new facilities to be located on the AG-2 zoned portion of the project site – the retreat center and covered play court – cannot exceed 11,927 SF. Actual floor area for these two facilities will be ~11,900 SF, or just under 10% of the AG-2 zoned portion of the project site. Note that outdoor play courts are normally not counted as "building area", but in this case it is counted because it will be covered so that it can be used when it rains. Coverage for just the retreat center buildings is ~5,040 SF, or 4.2% of the AG-2 zoned area.

Access, Parking and Loading – There will be a single vehicular access driveway to the church site from 'Āhuimanu Road, at the south end of the property's road frontage *(Figures 2.2 and 2.3)*. This access point will be ~300 feet from 'Āhuimanu Road's intersection with Kahakili Highway, compared to ~110 feet for the existing parking lot access *(Figure 2.1)*.

Figure 2.1: EXISTING CHURCH BUILDING AND PARKING ENTRY

Phase 1	Multi-purpose Complex	~3,600 sf
Phase 2	Sanctuary Complex	~11,000 sf
Phase 2	Classroom / Preschool Complex	~6,800 sf
Phase 3	Retreat Center	~5,000 sf
Phase 4	Covered Playcourt	~6,900 sf
TOTAL		33,300 sf

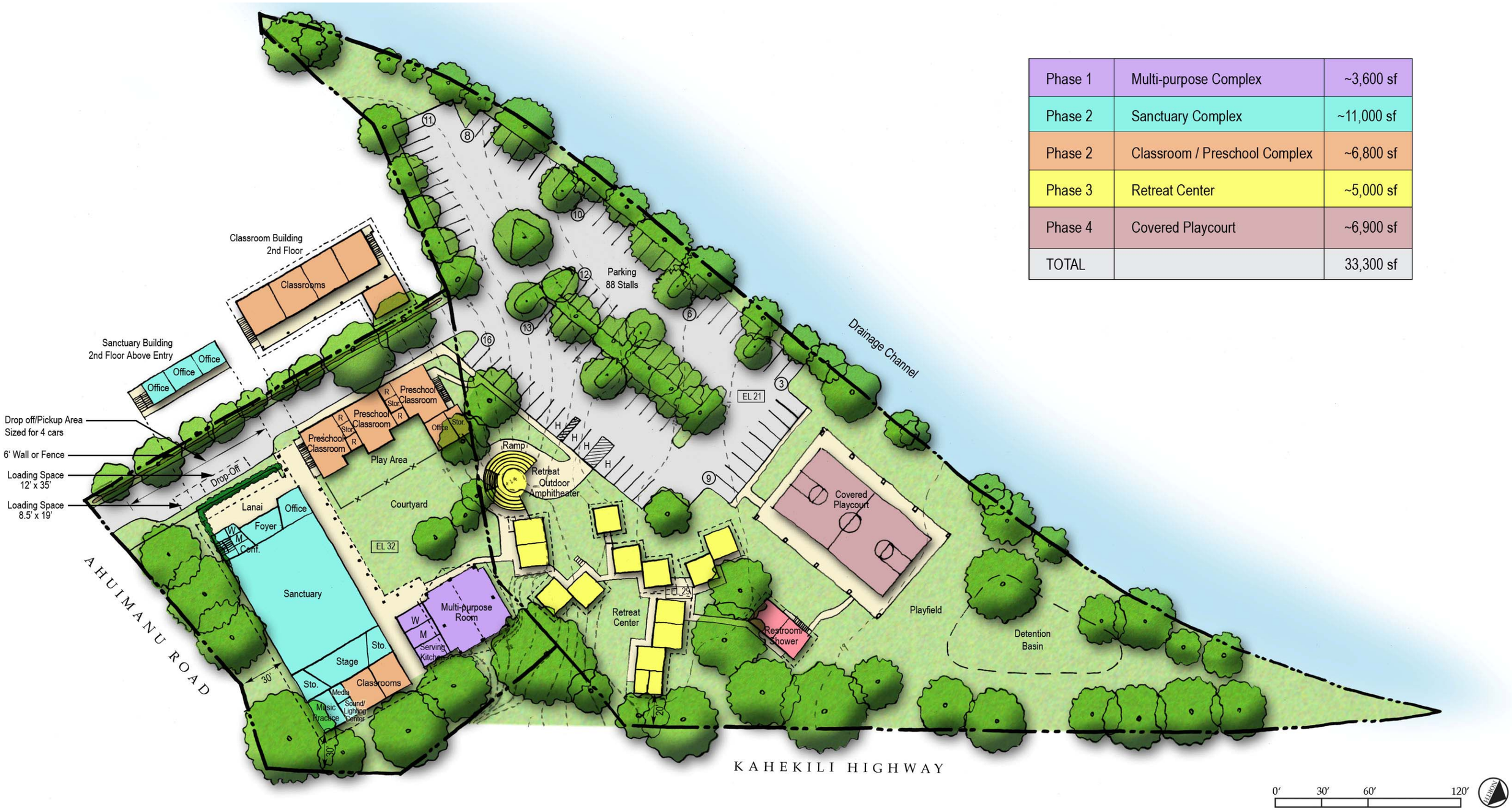


Figure 2.2: PROJECT SITE DEVELOPMENT PLAN

Figure 2.3: PROJECT ENTRY VIEW

A pullout area for up to four cars to stop and drop off and pick up pre-school students and people attending church services and other functions will be provided on the project site, in front of the Sanctuary Building *(Figures 2.2 and 2.3)*. A turn-around area will be available just inside the church's parking lot for cars that are just dropping someone off or picking them up. No parking or drop-off area will be provided along the property's 'Āhuimanu Road frontage. The pullout will also serve as the loading and unloading area for delivery trucks.

The parking lot will accommodate ~88 cars and be paved and landscaped. Landscaping will include trees along the parking lot periphery and within a central "island" separating back-to-back rows of spaces.

Adjoining grassed areas and the outdoor play court will also be available for overflow parking on those occasions (e.g. Christmas and Easter worship services) when it may be needed. It is estimated that as many as 60 additional cars could be accommodated in the overflow area. If necessary, the aisles within the paved parking lot could also be used for overflow parking, and accommodate roughly an additional 30 cars.

Parking Requirement – A calculation of the number of parking that will be required for the proposed project is provided below in *Table 2.1*. It is based on the time when church facilities will be at their peak use, which is when the sanctuary is being used for worship services and Sunday School classes are being held at the same time. It is assumed that all 10 classrooms – the three pre-school classrooms and the seven adult classrooms – will be used for Sunday School.

Other church facilities – namely, the multi-purpose building, retreat center, and church offices – are not expected to be used at the times when worship services and Sunday School classes are being held. The applicant is willing to commit to their non-use for Sunday School classes or any other purpose at these times, and has no objection to having their non-use at these times made a condition of project approval.

It is conceivable that the pre-school, multi-purpose room, church offices and retreat center – and some of the adult classrooms – could all be used at the same time. However, even if this is assumed, the total required number of parking spaces would be less than the number required for worship services. This is why the calculation of the parking requirement includes only those functions that will occur at times when, overall, the church is at its anticipated peak use.

Type of Use	*Space Size/ Student Capacity*	*LUO Parking Standard*	*Parking Requirement*
Meeting Facility (Sanctuary)	5,500 SF	1 Space per 75 SF of Assembly Area	73.33 Spaces
Classrooms (10)	5,900 SF/ 295 Students*	1 Space per 20 Students	14.75 Spaces
		Total Parking Requirement	**88 Spaces**

**Design capacity of 20 SF per student is used.*

Table 2-1: PARKING REQUIREMENT FOR PROPOSED PROJECT

Site Topography, Grading and Drainage – The church property basically consists of upper and lower areas in the south/front and north/back portions of the site, respectively. Both areas are gently sloping but are separated by a fairly steep slope that is about 10 feet high. The boundary separating the R-10 and AG-2 zoned parcels *(Figure 1.2)* follows fairly closely along the base of this slope, which was part of old ʻĀhuimanu Stream alignment prior to the construction of the Kahaluʻu Flood Control Project.

The average elevation of the ~1.2-acre upper/south area, where the existing church building and parking lot are located, is ~30 feet. It ranges from ~32 feet at the top of the steep slope, down to ~28 feet in the middle of the area, and back up to 34 feet at the high point along ʻĀhuimanu Road. The ~2.7-acre lower/north area, which is undeveloped and overgrown with brush and trees, has an average elevation of 20 to 21 feet and ranges from ~23 feet at the bottom of the slope to ~18 feet at its north end.

Site grading for the project will be relatively minor and retain this basic land form. The shallow depression in the middle of the upper area will be filled in so the entire area is at ~32 feet elevation. This will be the approximate ground elevation around all three of the main church buildings that will be sited in this area *(Figure 2.2)*.

The land will continue to have sufficient slope so that stormwater runoff will flow overland toward the back of the property, where it will percolate into the ground when low to moderate rainfall levels are involved. All drainage will continue to be channeled away from the adjoining residential properties and ʻĀhuimanu Road and Kahekili Highway.

During more intensive storms, excess runoff will, as it does now, flow overland over the lower/north area into the normally dry drainage channel that runs along the base of the Kahekili Highway embankment. This channel flows northward alongside the highway beyond the project site boundary and eventually empties into the concrete-lined ʻĀhuimanu Stream drainage channel that abuts the property. The concrete-lined channel flows in a lake behind the Hygienic Store, which serves as a sediment retention basin. Runoff collected in this lake eventually flows into Kāneʻohe Bay.

The gentle slope of the rear portion of the property will be retained. It will be cleared and slightly re-graded to "even out" the land in the areas where the retreat center, play court and parking lot will be located, but the basic land elevation and slope will not change. The north end of the property will continue to serve as a drainage detention basin, as described above.

A detention basin (essentially a grassed shallow depression with gently sloping sides) will be constructed at the north end of the lower area in order to increase the capability of this area to retain stormwater runoff. The purpose of the detention basin is to limit the peak flow off of the property and into the adjoining drainage channel to a level that is no more than what currently occurs under existing conditions.

The north edge of the upper area will be filled and extended slightly, thus shifting the steep slope separating the upper and lower areas roughly 50 feet to the north, in order to provide a strip of gently sloping land between the new buildings and the top of the slope. A small outdoor amphitheater will be built into this slope, next to the retreat center.

Site and building design is in a very preliminary stage at this time and is not at a point where the total amount of needed fill material can be accurately determined. A rough order-of-magnitude estimate is in the range of 8,000 cubic yards.

A more detailed description of existing and proposed topography, grading and drainage conditions is provided in the Preliminary Engineering Report in *Appendix A.*

2.2.3 Proposed New Facilities Construction

As noted above, the types, locations, and general sizes of the new church facilities are shown on the Site Development Plan *(Figure 2.2)*. The proposed new construction is described as follows:

Building Design – The general appearance and configuration of these buildings are illustrated on the "Project Entry View" and "Main Buildings Courtyard View" renderings provided in *Figures 2.3 and 2.4*. The architectural character will be consistent with and reflect the rural-residential character of the ʻĀhuimanu and Kahaluʻu communities. Exterior building materials will include lava rock walls, board-and-batten and stucco siding, and metal roofs. Roof forms will be hip/gable, and color will be a pale earth tone green. Earth tone colors will also be used on other exterior building surfaces. Native and tropical landscaping will be integrated throughout the building areas.

Main Church Complex – This will be comprised of the sanctuary and multi-purpose and classroom buildings. The buildings will be clustered around a courtyard that will offer panoramic mauka and north views of the Koʻolau Mountains *(Figure 2.3)*.

Sanctuary Building – This facility will be ~10,992 SF in size and include the sanctuary, music and multi-media rooms, two adult classrooms, church offices, a conference room, restrooms and storage. The sanctuary space will have a high beam ceiling, and will be focused on stage areas with high performance audiovisual equipment. Seating will be moveable and flexible, rather than fixed. Large windows and sliding doors will provide a connection to the exterior on both sides. Above and around the entry foyer will be offices for the church pastor and staff. Support spaces and two classrooms will be located at the rear (northeast end) of the building.

Multi-Purpose Building – This will be a ~3,600 SF single story, high ceiling facility that includes a large assembly space, a kitchen and restrooms. It will be a flexible space, envisioned for fellowship, celebrations, and other church meetings.

Classroom Building – This two-story building will include both a pre-school and classrooms for adult Sunday School, weekday adult classes and meetings, and other church and community events. Total floor area will be ~6,760 SF. The pre-school will be located on the ground floor and consist of three classrooms, an office, restrooms and storage. A fenced play area will be provided on the courtyard side of the pre-school classrooms. Five general use classrooms will be located on the 2nd floor.

Walkways Between Buildings – Pedestrian walkways between these three buildings will be all under cover. The walkways alongside buildings will be placed under an extended building eve, and those connecting the buildings will have a roof over them.

Type of Construction – The buildings will be constructed with materials and structural form that is consistent with the character of the surrounding residential neighborhood. Building heights will be 25 feet or less. Hip-and-gable metal roofs, board-and-batten siding, divided lite window openings, and stacking folding doors that allow the sanctuary and multi-purpose room spaces to open to the exterior are envisioned. Roof color will be a pastel green and walls will be earth tone to reinforce the residential theme.

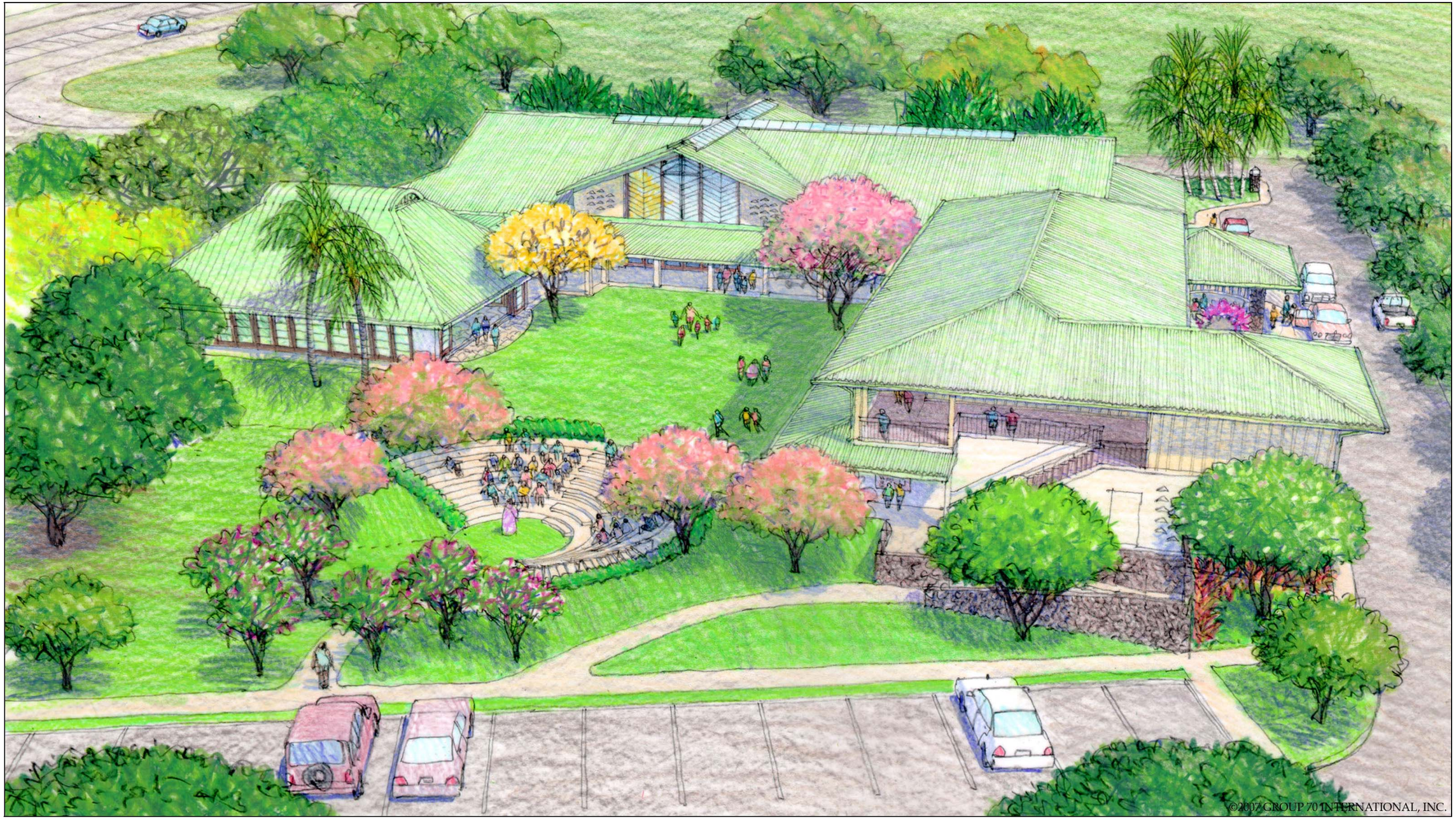


Figure 2.4: MAIN BUILDINGS COURTYARD VIEW

The building structure will consist of slab-on-grade foundation, wood or metal truss system, exposed wood rafters where appropriate, and CMU, metal or wood stud wall construction. All occupied spaces in the main complex will be air conditioned.

In addition to the main church complex, the following other new facilities are planned:

Retreat Center – As described in more detail below, this facility will be used for group sessions that are from one to three days long. The outdoor amphitheater (see below) or multi-purpose room will be used for meetings of the entire group, and the multi-purpose room will be used for the serving of meals. Small bungalows will provide sleeping quarters for retreat attendees, and will also be used for breakout sessions during the retreat.

The retreat center will consist primarily of a collection of small one-room bungalows, each of which will serve as a group sleeping area for up to 8 retreat attendees. A total of 12 of these bungalows are envisioned. A 13th bungalow of virtually the same size, but with two private rooms, will be provided for those leading the retreat. A central restroom and shower facility would be located in a separate building. Total building area will be ~5,000 SF. Each one-room bungalow will be ~320 SF in size, the two-room bungalow will be slightly larger at 400 SF, and the restroom/shower building floor area will be ~800 SF.

These buildings will be dispersed between existing trees and laid out in an organic pattern. The intent is to blend the retreat center into the surrounding landscape *(Figure 2.5)*. Buildings will be oriented to provide cross ventilation and views of the surrounding landscape. No air conditioning will be provided.

Most of the land on which the retreat center will be located is in a flood zone with base flood elevations of 28 to 29 feet and existing ground elevations of 21 to 23 feet. Floor levels of the retreat center buildings must be above the base flood elevations. All but two of the buildings will be built on concrete piers in order to raise the floors to the required elevation, rather than fill the land underneath them. They will be interconnected with raised exterior walkways, probably of wood construction with wood or concrete piers.

Two of the bungalows will be located near the top of the slope between the upper and lower areas of the site, where they will be built slab-on-grade above the flood elevation to provide ADA accessibility. They will also be conveniently located to the multi-purpose building where meals will be served and large gathering held.

Except for the two slab-on-grade bungalows, floor elevations will be raised between one and ~8 feet above grade. Building heights measured from the ground level will range from 14 feet for the two slab-on-grade structures to a maximum of ~22 feet. Buildings construction will include metal roofing, board-and-batten siding, and residential style windows. Colors will be a pastel green for the roofing and earth tone for the walls.

Outdoor Amphitheater – As noted above, this facility will be used for large group meetings during retreats. There will likely also be occasions when other groups that normally meet in a classroom or the multi-purpose room will decide to instead use the amphitheater.

The structure will follow the slope of the hillside into which it will be built. Construction will be cast-in-place concrete or modular concrete blocks and timber steps. There will be no outdoor lighting or roof overhead, so its use will be limited to the daytime when the weather is appropriate.

Figure 2.5: RETREAT CENTER VIEW

Outdoor Play Court – This will be a standard basketball court with a roof overhead. The purpose of the roof is to extend the available times when the court can be used by providing both shade from the midday sun and cover from the intermittent showers that are common in this area. Total area under roof will be ~6,900 SF.

The court will be slab-on-grade with a pre-engineered metal building frame and roof. The structure will not have walls in order to allow any potential floodwaters to pass through unobstructed. Roof color will be a pastel green to match the rest of the church facilities. Height above grade of the high point of the roof form will be at ~25 feet, which is the maximum permitted.

2.2.4 Anticipated Use / Occupancy Levels for Various Church Functions

Once the planned new church facilities are completed, it is estimated that their respective use or occupancy levels will generally be as described below.

These estimates are intentionally on the optimistic or high side in order to provide reasonable assurance that potential future impacts will not be understated. All assume significant growth in the size of the congregation, which currently includes ~120 members.

The estimates also generally assume use of the facilities by church members only. Possible exceptions are noted below. Fees for facility use – for example, use of the sanctuary and multi-purpose building for a wedding and reception – will be charged only when there is a significant expense involved, and the amounts will be commensurate with the expenses incurred.

Worship Services – Two services will be held on Sundays in the sanctuary. It is currently anticipated that the first service will occur between ~8 AM and ~9:45 AM, and second service will be between ~10:15 AM and ~ 12 Noon. Future attendance at each service is estimated to be in range of ~200 to ~300 parishioners for each service. This could potentially be as high as ~400 to ~450 parishioners on special days, such as Christmas and Easter. There could also be three services – one in the evening as well as the two morning services – held on Christmas and Easter, and on other special occasions.

There will be no fixed seating in the sanctuary. Maximum capacity is estimated at ~500 people.

There are no plans to use the multi-purpose room for a separate worship service, or for large gatherings of any kind, at the same time as a worship service is being conducted in the sanctuary. Should this change, it is understood that this could impact the parking requirement and may necessitate modification of the existing permit or the approval of a new permit.

Sunday School – Sunday School classes will be held concurrently with the worship services, and will occupy the three preschool and seven adult classrooms (see below). Future attendance estimated at ~100 people (~10 per room) on average, and could range up to ~150 people. Estimated capacity for all 10 classrooms is ~200 people (~20 per room).

Preschool – This facility will be able to enroll up to 60 children. There will be three preschool classrooms, each of which could accommodate up to 20 students. Hours of operation will be from ~6 AM to ~6 PM, Monday through Friday except holidays. The regular preschool program/class schedule will be from 8 AM to 4:30 PM; optional early morning and after school programs will also be available. As noted above, these classrooms will also be used for Sunday School.

Adult Classrooms – Up to seven separate classes/meetings could be held at one time. It is expected that these rooms will be most heavily used on weekday evenings in the 7-9 PM timeframe (~6 PM earliest start and ~10 PM latest finish), and for Sunday School. Total same-time use estimated to be ~70 people, possibly ranging up to ~105 people (~10 to ~15 people per room). Limited use is also likely during the day on Saturdays. Use on weekdays during the day is expected to occur only very limited and infrequent basis, if at all. Estimated capacity for all of these classrooms is ~ 140 people (~20 people per room).

Typical weeknight meetings will involve the various ministries (those involved in conducting the Sunday worship services, such as the choral and dance ministries), small bible study groups, and community functions such as family life/single parents, alcoholics anonymous, computer classes, etc. Groups that include people from community who are not members of the church will be welcomed, but generally they will need to include at least one 'sponsoring' church member.

Retreat Center – It is estimated that this facility will be used for ~10 retreats on average per year, and no more than 15 in any given year. As currently envisioned, the retreats are anticipated to be from one to three days long, but could extend for as long as five days.

Attendees will stay overnight at the center for multi-day retreats:

- 12 one-room bungalows will be provided that will each sleep up to 8 people in 4 bunk beds.
- A 13th bungalow with two separate rooms for retreat leaders will also be provided.

Maximum capacity will be ~100 people, including retreat leaders. However, currently envisioned retreats are expected to involve no more than ~60 people, and it is expected that the full capacity will be rarely if ever be used.

As previously noted, the multi-purpose room will be used to serve meals and for full-group meetings. The bungalows will be used for breakout or small group sessions, as well as for sleeping quarters. Weather permitting, the outdoor amphitheater will also be used for full-group meetings and possibly for some breakout sessions.

First Assembly of God currently anticipates using the retreat center up to seven times a year for the following events:

- Men's Encounter – Up to 50 or 60 people, 3 days/2 nights long, three times a year.
- Women's Encounter – Up to 50 or 60 people, 3 days/2 nights long, three times a year.
- Church Pastors – 15 to 20 people, 2 days/1 night long, once a year.

It is proposed that this facility also be made available to Assembly of God sister churches. These number ~25 on Oahu and ~70 statewide. However, the neighbor island churches are not actually expected to consider using the center, given the transportation costs involved and the availability of reasonable suitable alternative facilities on their respective islands. Also, some of the ~25 sister churches on Oahu are not expected to consider using this retreat center because they already have their own suitable facilities.

The number of requests from sister churches for use of the center is estimated at no more than eight per year.

The retreat center will not be used for events that do not involve overnight stays. All such events for members of more than one congregation are currently and will continue to be held at the church in Red Hill. The Windward church's new multi-purpose room or sanctuary will be used for larger-than-classroom meetings that involve the only its church members, and the classrooms will be used for smaller groups.

Covered Play Court – This will be for general use by the church members, which is expected to mostly occur on weekends and holidays. It may also be occasionally used by retreat groups on weekdays. The court will also be available for general community use when not being used by the church. Use will be limited to daytime hours only, since the court will not be lighted.

2.2.5 Utility Requirements

Existing utility conditions and proposals for meeting project requirements are described in an October 2007 Preliminary Engineering Report (PER) that was prepared by Austin Tsutsumi and Associates. A copy of the report is provided in *Appendix A*.

Potable Water Supply – Potable water service is provided to the project site and surrounding area by the City and County of Honolulu Board of Water Supply (BWS). 'Āhuimanu Road properties are served by existing 6-inch and 8-inch water mains that are located within the road right-of-way.

The expanded church will utilize the same water source once the proposed project is completed. BWS has reviewed the planned use and determined that its existing system is capable of providing adequate domestic and fire flow to the new facilities.

Wastewater Collection, Treatment and Disposal – The wastewater system serving the 'Āhuimanu community is owned, operated and maintained by City Department of Environmental Services (DES). The church is currently connected in to an existing 8-inch sewer main that is located within the 'Āhuimanu Road right-of-way.

DES has indicated that this system is at capacity not able to handle any increase in wastewater flow from the project. Consequently, only the new sanctuary and multi-purpose buildings will be allowed to connect to the 'Āhuimanu Road sewer main. The new classroom building and the central restroom facility for the new retreat center will be connected to a new private wastewater treatment system that will be built on site. Approximately one-third of the wastewater generated by the new project will flow into the existing City system, and the treatment and disposal of the other two-thirds will be handled by the new on-site system.

This new system will be state-of-the-art and use four septic tanks designed and manufactured by Environmental Waste Management Systems, Inc. The tanks are designed to use a very efficient anaerobic treatment process and produce effluent that can safely be discharged into the ground.

2.2.6 Project Phasing and Completion Schedule

The multi-purpose building would be built first, so that is can then be used for church services while the new Sanctuary Building is constructed. It is anticipated that the total project will be built in four phases over a six-year period, with approximate completion dates as shown in *Table 2-2*.

Phase	Facility	Completion Date
1	Multi-Purpose Building	~2009
1	~1/2 of New Parking Lot	
2	Sanctuary Building	~2010
2	Classroom Building	~2010
2	~1/2 of New Parking Lot	~2010
3	Retreat Center	~2012
4	Covered Play Court	~2013

Note: Dates are approximate and subject to change.

Table 2-2. PROJECT PHASING AND COMPLETION SCHEDULE

2.2.7 Project Costs

An accurate estimate of project costs cannot be made at this time because its design has not yet advanced beyond a very preliminary and conceptual stage. A rough order of magnitude or "ballpark" estimate of total costs for all proposed facilities and improvements is in the range of $15 million.

2.3 REQUIRED LAND USE APPROVALS/PERMITS

This project requires the review and approval of two use permit applications before it can proceed – namely, a Special Management Area Use Permit (SMA Use Permit or SMP) and a Conditional Use Permit (CUP).

2.3.1 Special Management Area Use Permit (SMP)

A SMP is required because the project site is located within Oahu's Special Management Area (SMA) *(Figure 1.4)*. The objectives and policies of the SMA, and the review and procedural guidelines for the preparation and processing of a SMP application, are spelled out in Chapter 25 of the Revised Ordnances of Honolulu (ROH). Per Chapter 25 ROH, the first phase in the processing of a SMP application involves the preparation of an Environmental Assessment (EA) or Environmental Impact Statement (EIS), as determined by the City and County of Honolulu Department of Planning and Permitting (DPP). The procedures for review and acceptance of an EA or EIS are as stipulated in Chapter 343 Hawaii Revised Statutes (HRS).

The preparation and distribution for review and comment of this Draft EA is the 2nd step in the first phase of this proposed project's SMP application processing. (The first step was the preparation and distribution for comment of a Pre-Assessment Consultation Package.) Following the receipt of comments, DPP will review the Draft EA and the comments and direct the applicant to either (1) prepare a Final EA based on an anticipated Finding of No Significant Impact (FONSI) for the project, or (2) prepare an EIS Preparation Notice based on its determination that project impacts may be significant and a full EIS needs to be prepared.

As noted in *Section 1.2.3*, a FONSI is anticipated for this project. Assuming DPP makes this preliminary determination after completing its Draft EA review, the processing of the SMP application will then move into the 3rd and final step of the first phase. This will involve the preparation, pubic review/comment and acceptance of the Final EA, and issuance of the FONSI.

The second phase will involve the acceptance and processing of the full SMP application. In addition to an accepted Final EA and the FONSI, the application must include a completed application form, payment of an application fee, and detailed site, building and grading plans.

DPP must hold a public hearing in the area in which the project is located, and then forward its recommendation to the Honolulu City Council. Authority to approve and issue a SMP rests with the City Council.

2.3.2 Conditional Use Permits (CUP)

There are two types of Condition Use Permits – "Major" and "minor" – that are required by the City for certain types of development. Which type of CUP is required is closely related to the relative level of proposed use's potential impact on the surrounding area and natural environment. In terms of application requirements, the primary difference between a "CUP-M" and a "CUP-m" is the requirement for a public hearing.

A hearing is generally not required for a CUP-m; however, the DPP Director can on a case-by-case basis decide to require one if in his/her judgment of there is sufficient cause. Adjoining property owners as well as the local Neighborhood Board and other community organizations must be notified of the filing of a CUP-m application, and as part of that notification be asked whether they wish to have a public hearing on the application. Any such requests would be a major factor in the DPP Director's decision on whether or not to require that one be held.

The approval and issuance by the DPP Director of a CUP-m is required for each of the following elements of the proposed project:

- ***Church redevelopment*** – A church is defined as a "meeting facility" in the City and County of Honolulu Land Use Ordnance (LUO), and a CUP-m is required for a new meeting facility, or for significant changes to an existing one, that is located in either an AG-2 General Agricultural District or a R-10 Residential District. For this project the main church facilities - the sanctuary, multi-purpose room, classrooms, and related support spaces will be located in three buildings on the R-10 zoned parcel. Church parking, the new retreat center, and an outdoor play court will be located on the AG-2 zoned parcel.
- ***New pre-school*** – A pre-school is defined as a "day-care facility" in the LUO. A 60-student capacity pre-school is proposed for the ground floor of the new classroom building, which will be located on the R-10 zoned parcel. A CUP-m is required for a new day-care facility that is to be located on residentially zoned land.
- ***Joint development of two or more adjacent zoning lots*** – As noted, the project site consists of two separate zoning lots, one that is zoned AG-2 and one that is zoned R-10. Where a use is permitted in both zoning districts, the two lots may be treated as one zoning lot for the purpose of applying zoning requirements such as setbacks, etc., thereby allowing a more efficient use of the land. However, a written agreement must be filed with DPP that binds the applicant and their successors in title or lease to maintaining the development's conformity with applicable zoning regulations. The right to enforce this agreement must also be granted to the City. The CUP-m application process is the mechanism used by the City to ensure proper review and approval of the proposed agreement.

2.3.3 Concurrent or Separate SMP and CUP Application Processing

In cases (such as for this project) where both SMP and CUP applications are required, DPP has the discretion to either process them concurrently or delay processing of the CUP application until the SMP is issued. With concurrent processing, DPP may also at its discretion hold a CUP application public hearing concurrently with the mandatory SMP public hearing.

Section 3.0

Description of the Environmental Setting, Potential Impacts, and Mitigation Measures

3.0 DESCRIPTION OF THE ENVIRONMENTAL SETTING, POTENTIAL IMPACTS, AND MITIGATION MEASURES

This section describes the existing environmental setting and identifies possible impacts of the proposed project. Strategies to mitigate those potential impacts are also identified.

3.1 CLIMATE

Existing Conditions

The climate along the Windward Coast of Oʻahu, where the project site is located, is mild and semi-tropical with slight seasonal variations. The average high daily temperature ranges from the high 70s (degrees Fahrenheit) during the winter months to the mid-80s during the summer. Average low temperatures are in the mid-60s and low 70s, respectively at these same times of the year. Annual rainfall for the Kāneʻohe area averages 76 inches, with the monthly average ranging from 3.65 inches in June to 9.45 inches in November. Slightly over 60% of the annual rainfall occurs in the six "winter" months between November and April. (Source: Western Regional Climate Center, July 2006).

Northeasterly winds prevail much of the time throughout Hawaiʻi. Typical wind velocities range from 3 to 14 knots. These "trade winds" are stronger and more persistent during the spring and summer months as a result of the location of the North Pacific high pressure system. They are occasionally replaced with more light and variable westerly "kona" winds, most often during the fall and winter seasons.

Anticipated Impacts and Mitigation Measures

The proposed action will have no effect on climatic conditions, and no mitigation measures are required.

3.2 GEOLOGY, TOPOGRAPHY, AND SOIL CONDITIONS

Existing Conditions

The Island of Oʻahu was created through several stages of activity emanating from two volcanic domes. Through various stages of eruptions, erosion and land movement, the volcanic forms became the Waiʻanae and Koʻolau mountain ranges. The development of these large land mass forms emerged together, forming the Island and causing submergence to occur.

Existing topographic, soil and drainage conditions at the project site, and potential project impacts on site grading and drainage, are described in more detail in a Preliminary Engineering Report, dated September 2007, that was prepared by Austin, Tsutsumi & Associates, Inc. A copy of the full report is provided in *Appendix A*. Site topography and soil conditions are summarized below. A summary of existing and proposed site drainage conditions and potential project impacts is provided in *Section 3.3*.

The project site is located in a gently to moderately sloping area at the base of the Koʻolau mountain range, about 2/3rds of a mile (~3,600 feet) inland from Kāneʻohe Bay. The immediate area surrounding the property is gently sloping and includes lands that are within a flood plain. Topography of the project site ranges from 18 feet to 34 feet above sea level.

A ~10-feet high slope separates a lower area of ~2.7 acres, which is in the floodplain and ranges in elevation from 18 feet to 22 feet above sea level, and a ~1.2 acre upper plateau fronting ʻĀhuimanu Road. This plateau ranges in elevation from 28 to 34 feet above sea level and is protected from a 100-year flood by the abutting drainage channel and other flood control improvements that were made in the late 1960's and early 1970's as part of the Kahaluʻu Flood Control Project.

Soil on the project site is mainly Hanalei silty clay, which is typically level to gently (0-2%) sloping and found in bottomlands and flood plains on the islands of Oʻahu and Kauaʻi. Permeability is moderate, and runoff is generally very slow. The erosion hazard is no more than slight.

Anticipated Impacts and Mitigation Measures

The geology and overall topography of the area will not be significantly impacted. Existing soil conditions on the project site do not present any problems for accommodating the proposed low-rise development.

As described in *Section 2.2.2*, the general topography of the project site will be retained. Approximately 8,000 cubic yards of suitable fill material will be brought in to the site in order to fill in the depression in the middle of the upper plateau, and to extend and enlarge this plateau slightly in order to provide sufficient area for the main church buildings. The gentle slope of the lower/rear portion of the project site will be retained. It will be cleared and slightly regarded where necessary to "even out" the land in the areas where the retreat center, covered play court, and parking lot will be located.

Appropriate measures will be taken during grading operations and facilities construction to control dust and erosion. All such activities will be done in full conformance with the standards and requirements of the "Rules Relating to Soil Erosion Standards and Guidelines".

Primary fugitive dust control methods that will be implemented include regular watering of exposed soil areas, good housekeeping on the job site, and prompt landscaping, covering or paving of bare soils in areas where construction is completed. Siltation will be limited during construction through the use of silt fencing and sediment-absorbing devices. Once construction is complete, ground cover plantings, hardscape and other landscaping will be in place, effectively minimizing any potential soil loss.

3.3 GROUND AND SURFACE WATER RESOURCES, AND SITE DRAINAGE

Existing Conditions

The area in which the project site is located is low lying and has a fairly high water table. There are no Board of Water Supply (BWS) wells in the ʻĀhuimanu and Kahaluʻu communities that tap the local groundwater source. With the possible exception of some more mauka properties, BWS water lines supply potable water to homes in these communities. There are no known major users of surface or groundwater resources in the vicinity of the project site; what use that does occur is relatively small and limited to crop and landscape irrigation.

The Kahaluʻu Flood Control Project, which was completed in the late 1960s or early 1970s, significantly altered the general pattern of surface water and stream flow in ʻĀhuimanu and the

southern portion of Kahalu'u in order the reduce flooding and related damage to residences and other properties. As part of this project, the natural course of 'Āhuimanu Stream and Kahalu'u Stream were realigned and replaced with concrete-lined drainage channels. Surface runoff from the project site, surrounding properties and Kahekili Highway that does not percolate into the ground eventually flows into these concrete-lined drainage channels.

Drainage on the project site currently is overland flow; there is no improved collection system. During periods of heavy rainfall the runoff drains into drainage swale that follows the portion of the old 'Āhuimanu Stream alignment which runs south to north along the base of the Kahekili Highway embankment. This old stream bed, which is normally dry, was partially regraded in connection with the construction of Kahekili Highway. It now serves as a large collection swale at the base of the highway embankment that collects and carries stormwater runoff to a point north of the project site where there is a low spot in the channel wall, at which point the runoff is discharged into the channel.

Anticipated Impacts and Mitigation Measures

As noted above, the general topography of the project site will be substantially retained. The overall drainage pattern will remain the same as existing, with runoff from the site flowing from south to north toward the old 'Āhuimanu Stream channel, and eventually into the newer concrete-lined drainage channel. The limited regrading in areas that are to be occupied by the new church buildings and parking lot will be done in a manner that will retain the existing south-to-north flow of onsite surface runoff and preclude any runoff from flowing onto neighboring properties.

The increase in total area covered by buildings, parking and other impervious surfaces will increase surface runoff. A detention basin will be provided at the north end of the project site to detain the additional runoff on site and slow its release so that drainage flow off the site and into the concrete-lined drainage channel will be no more than current peak levels. (Further details on the detention basin design and other aspects of the project site drainage plan are provided in *Appendix A*.)

No wells are planned at the project site for irrigation or other purposes. As noted above, rainwater percolation into the ground will be reduced due to the increase in impervious surfaces. However, the extent of the difference will be mitigated by the use of the detention basin, which will increase percolation as well as detain runoff.

The potential for impact on shallow groundwater will occur primarily in the landscaped areas. However, only plant materials that are common to this area and require little if any irrigation or fertilizer will be used. Overall, there will be negligible impact on groundwater resources in the immediate area, and no material effect on ground or surface water quality downstream and in Kāne'ohe Bay.

Construction of the proposed improvements is not expected to introduce or release any substance into the soil that could adversely affect groundwater quality. Best Management Practices such as silt fencing and siltation-reducing devices will be utilized to mitigate impacts during construction due to changes in the quantity or water quality of surface runoff. Project design and construction will fully comply with City and County of Honolulu Grading Permit and NPDES Permit requirements.

3.4 FLOOD AND OTHER NATURAL HAZARDS

Existing Conditions

The project site is within a flood prone area and, as shown on *Figure 3.1*, has the following flood designations on the National Flood Insurance Rate Map (FIRM) covering this portion of the Windward Coast (#15003C0260F):

- Zone XS – These are areas in the 500 Year Flood Plain, where the annual chance of a flood is 0.2%. The south or upper plateau portion of the project site is in this zone *(Figure 3.1)*. It is protected from flooding by the abutting drainage channel and other flood control improvements that were made in the area as part of the Kahalu'u Flood Control Project.
- Zone AE – This is one of several types of flood hazard areas that are subject to inundation by a 100-year flood. In Zone AE the base flood elevations are determined. The north or lower elevation portion of the project site is in this zone *(Figure 3.1)*. Base flood elevations in this area range from 25 feet at the northern tip to 28 feet in the immediate vicinity of the slope that divides the lower portion and the upper plateau of the property.
- Zone AEF – This is a floodway area that cannot be obstructed in any way. It encompasses the drainage channel that forms the northwest boundary of the project site's lower floodplain area. The indicated locations of this zone's boundaries are very approximate given the FIRM's small scale (1" = 1,000'), but it appears to encroach as much as 20 feet into the project site in limited locations.
- Zone D – Area of undetermined flood hazard. (Shown of *Figure 3.1*, but no portion of the project site is in this zone.)

Hurricanes are tropical storms that attain a minimum speed of 74 mph. The general season for hurricanes is between the months of June to November. The movement pattern of these systems can be erratic and unpredictable. The major hazards posed by a hurricane include violent winds, torrential rainfall, flooding, storm surge, and high surf.

The majority of earthquakes in Hawai'i are directly related to volcanic activity on the Island of Hawai'i. The entire City and County of Honolulu (City) lies in the "Zone 2A" seismic zone. Under the United Building Code (UBC) seismic provisions, a Zone 2A area could experience seismic activity between .075 and .10 of the earth's gravitational acceleration (g-force).

Anticipated Impacts and Mitigation Measures

None of the project improvements will be built in a manner or location where they could impede flood flows in established floodways or be adversely impacted by the existing potential for flooding on the project site. All project construction within flood prone areas will be built in compliance with current State and City standards, including the flood hazard development regulations in Section 21-9.10 of the City Land Use Ordinance. This will include locating the habitable floors of the retreat center bungalows above the established base flood elevations for the area where they will be located.

In general, the potential for hurricanes and earthquakes impose no significant constraints on the development of the project. All development at the site will be built in compliance with the general Uniform Building Code and specific City standards and provisions with respect to wind and earthquake design.

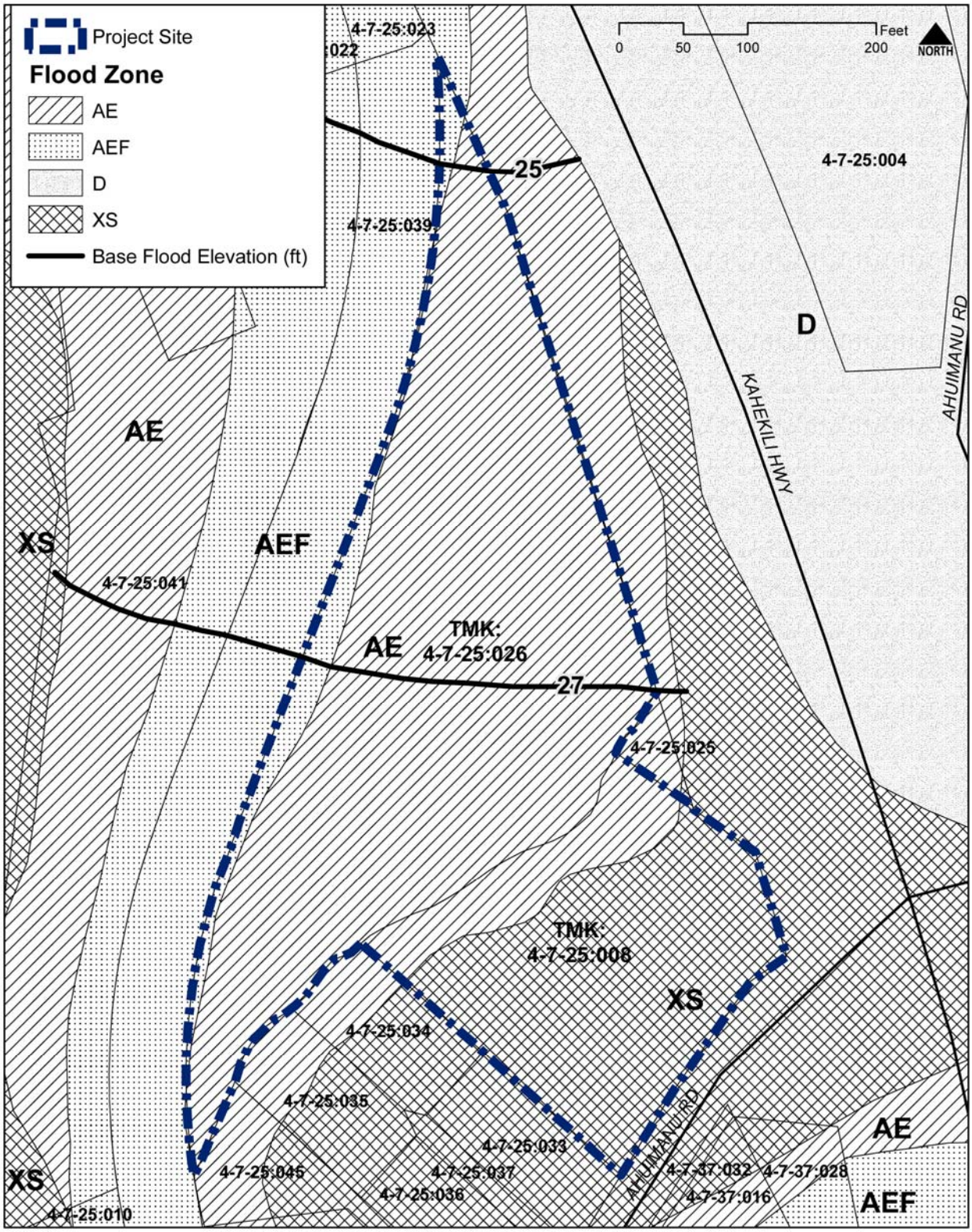


Figure 3-1: PROJECT FLOOD INSURANCE RATE MAP (FIRM) DESIGNATIONS

3.5 FLORA AND WETLAND RESOURCES

Existing Conditions

A survey of botanical, avian, and mammalian resources was conducted for the project site in July 2007 by Rana Productions, Ltd. and AECOS Consultants. A copy of their full report is provided in *Appendix B*. Existing botanical conditions and findings and recommendations with respect to potential project impacts are summarized below.

The botanical survey did not include the landscaped grounds of the church, as all of the plants are either ornamentals or lawn grasses. Larger plants noted in this area include ti, noni, bottlebrush, and Manila palm.

Flora in the surveyed project area (the slope separating the church-occupied upper plateau from the lower floodplain area, and the lower area) is comprised of flowering plants and is overwhelmingly dominated by alien plant species. A total of 74 species of plants were identified (Table 2 in *Appendix B*). Only five (6.7%) of the recorded species are thought to have occurred in the Hawaiian Islands before the arrival of James Cook in 1778. Three are ancient Polynesian introductions (so-called "canoe plants") and two are probable indigenous species. No endemic species were observed on the property.

Three "observation points" near the project site's east property line, along the drainage swale that runs at the base of the Kahekili Highway roadway embankment, were selected to investigate the possibility of wetlands occurring on the property *(Figure 3 in Appendix B)*. This was done because a National Wetlands Inventory (U.S. Fish and Wildlife Service, undated) for this general area indicated the presence of a large wetland area encompassing the north end of the property, the abutting concrete-lined channel, and land on the opposite side of the channel.

The field survey found no substantial wetland area on the lower portion of the project site, indicating that the previously identified wetlands were destroyed by the construction of the Kahalu'u Flood Control Project and Kahekili Highway, and the above-noted National Wetlands Inventory predates their construction. Man-induced wetland-like conditions were found at the three "observation points" on the east border of the project site. They were found to be incidentally created by highway drainage and infrequent maintenance of the drainage channel, and are considered non-permanent or likely be substantially altered with maintenance of that channel.

Anticipated Impacts and Mitigation Measures

Nothing was found during the botanical survey that would indicate any special concerns or legal constraints related to botanical resources, nor were any plant species identified that would impact or need to be taken into consideration in the planning and design of the proposed development. No plant species were found at the project site that are listed as endangered, threatened, or currently proposed of listing under either federal or State of Hawai'i endangered species statutes. This is consistent with the general highly altered condition of lowland environments in Windward O'ahu, which no longer support rare or listed species of Hawaiian native plants.

No project-related regrading is planned along the east property line, where the man-induced wetland-like conditions were found. At most there may be some clearing and re-vegetation in

the area in order to remove any impediments to the natural drainage flow from the project site into the swale at the base of the Kahekili Highway embankment.

Tree removal within the areas to be occupied by the new buildings will be kept to a minimum. Areas around the buildings will be extensively landscaped with native and tropical plants that are typically found in O'ahu's windward communities.

3.6 FAUNA

Existing Conditions

As noted, a survey of botanical, avian, and mammalian resources was conducted for the project site in July 2007 by Rana Productions, Ltd. and AECOS Consultants *(Appendix B)*. Existing conditions with respect to faunal (avian and mammalian) resources, and findings and recommendations concerning potential project impacts, are summarized below.

Over 100 different birds of 15 different avian species representing 11 separate families were observed during the avian survey (Table 1 in *Appendix B*). All but one of the observed species – the Wandering Tattler – are considered alien to the Hawaiian Islands. Two of these birds were seen flying over the site during the survey. This is an indigenous migratory shorebird species that nest in the high Artic region and return to Hawai'i and the tropical Pacific during the fall and winter months.

Avian diversity was relatively low, although densities of several species were relatively high. Three species – the Japanese White-Eye, Red-Vented Bulbul, and Chestnut Munia – accounted for nearly one-half of the total recorded observations.

The project site survey of mammals was limited to visual and auditory detection, and none were seen, although scat and signs of domestic dog were encountered in several locations. Numerous dogs were also heard barking from the homes and yards to the west and south of the project site. Dogs are considered deleterious to Hawaiian native avian species.

Anticipated Impacts and Mitigation Measures

The July 2007 survey indicates that there are no special concerns or legal constraints related to faunal resources within the project site. It is not expected that modifications to existing habitats that will result from the construction of the proposed buildings and infrastructure will have a negative impact on any avian or mammalian species that are currently listed as endangered or threatened, or that are proposed for listing under either federal or State of Hawai'i endangered species statutes. Consequently, no mitigation measures are considered necessary.

3.7 COASTAL WATERS AND MARINE ECOLOGY

Existing Conditions

As shown on *Figure 1.1*, the project site is located ~3,600 feet or 2/3rds of a mile inland of Kāne'ohe Bay. As discussed in *Section 2.2.2*, a slight to moderate rainfall generally collects and remains on the site, and eventually evaporates or percolates into the ground. The exception is during heavy storms, when runoff flows into the adjoining drainage swale at the base of the Kahekili Highway embankment, and eventually into the concrete lined drainage channel that

replaced ʻĀhuimanu Stream. This channel flows into the sedimentation basin mauka of the Hygienic Store in Kahaluʻu, before ultimately flowing into Kāneʻohe Bay.

Anticipated Impacts and Mitigation Measures
The above-described existing conditions will be remain substantially unchanged following project completion. As described in *Sections 2.2.2 and 3.3*, the only major change will be the provision of an onsite detention basin, which will ensure that peak stormwater runoff levels from the site into the adjoining drainage channel are no greater than under existing or pre-project conditions.

Given this lack of project impact on off-site drainage conditions, it is reasonable to conclude that the existing church facilities and operations will have no distinguishable impact on the coastal water quality or marine ecology of Kāneʻohe Bay. Neither construction operations nor the existence and use of the proposed project once it is completed are expected to alter these existing conditions.

Best management practices for minimizing soil erosion and runoff, including full compliance with City Grading Permit and NPDES Permit requirements, will be employed during project construction. They will also be employed as part of the church's operation and maintenance once the project is completed. This will include fully landscaping all exposed ground areas in order to prevent soil erosion. The on-site wastewater treatment and disposal system will meet or exceed State Department of Health standards and not adversely effect water quality in the abutting ʻĀhuimanu Stream drainage channel, much less Kāneʻohe Bay.

In summary the project's design, construction, operation and maintenance will all be done in a manner that will preclude any adverse impacts on the coastal water quality or marine ecology.

3.8 HISTORIC AND CULTURAL RESOURCES

3.8.1 Archaeological Assessment

Existing Conditions
An archaeological assessment for the project site was completed in August 2007 by Jeffrey Pantaleo Consultants. Historical and archaeological background research, a surface survey of the entire project site, and subsurface testing by backhoe in selected areas were all conducted to determine and assess existing conditions. A copy of their full report is provided in *Appendix C*. Existing conditions and findings and recommendations with respect to potential project impacts are summarized below.

The historical research indicated that the area in the vicinity of the project site was generally used for agricultural cultivation or grazing. No evidence was found that indicated the presence of significant human settlements in the immediate area. There are also no records of prior archaeological work in the project area. Based on these results, any features found on or in the vicinity of the project site are expected to be at low densities and associated with temporary habitation and agriculture.

The surface survey of the project site revealed an absence of cultural remains or any isolated artifacts. There was also extensive evidence of previous disturbances to the site from road and

urban development, and filling during dredging of the flood control drainage channel. Given the absence of surface cultural remains, subsurface testing by backhoe was conducted in selected areas throughout the site that were accessible. No cultural remains or deposits were encountered in any of the trenches dug with the backhoe.

Anticipated Impacts and Mitigation Measures
Given the lack of any evidence of any historic or cultural remains during the surface survey and trenching, the consultant has recommended that no further archaeological work be done. It is not anticipated that construction of the project will have any adverse impacts on archaeological resources. In the event that subsurface remains are encountered during construction, all work in the immediate vicinity will be halted and the State Historic Preservation Division (SHPD) will be notified.

3.8.2 Cultural Impact Assessment

Existing Conditions
A cultural impact assessment for the project site was completed by Moana Lee in August 2007. Cultural and historical background research was conducted, and many of the project site's neighbors were interviewed, in order to determine the extent of past or present cultural uses or activities in the area and whether they might be impacted by the proposed project. A copy of the report is provided in *Appendix D*. Existing conditions and findings and recommendations with respect to potential project impacts are summarized below.

No records of cultural practices or uses occurring on the project site or in its immediate vicinity were found. All of the seven neighbors who were interviewed indicated that they were not aware of any cultural uses or activities that might be impacted by the project.

Expressed neighbor concerns included neighborhood security, preservation of existing large trees, potential problems with site drainage flowing onto adjoining properties, and traffic impacts if the pickup and drop-off of pre-school children or other church users is allowed along ʻĀhuimanu Road. Several mentioned wanting the entrances to the site closed and play court use not allowed at night, in order to prevent the court and parking lot from turning into a hangout for undesirable people.

Anticipated Impacts and Mitigation Measures
Given that no evidence was found of past or present occurrences of cultural practices or activities on or in the vicinity of the project site, no adverse project impacts on cultural resources are expected.

Issues raised during Ms. Lee's meetings with neighbors are being addressed as follows:

- Entrances to the project site will closed at night, and use of the play court will be limited to daylight hours.
- Existing large trees will be preserved in place, and those located on proposed building or parking area site will be relocated on site, wherever possible.
- The drop-off/pickup point will be located within the church property.
- Site grading and drainage will be designed to ensure that all surface runoff is retained on site and flows into a planned detention basin at the north end of the property.

3.9 AIR QUALITY

Existing Conditions

In Hawai'i, both Federal and State environmental health standards pertaining to outdoor air quality are generally met due to prevalent trade winds and the very limited presence of major stationary sources of pollutant emissions. This is especially true along the Windward Coast, where the low-density residential character and virtual absence of stationary pollutant sources keep air quality at levels that are well within air quality standards. While there currently are no air quality monitoring stations in the 'Āhuimanu–Kahalu'u area, on-site observations indicate no air quality problems in the general area of the project site.

Anticipated Impacts and Mitigation Measures

The proposed project is not expected to have a substantial negative impact on air quality since it will not contain any structures or uses that will be a significant source of air pollution. There will be additional traffic generated by the project, compared to existing church operations, which will result in increased air emissions. However, this increase will be small relative to the total vehicular traffic in the area (primarily along the abutting Kahekili Highway), and will not substantially impact air quality in the general area.

The location of the project's vehicular ingress and egress along the common property line with two abutting residences will increase the potential for increased air emissions to adversely impact the occupants of these residences. This will be mitigated by maintaining a minimum separation of 10 feet between the property line and driveway, constructing a 6-feet high fence or masonry wall in this setback area, and planting a dense row of evergreen trees along the church side of the fence or wall. These measures, together with the prevailing winds, are expected to substantially "block" and reduce emissions to a level that will rarely if ever be noticeable.

There will be short-term impacts during the construction period in the form of exhaust from increased traffic and fugitive dust generated by the construction activity. A dust control management plan will be developed which identifies and addresses activities that have a potential to generate fugitive dust. The short-term effects on air quality during construction will be mitigated by compliance with provisions of Hawai'i Administrative Rules, Section 11-60.1-33 on Fugitive Dust. Potential control measures to reduce fugitive dust include:

- Planning the different phases of construction, focusing on minimizing the amount of dust generating materials and activities, centralizing on-site vehicular traffic routes, and locating dusty equipment in areas of the least impact;
- Providing an adequate water sources at the site prior to the start up of construction activities;
- Landscaping and rapid coverage of bare areas, including slopes, starting from the initial grading phase;
- Controlling of dust from shoulders and access roads;
- Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
- Controlling of dust from debris being hauled away from the project site.

3.10 NOISE

Existing Conditions

The primary noise sources in the project area are traffic noise levels associated with Kahekili Highway, and noise generated in connection with the Sunday morning worship services at the church. Noise levels on surrounding properties, and at the church at times other than Sunday mornings, are generally low due to the prevailing residential and rural land uses on surrounding properties, and very low level of church use at other times during the week.

In Hawai'i, the State Department of Health (DOH) regulates noise from fixed mechanical equipment and construction activities. State DOH noise regulations are expressed in maximum allowable noise limits. Construction activities, which are typically noisier than the State DOH noise limits, are regulated through the issuance of permits for allowing excessive construction noise during limited time periods.

Anticipated Impacts and Mitigation Measures

The primary receptors of project-related noise will be the occupants of nearby residences. Several measures will be implemented to minimize the potential for adverse noise impacts. They include:

- Installation of central air conditioning in all new church buildings except the retreat center bungalows. This will allow for those church activities that have the potential for generating significant noise to be conducted in fully enclosed spaces, with no open windows or doors. The minimum 150-feet separation of the bungalows from the nearest residences, plus the low noise levels of all activities to be conducted in them (primarily sleeping quarters for retreat participants, and occasional small breakout group sessions during the day of a retreat), make air conditioning them unnecessary as a noise mitigation measure.
- As a further measure, not allowing any activities that may involve loud noises or use of sound amplification to use the classroom building. For example, evening music rehearsals for the Sunday worship service will be restricted to the classrooms at the northeast or Kahekili Highway end of the sanctuary building. These classrooms will be more than 180 feet from the common property line with the nearest residences, and most of the sanctuary building will itself to serve as a noise buffer.
- Restricting the hours when any church activity involving noise levels that could be more noticeable beyond the church property line than normal residential uses will be allowed. It is proposed that all such activities not be allowed before 8 AM or after 9 PM on any day of the week.
- Location of the pre-school's outdoor play area on the interior side of the classroom building. The building itself will then serve as a noise buffer from adjoining residences.
- The construction of a fence or wall with dense landscaping along the common property line with adjoining residences. This has already been proposed in the prior discussion of air quality mitigation measures. It will be an effective sound as well as air quality and visual buffer. (Note: A decision on whether to construct a wood fence or masonry wall will be based on the preference of the owners of the adjoining residences. The applicant is in the process of consulting with the neighbors on this matter.)

Together, these measures are considered adequate to keep noise generated by church activities below levels that would cause any long-term or regularly occurring adverse impacts.

Unavoidable adverse noise impacts are likely to occur during project construction activities. However, the occurrence of high noise levels should be infrequent, of short duration, and limited to daylight hours. Noise levels from construction vehicles and activities will be limited as required to comply with State Department of Health Administrative Rules.

3.11 VISUAL RESOURCES

Existing Conditions

The existing church building and open areas on the project site are highly visible to traffic passing by on of Kahakili Highway. The north end of the site is at a lower elevation than the highway, and views extend over it to the more mauka properties and the Koʻolau Mountains. Only the upper plateau area is visible from ʻĀhuimanu Road.

Anticipated Impacts and Mitigation Measures

Most of the new church buildings will be on the south end of the property where the existing church is located. While there will be considerably more building mass that will be visible to passers-by than is the case with the existing building, building heights and densities will be very similar to the prevailing heights and densities in the surrounding neighborhood.

This is because the new church buildings must conform to the same – and in some cases more restrictive – height, density and setback requirements that apply to nearby single-family homes. For example, the required building setback from ʻĀhuimanu Road is 30 feet, which is three times the 10 feet setback required for single-family residences. This setback, combined with an attractive building design and extensive landscaping, will significantly mitigate any potential for adverse visual impact of the church sanctuary's building mass.

The appearance of the north portion of the project site will be changed by adding the retreat center bungalows, covered outdoor play court, and parking lot to this currently natural landscape. However, impacts on mauka views across the property from Kahekili Highway will be minimal due to the low heights of these facilities, the very low building coverage (less than 10%), and the fact that the ground elevation is ~10 feet or more below the elevation of the highway. As many of the existing trees as possible will also be retained in order to substantially maintain the existing site appearance and screen the view of the new buildings from passers-by on the highway.

In summary, appearance-wise, the proposed project should be an attractive addition to this residential neighborhood. It also will not infringe on mauka views from Kahekili Highway of the rural landscape as you enter Kahaluʻu, nor of the Koʻolau Mountains beyond. No mitigation measures beyond those already incorporated in the project design are considered necessary.

3.12 PROJECT SITE AND SURROUNDING AREA LAND USE

Existing Conditions

The existing development pattern in the area of the project site basically follows existing zoning and is also consistent with the land use character and development pattern that is called for in the City and County of Honolulu's Koʻolaupoko Sustainable Communities Plan. The relationship of the proposed project to applicable land use policies and plans is described in

Section 5 of this report. The existing pattern of development in the project area, and the potential impacts of the project on this pattern, are described below.

In general terms, the project site and the areas to the east, west and south are part of a fully developed residential neighborhood with intermittent open space areas that are primarily flood prone or steeply sloping lands. To the north of the project site the area is more rural in character with a mix of single-family homes, small-scale agricultural activities, and open space. Several churches are scattered throughout the surrounding community.

The existing First Assembly of God Church occupies the ~1.2-acre portion of the project site that fronts on ʻĀhuimanu Road. The rear ~2.7-acre parcel is vacant. Single-family homes and low-density apartments border the southwest and south sides of the project site, respectively. Kahekili Highway borders the project site's east/northeast property line, and a large lot residential subdivision occupies the land on the opposite side of the highway.

The concrete-lined ʻĀhuimanu Stream drainage channel forms the project site's north/northwest boundary. The land across the drainage channel is divided into irregular-shaped lots that are mostly less than five acres in size. Many have single-family homes on them, some also or only are used for crop production, and some are vacant.

Anticipated Impacts and Mitigation Measures

The proposed project will continue the existing church use of the property, and thus will not alter the land use character of the project site or surrounding area. The intensity of use of the property will, however, increase significantly as compared to the level of activity at the existing small church facility. For example, construction and occupancy of the project will result in an increase in traffic and general noise levels in the immediate vicinity of the project site, and could also impact air quality.

Mitigation measures to address potential impacts from the increased intensity of use of the project site are addressed in other sections of this section – for example, in *Section 3.9* for air quality impacts, *Section 3.10* for noise impacts, and *Section 3.14* for traffic impacts. The proposed church use is, however, entirely compatible with the existing and planned future land use character of the project site and surrounding area. No mitigation measures beyond those proposed elsewhere are considered necessary.

3.13 SOCIO-ECONOMIC CHARACTERISTICS

Existing Conditions

ʻĀhuimanu-Kahaluʻu is a rural-residential community with a fairly stable population that is very diverse both ethnically and economically. While primarily residential in character, there is also a diverse mix of other uses, including small farms, commercial and even a few industrial activities. Major areas are undeveloped and used either for agriculture or kept as open space. The community is well served by a substantial number of churches and other social institutions.

Anticipated Impacts and Mitigation Measures

Redevelopment and expansion of the First Assembly of God Church will not have any substantive impact on the ʻĀhuimanu-Kahaluʻu community's existing socio-economic character. Those changes that will occur will be very small and generally beneficial. For example, the project will create a short-term benefit in the form of added construction employment. Long-

term benefits will include the addition of a pre-school to serve community residents in need of this service, a slight increase in jobs in the area as a result of the addition of the pre-school, additional facilities for church-sponsored social groups and educational classes that will be open to non-members as well as church members, and community use of the covered basketball court.

The existing church membership is involved in many different community improvement projects and in programs that lend a helping hand to disadvantaged families and individuals in the community. These various outreach efforts are briefly described in *Appendix E*. The proposed expansion of church facilities, which is needed to support an expanding congregation, will in turn also enable the church to expansion of these existing projects and programs and add new ones as appropriate.

In summary, expansion of the First Assembly of God Windward Church in Kahalu'u will result in several positive socio-economic impacts that are expected to be significantly greater than any potential negative impacts. Under these circumstances, no specific socio-economic mitigation actions are required or recommended.

3.14 ROADWAYS AND TRAFFIC

Existing Roadways Serving the Project Site

The project site fronts on and obtains its access from 'Āhuimanu Road, a two-lane collector road that provides one of the three main routes connecting mauka neighborhoods in the 'Āhuimanu community to Kahekili Highway *(Figure 1.1)*. This road is owned and maintained by the City and County of Honolulu.

Kahekili Highway is a State-owned and maintained two-lane arterial highway that abuts the east/northeast side of the project site and runs between Likelike Highway in Kāne'ohe and Kamehameha Highway in Kahalu'u. It is the main north-south route for traffic traveling to and from the upper Windward Coast and Kāne'ohe and Honolulu. The 'Āhuimanu Road intersection with this highway is signalized, and there are separate left-turn and right-turn lanes along the highway in both directions for traffic exiting the highway onto this road.

Scope of Traffic Impact Assessment

Existing traffic conditions and potential project impacts on projected future traffic are described and evaluated in a June 2007 Traffic Impact Assessment Report (TIAR) that was prepared by The Traffic Management Consultant. A copy of the report is provided in *Appendix F*.

This assessment focuses on the Kahekili Highway-'Āhuimanu Road intersection because it is considered to be the only area where there is a potential for future traffic problems. Existing traffic volumes on 'Āhuimanu Road are well within acceptable levels, and given the near-fully developed condition of all residentially zoned land served by this road, only a very small future increase in traffic is expected.

Virtually all traffic to and from the First Assembly of God Windward Church currently and in the future will continue to arrive and leave via Kahekili Highway. As a result, this project should have little if any impact on 'Āhuimanu Road traffic mauka of the church site. Only the potential for an increase in church membership from among residents of the immediate community would impact these traffic volumes. Any such increase is expected to relatively

small and have no more than a negligible overall impact on existing traffic conditions in the ʻĀhuimanu residential area.

Two measures are generally used to describe operating conditions for traffic – namely, "level of service" and "vehicle-to-capacity ratio". Level of service (LOS) is a qualitative measure describing the operational conditions within a stream of traffic. Speed, travel time, freedom of maneuver, and number and duration of traffic interruptions are among the factors that are included in determining LOS. Ratings of "A", "B" and "C" generally describe satisfactory operating conditions. A LOS "D" rating is usually considered a "minimum desirable" operating level. LOS "D" is undesirable, and LOS "F" is unacceptable. Table 1 in *Appendix E* summarizes the allowable controlled traffic delays for each LOS.

Volume-to-capacity (v/c) ratio is a measure indicating the relative traffic demand compared to the roadway's capacity. Capacity is defined as "the maximum number of vehicles that can pass a given point during a specified period under prevailing roadway, traffic flow, and traffic control conditions." For example, a v/c ration of 0.50 is that existing traffic levels (or projected future traffic demand) is utilizing 50% of the roadway's capacity. A v/c ratio is excess of 1.00 indicates that the projected traffic demand exceeds a roadways capacity.

Preparation of this TIAR involved collecting traffic count data during weekday morning and evening periods when traffic on Kahekili Highway is at its peak, and on Sunday mornings when the impact of church-generated traffic on ʻĀhuimanu Road and at its signalized intersection with Kahekili Highway is at its peak. These counts were used to describe and assess existing traffic conditions. Future traffic conditions without and with the project were then projected to 2013, which is when all phases of project construction are currently scheduled for completion.

<u>Existing Traffic Conditions</u>
The following existing traffic conditions were found during the TMC traffic count surveys in March 2007:

- *Existing Weekday AM Peak* – Morning peak traffic counts were taken between 6:00 AM and 8:00 AM. The intersection of Kahekili Highway and ʻĀhuimanu Road operated at LOS "A", with a v/c ratio of 0.44, during the weekday morning peak hour of 7:00 AM to 8:00 AM. Individual traffic movements at the intersection operated at LOS "B" or better.

- *Existing Weekday PM Peak* – Evening peak traffic counts were taken between 4:15 PM and 6:15 PM. The intersection of Kahekili Highway and ʻĀhuimanu Road operated at LOS "B", with a v/c ratio of 0.67, during the weekday morning peak hour of 4:15 PM to 5:15 PM. Individual traffic movements at the intersection operated at LOS "C" or better.

- *Existing Sunday Peak* – Traffic counts were taken on Sunday between 9:30 AM and 12:30 PM. Sunday services at the First Assembly of God Church are currently held from 10:15 AM to 11:30 AM. The peak hour of traffic on Kahekili Highway that was impacted by travel to and from this service occurred between 11:30 AM and 12:30 PM. The intersection of Kahekili Highway and ʻĀhuimanu Road operated at LOS "A", with a v/c ratio of 0.43, during the existing Sunday peak hour of traffic. Individual traffic movements at the intersection operated at LOS "B" or better.

Anticipated Impacts and Mitigation Measures

As noted, future traffic conditions without and with the proposed project were assessed to the Year 2013, when all phases of the project construction are anticipated to be completed. The findings are summarized below and presented in greater detail in *Appendix B*. Existing and projected Levels of Service and v/c ratios at the Kahekili Highway – ʻĀhuimanu Road intersection are summarized below in *Table 3.1*. Projected 2013 peak hour traffic counts with the project are shown in *Figure 3.2*.

- *Future Weekday AM Peak* – The intersection of Kahekili Highway and ʻĀhuimanu Road is expected to operate at LOS "A" and a v/c ratio of 0.46 without the project, and at LOS "B" and a v/c ratio of 0.50 with the project, during the weekday morning peak hour in the Year 2013. Individual traffic movements at the intersection are expected to operate at LOS "B" or better both without and with the project.

- *Future Weekday PM Peak* – The intersection of Kahekili Highway and ʻĀhuimanu Road is expected to operate at LOS "B" and a v/c ratio of 0.68 without the project, and at LOS "B" and a v/c ratio of 0.69 with the project, during the weekday evening peak hour in the Year 2013. Individual traffic movements at the intersection are expected to operate at LOS "C" or better both without and with the project.

- *Future Sunday Peak* – As noted, traffic counts were taken on Sunday between 9:30 AM and 12:30 PM. It is anticipated that two Sunday services will be held at the First Assembly of God Church once the new sanctuary is completed. The new service will be held at approximately 8:00 AM to 9:15 AM, and the existing 10:15 AM to 11:30 AM service will be retained. The peak hour when traffic on Kahekili Highway would be most impacted by travel to and from these church services was selected to be 9:30 AM to 10:30 AM, or during the period between the two services.

  The intersection of Kahekili Highway and ʻĀhuimanu Road is expected to operate at LOS "A" and a v/c ratio of 0.47 without the project, and at LOS "B" and a v/c ratio of 0.51 with the project, during this Sunday peak hour in the Year 2013. Individual traffic movements at the intersection are expected to operate at LOS "B" or better both without and with the project.

Scenario	Peak Hour of Analysis					
	AM		PM		Sunday	
	LOS	v/c	LOS	v/c	LOS	v/c
Existing	A	0.44	B	0.67	A	0.43
Without Project	A	0.46	B	0.68	A	0.47
With Project	B	0.50	B	0.69	B	0.55

Source: Traffic Impact Analysis Report, pg. 14

Table 3-1: SUMMARY OF EXISTING AND FUTURE TRAFFIC CONDITIONS AT KAHEKILI HIGHWAY – ʻĀHUIMANU ROAD INTERSECTION

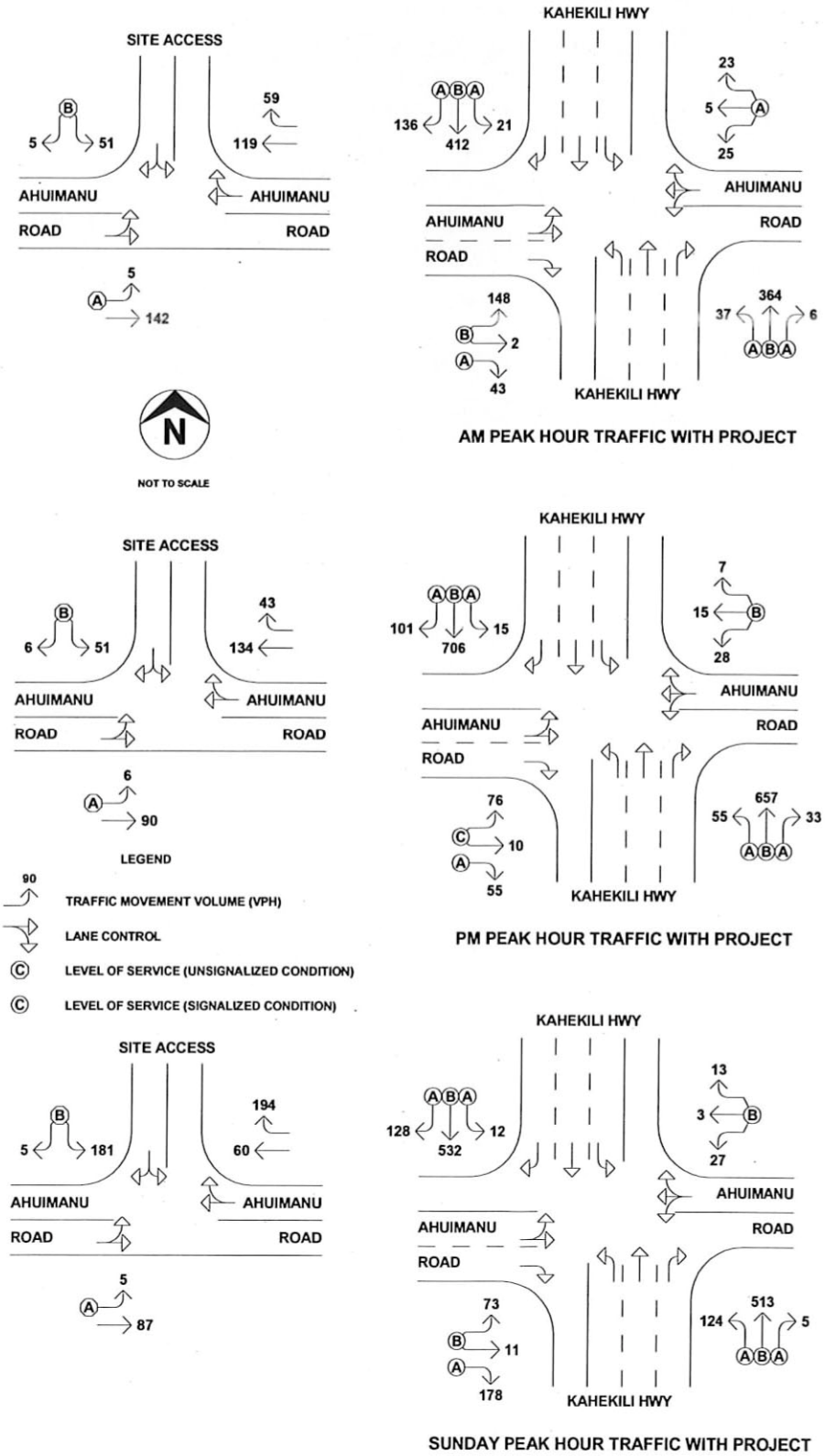


Figure 3-2: PROJECTED 2013 PEAK HOUR TRAFFIC WITH PROJECT COMPLETION AT KAHEKILI HIGHWAY – ʻĀHUIMANU ROAD INTERSECTION

In summary, levels of service and vehicle-to-capacity ratios for projected future traffic conditions with the project are expected to be well within satisfactory levels. No roadway or traffic-related mitigation measures are considered necessary.

During project construction there will be increases in truck traffic associated with the delivery of construction materials, as well as increases in automobile traffic associated with construction workers traveling to and from the site. Temporary lane closures along the property's frontage are not expected to be necessary, except possibly for very short periods to upgrade the existing water and sewer hookups.

Traffic management practices will be instituted during construction of the project as necessary to minimize any disruption to existing traffic flow. Also, construction activities will be limited to normal daytime work hours, and all truck traffic will be required to approach and leave the site via the shortest possible route from and to Kahekili Highway.

3.15 UTILITIES

3.15.1 Electrical, Telephone, and Cable TV Service

Existing Conditions
Electrical service for the project site is provided by Hawaiian Electric Company (HECO), which operates an integrated system of power generators and transmission facilities that serves all of O'ahu. Hawaiian Telcom provides telephone service in the project area, and Oceanic Cable provides cable TV service. Distribution of all three of these services to individual properties in the area of the project site is via overhead lines on a common set of utility poles that mostly run along one side of roadway rights-of way.

Anticipated Impacts and Mitigation Measures
The proposed project will significantly increase the amount of electrical power used by the church, but the impact on the overall system will be negligible. Telephone and possibly cable TV service usage will also increase, but again the impact on these systems will be extremely small. None of these increases are expected to require new lines or other upgrades to the existing service distribution systems. In summary, electrical and communication utility services will not be affected by the implementation of the proposed project, and no mitigation measures will be necessary.

3.15.2 Water Supply

Existing provisions for potable water supply and potential project impacts are described in a Preliminary Engineering Report, dated September 2007, that was prepared by Austin, Tsutsumi & Associates, Inc. A copy of the full report is provided in *Appendix A*. Existing conditions and proposed improvements to accommodate this project are also summarized in *Section 2.2.5*.

Existing Conditions
Potable water service is provided to the project site and surrounding area by the City and County of Honolulu Board of Water Supply (BWS). 'Āhuimanu Road properties are served by existing 6-inch and 8-inch water mains that are located within the road right-of-way.

Anticipated Impacts and Mitigation Measures
There will be no adverse impact to the existing water system as a result of the proposed project. The BWS has reviewed the preliminary project plans and has determined that the existing system is adequate to meet both domestic consumption water demands and fire flow requirements. No mitigation measures will be necessary.

3.15.3 Wastewater Collection, Treatment, and Disposal

The existing wastewater system and potential project impacts are described in a Preliminary Engineering Report, dated September 2007, that was prepared by Austin, Tsutsumi & Associates, Inc. A copy of the full report is provided in *Appendix A*. Existing conditions and proposed improvements to accommodate this project are also summarized in *Section 2.2.5*.

Existing Conditions
The wastewater system serving the ʻĀhuimanu community is owned, operated and maintained by the City Department of Environmental Services (DES). The church is currently tied in to an existing 8-inch sewer main that is located within the ʻĀhuimanu Road right-of-way. There are no existing sewer laterals available to tie-in the ~2.7-acre lower portion of the project site. Collected wastewater is treated at the nearby ʻĀhuimanu Wastewater Treatment Plant. This plant is currently operating at capacity.

Anticipated Impacts and Mitigation Measures
There are no plans to upgrade or increase the capacity of the existing treatment plant. DES has indicated it will allow only the new sanctuary and multi-purpose building to be connected to the existing sewer main. An on-site individual wastewater treatment system is planned to service the new classroom building and retreat center. Approximately one-third of the wastewater generated by the new project will flow into the existing City system, and the treatment and disposal of the other two-thirds will be handled by the new on-site system.

This new system will be state-of-the-art and use four septic tanks designed and manufactured by Environmental Waste Management Systems, Inc. The tanks are designed to use a very efficient anaerobic treatment process and produce effluent that can safely be discharged into the ground. No adverse impacts on groundwater quality, soils, drainage or other existing or future conditions without the project are anticipated.

3.15.4 Stormwater Runoff and Drainage

Existing drainage conditions and potential project impacts are described in a Preliminary Engineering Report, dated September 2007, that was prepared by Austin, Tsutsumi & Associates, Inc. A copy of the full report is provided in *Appendix A*. Existing conditions and proposed improvements to accommodate this project are also summarized in *Section 2.2.2*.

Existing Conditions
Drainage is currently overland flow within the project site. No on-site stormwater runoff drains onto ʻĀhuimanu Road, Kahekili Highway, or adjoining properties. There is no collection system, and runoff generally travels south to north from the upper plateau fronting ʻĀhuimanu Road to the ~2.7-acre lower area, where it is allowed to accumulate and eventually percolate into the ground.

During periods of heavy rainfall, overflow from the lower area flows into the normally dry drainage channel that runs along the base of the Kahekili Highway embankment. This channel continues north alongside the highway beyond the project site boundary and eventually empties into the concrete lined ʻĀhuimanu Stream drainage channel that abuts the property. The ʻĀhuimanu Stream drainage channel flows north into a lake behind the Hygienic Store that serves as a sediment retention basin. Runoff collected in this lake eventually flows into Kāneʻohe Bay.

Anticipated Impacts and Mitigation Measures

The existing pattern of handling stormwater runoff and drainage on the project site will be retained. During more intensive storms, excess runoff will, as it does now, flow into the drainage channel that runs along the base of the Kahekili Highway embankment and empties into the concrete lined ʻĀhuimanu Stream drainage channel.

A detention basin (essentially a grassed shallow depression with gently sloping sides) will be constructed at the north end of the project site in order to increase the capability of this area to retain stormwater runoff. The purpose of the detention basin is to limit the peak flow off of the property and into the adjoining drainage channel to a level that is no more than what currently occurs under existing conditions.

In summary, potential project impacts will be fully mitigated by proposed on-site grading and drainage improvements. These improvements will ensure that there will be no stormwater runoff from the project site onto ʻĀhuimanu Road, Kahekili Highway, or adjoining residential properties. They will also ensure that peak runoff from the property into the ʻĀhuimanu Stream drainage channel is no greater than under existing conditions.

3.16 HAZARDOUS MATERIALS

Existing Conditions

The current owners of the project site have no knowledge of the existence of hazardous materials in either the existing church building or elsewhere on the site.

Anticipated Impacts and Mitigation Measures

A hazardous materials assessment survey will be conducted prior to building demolition to determine if any hazardous materials, such as the asbestos or lead containing paint, etc. are present. Appropriate abatement (containment and disposal) actions will be undertaken if any are found. Similarly, if any hazardous materials are discovered during site clearance and regrading operations, work will be immediately stopped and steps will be initiated to properly contain and dispose of the material. No further mitigation measures are considered necessary.

3.17 POTENTIAL CUMULATIVE AND SECONDARY IMPACTS

Cumulative effects are impacts that can result when a project is but one of a series of actions occurring in an area. As such, in addition to a project's individual or "stand alone" impacts, some of those impacts may add an incremental part to the total effects of other past, present, and reasonably foreseeable future actions that occur in the same general area. For example, each new project that generates additional traffic will add an increment to the total volume of

traffic on a particular road or highway that serves more than one of the new projects. Cumulative impacts can result in individually minor but collectively significant actions taking place over a period of time.

This proposed project is not anticipated to generate any substantial cumulative impacts. For example, the traffic impact analysis *(Sub-section 3.13 and Appendix B)* takes into account the anticipated future overall increase in traffic on Kahekili Highway without the project, and adds the project's future traffic to this to determine the cumulative impact. It was found that the highway is adequate to handle the overall projected increase in traffic, including the project-related traffic.

In general, the ʻĀhuimanu-Kahaluʻu area is a fairly stable community that should experience only very limited growth and change in the future. Even so, this project is relatively small in scale and will not add much to the cumulative impacts of the changes that do occur.

Secondary effects are impacts that are associated with, but do not result directly from, a proposed action. It is difficult to anticipate what these impacts may be. As a hypothetical example, the congregation at one of the smaller churches in Kahaluʻu could decide to close its church facility and consolidate with the existing congregation at the First Assembly of God Church in Kahaluʻu once its new facilities are completed. No specific, potentially adverse secondary impacts have been identified for this project.

In summary, the environmental analysis presented in this Draft EA has to the extent possible addressed cumulative and secondary impacts of all phases of the proposed project in the context of all known planned or approved land uses in the vicinity of the project site. No significant impacts are anticipated.

Section 4.0
Alternatives to the Proposed Project

4.0 ALTERNATIVES TO THE PROPOSED PROJECT

Described and evaluated below are three alternatives to the proposed project that is described in *Section 2.0*:

A – Retention of Existing Church Facilities

B – Smaller Scale Church Redevelopment

C – Residential Development on the Project Site

4.1 ALTERNATIVE A – RETENTION OF EXISTING CHURCH FACILITIES

This "no-action" alternative would result in the continued use of the project site in the manner that it is being used now. Only required repairs and maintenance would be performed.

Existing facilities are barely able to serve the church's current congregation, and membership at the existing church would have to be "capped" at or slightly above its existing level. This would mean that the First Assembly of God Church would have to acquire another site and start a new, separate congregation in order to adequately accommodate and serve the steadily increasing number of its Windward Coast members.

A pre-school could not be added despite a significant community need, as demonstrated by the queries about the availability of such a facility that are constantly being received by church staff. While a new pre-school could conceivably be included if a second First Assembly of God Church is established on the Windward Coast, it probably would not be situated where it would be conveniently accessible to residents of ʻĀhuimanu, Kahaluʻu, and communities to the north.

Given both the small size of the congregation and the lack of space to accommodate an expansion of youth and other programs in the existing facilities, there would be no justification to add an outdoor play court.

The small congregation size and inadequate support spaces would also not justify and make it impractical to include a retreat center as part of this church. Since some of the planned retreats would involve pastors and lay leadership from the entire First Assembly of God Church, either another location would have to be found to build this facility, or the church would have to continue its current practice of using other less suitable facilities.

4.2 ALTERNATIVE B – SMALLER SCALE CHURCH REDEVELOPMENT

This alternative would involve the construction of a new sanctuary and additional support facilities that would allow for an expansion of the church's congregation, but not to the degree that is being proposed. A smaller multi-purpose room, and three or four (instead of seven) adult classrooms would also be provided. Given the community need, a pre-school would probably be included, but it too would be smaller – say, with a maximum enrollment of 30 rather than the proposed 60 students.

The smaller than currently planned congregation and support spaces would probably not be sufficient to justify and support adding a retreat center on the site. As with Alternative A, the First Assembly of God Church would have to find another way to meet this need.

An outdoor play court may or may not be included. It would definitely be more difficult to raise the funds to pay for its construction as well as the funds required for the construction of other more essential facilities.

4.3 ALTERNATIVE C – RESIDENTIAL DEVELOPMENT ON THE PROJECT SITE

This alternative would involve the demolition of the existing church and construction of new residences on the project site. It is estimated that four single-family homes could be built on the residential-zoned portion of the site. An additional home could possibly be built on the agricultural-zoned parcel.

Another site (or sites) would have to be found and acquired in Koʻolau Poko in order for the First Assembly of God to continue to provide its Windward area members with a reasonably convenient place of worship. This site could be elsewhere in Kahaluʻu, but it is more likely to be in a more distant location.

None of the support facilities that are part of the proposed project and would be open to use by residents of the ʻĀhuimanu – Kahaluʻu community as well as church members – namely, the pre-school, outdoor play court, and adult classes – would be provided under this alternative.

4.4 EVALUATION OF ALTERNATIVES

To evaluate these alternatives it is necessary to consider the potentially adverse impacts each would have on the physical environment (traffic, noise, visual, and air quality, etc), and to compare those impacts to the impacts of the proposed project. In addition, it is important to weigh these effects against the benefits each alternative and the proposed project would bring to the surrounding community in terms of improved community services. Finally, the ability of each alternative to meet the needs of an expanding First Assembly of God Church membership in Windward Oahu needs to be considered.

Alternative A – If consideration of environmental impacts is limited to just the project site, then it could be argued that retention of the existing church facilities would probably have the least detrimental effect on the environment. However, this would ignore the basic purpose and need for the proposed project, which is to expand First Assembly of God church facilities in Windward Oʻahu in order to adequately serve the growing number of members who live in this part of the island. It will also not address the need for additional pre-school facilities to serve communities along the upper Windward Coast.

A "no action" alternative is not a real possibility, since the First Assembly of God would seek out and purchase another site in Windward Oʻahu for a new church if it is not allowed to redevelop the project site. It is extremely unlikely that the church could find another site that is large enough, is centrally located within the region, has direct or virtually direct access onto an

arterial highway, and is on the edge of or away from residential areas – in other words, a site with equal or less impact on the environment than the project site. Even if such a site could be found, the combined impacts of retaining the existing church and building a second, new church and pre-school on another site would have greater overall environmental impacts than the proposed project.

Alternative B – A smaller scale church redevelopment would have both a lower potential for detrimental effects and less benefits to the church and community. This would also be only an interim response to the need that is being addressed, since the smaller scale redevelopment would be able to serve the anticipated growth in Windward O'ahu church membership for only a relatively limited period of time. It is expected that there would be a need to either further expand facilities at the existing church site, or establish a second church on the Windward side, in the more distant future.

Building a smaller church expansion now, and then further expanding the church at the existing site at some point in the future would be very expensive and result in a much less suitable physical plant. This is because the sanctuary and multi-purpose are not the types of spaces that can be easily expanded. Substantial and costly redesign and reconstruction would be involved. A two-phased church expansion would also significantly increase construction-related impacts.

The option of establishing a second church on the Windward side in order to serve the church membership would have the same drawbacks as discussed above for Alternative A. Overall, the total impact on the environment would be greater than with the proposed project.

Alternative C – Residential development on the project site would have many of the same environmental impacts as the proposed church redevelopment, without providing any of the intended benefits. Construction-related impacts would be very similar. Most of the longer term or ongoing impacts would also not be that different.

The net impact of residential development on weekday peak hour traffic is not expected to be that much lower than for the proposed project. This is because, while total trip generation will be less for the new residences compared to the pre-school, all of the new residence traffic will be added to or increase existing traffic volumes, whereas much of the pre-school traffic will involve people who are already traveling to and from work, etc. on Kahekili Highway.

The peak "surge" in potable water use and wastewater generation will be higher for the proposed project, but total volumes over a period of a week or month should actually be about the same or possibly even less than for residential development. There would also be a higher potential for noise impacts from the church. However, these will be mitigated by confining noise-generating activities to enclosed air conditioned spaces.

As with the other alternatives, this alternative would require the First Assembly of God to find another site on Windward Oahu where it could build a new church of the same or very similar size as the proposed project. As noted in the discussion of Alternative A, finding another site that is as well suited for locating a church as the project site is highly unlikely. Total environmental impacts under this alternative can be reasonably expected to be greater than for the proposed project.

Section 5.0
Applicable Environmental and Land Use Policies and Plans

5.0 APPLICABLE ENVIRONMENTAL AND LAND USE POLICIES AND PLANS

The project's consistency with applicable State of Hawai'i and City and County of Honolulu planning and land use objectives, policies, principles and guidelines are discussed below. This is divided into seven (7) sections, based on the law or plan where the objectives and policies, etc. are presented, as follows:

State of Hawai'i

- Hawai'i State Plan (Chapter 226 HRS)
- State Land Use Law (Chapter 205 HRS)
- Coastal Zone Management Program (Chapter 205A HRS)
- State Environmental Policy (Chapter 344 HRS)

City and County of Honolulu

- General Plan
- Ko'olaupoko Sustainable Communities Plan
- Land Use Ordinance (Chapter 21 ROH)
- Special Management Area Review and Procedural Guidelines (Chapter 25 ROH)

5.1 HAWAI'I STATE PLAN

The Hawai'i State Plan establishes a statewide planning system and sets forth goals, objectives, policies, and priority directions to provide for the wise use of Hawai'i's resources and guide the future long-range development of the State. Discussed below is the project's relationship to the goals and applicable objectives, policies and priority directions.

The goal of the State, as stated in the Hawai'i State Plan, is to achieve the following:

- **A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai'i present and future generations.**
- **A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.**
- **Physical, social, and economic well-being, for individuals and families in Hawai'i, that nourishes a sense of community responsibility, of caring, and of participation in community life.**

The objectives and policies of the Hawai'i State Plan that are pertinent to the proposed expansion of the First Assembly of God Church are as follows:

Physical Environment – Land-based, shoreline, and marine resources

It is the objective of the State to achieve the ***"Prudent use of Hawai'i's land based, shoreline, and marine resources."***

A policy for achieving this objective that is applicable to this proposed project is to: ***"Take into account the physical attributes of areas when planning and designing activities and facilities."***

Discussion
The project site is in an excellent location for a church because virtually all vehicular traffic to and from worship services and other functions will arrive and leave by way of an arterial road – namely, Kahekili Highway. This will minimize the potential for any adverse traffic impacts on the residential neighborhoods mauka and makai of the site.

The basic land form of the project site, including its low-lying flood-prone area, will be retained. Development in this area will also be very limited and will be restricted to uses that either by their nature (parking and an outdoor play court) or method of construction (retreat center bungalows on posts with floor elevations above potential flood levels) can be safely located there and will not interfere with the flow of floodwaters during severe storms.

Socio-Cultural Advancement – Education

It is the objective of the State to achieve the: ***"Provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations."***

A policy for achieving this objective that is applicable to this proposed project is to: ***"Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs."***

Discussion
The proposed project will include a pre-school with a 60-student enrollment capacity that will provide both an important educational asset and badly needed service for families living in 'Āhuimanu–Kahalu'u and communities to the north. Its location next to Kahekili Highway will allow for convenient drop-off and pick-up of children without any traffic impact on the surrounding residential neighborhoods.

5.2 HAWAI'I STATE LAND USE DISTRICT BOUNDARIES

State Land Use Districts are established by the State Land Use Commission in accordance with the State of Hawai'i Land Use Law, Chapter 205 HRS. The basic intent of the law is to regulate the classification and uses of lands in the State in order to accommodate growth and development as needed, and to retain and protect important agricultural and natural resources areas. All State lands are classified as Urban, Rural, Agricultural, or Conservation, with consideration given to county general and development plans in determining the classification.

Discussion
The project site is situated within the State Urban District. Under State Law the counties have sole jurisdiction to determine the types of uses permitted in this district. As discussed below,

the Urban classification for the project site is consistent with City and County of Honolulu General Plan, Koʻolau Poko Sustainable Communities Plan, and current zoning.

5.3 HAWAIʻI COASTAL ZONE MANAGEMENT PROGRAM

The Coastal Management Program (CMP) is a comprehensive nationwide program that establishes and enforces standards and policies to guide the development of public and private lands within the coastal areas. In the State of Hawaiʻi, the CMP is articulated in the State Coastal Zone Management (CZM) Law [Chapter 205A, Hawaiʻi Revised Statutes (HRS)].

The Hawaiʻi CZM Law charges the counties with designating and administering Special Management Areas (SMA) within the State's coastal areas. Any "development", as defined by the CZM Law, that is located within the SMA requires a SMA Use Permit SMP). As previously discussed *(Section 2.3.1)* and shown on *Figure 2.5*, the project site is in the SMA.

The relationship of the proposed project to applicable State CZM objectives and policies is discussed immediately below. The project's relationship to the City and County of Honolulu's SMA guidelines is discussed in *Section 5.7*.

State CZM objectives and policies address the following 10 subject areas: (1) recreational resources, (2) historic resources, (3) scenic and open space resources, (4) coastal ecosystems, (5) economic uses, (6) coastal hazards, (7) managing development, (8) public participation, (9) beach protection, and (10) marine resources. Virtually all relate to potential development impacts on the shoreline, near shore, and ocean area environments. This project site, on the other hand, is roughly 2/3rds of a mile inland of the nearest coastline. It is neither visible from any coastline nor is any coastline area visible from the site. Consequently, only one CZM objective and two of its related policies are potentially applicable to this project:

Objective:

(3) Scenic and open space resources – protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.

Related Policies:

(B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline.

(D) Encourage those developments that are not coastal dependent to locate in inland areas.

<u>Discussion</u>

This project will substantially retain the property's existing natural landform – namely, its upper area next to and at about the same elevation as ʻĀhuimanu Road, and its lower area alongside the ʻĀhuimanu Stream drainage channel. The proposed new church facilities will be built in compliance with the same height, setback and density restrictions that apply to the surrounding residential development, and will have no impact whatsoever on views to and along the shoreline. This use is not coastal dependent and, as noted, will be 2/3rds of a mile inland of the nearest coastline.

5.4 HAWAI'I STATE ENVIRONMENTAL POLICY

The purposes of the State environmental policy and related guidelines that are established in Chapter 344 HRS are to:

- ***Encourage productive and enjoyable harmony between people and their environment;***
- ***Promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity; and***
- ***Enrich the understanding of the ecological systems and natural resources important to the people of Hawai'i.***

Several of the policies and guidelines established in Chapter 344 relate to larger scale issues and practices that are not really applicable at a project-specific level. Those that can be applied to project-level proposed actions, and the relationship of this proposed project to them, are discussed below.

Policies:

(1) Conserve natural resources and protect the land, water, mineral, visual, air and other natural resources by controlling pollution, preserving and augmenting natural resources, safeguarding the State's unique natural environmental characteristics, and creating and maintaining conditions under which humanity and nature can exist in productive harmony.

(2) Enhance the quality of life by:

(B) Creating diverse economic opportunities for residents that are in balance with the physical and social environment.

(C) Establishing communities that provided a sense of identity, wise use of land, efficient transportation, and aesthetic and social satisfaction in harmony with the uniquely Hawaiian natural environment.

<u>Discussion</u>

The project site is centrally located within the developed portions of the 'Āhuimanu – Kahalu'u community, and expansion of the existing church's facilities on this site will have no impact on efforts to conserve and protect important natural resource areas and safeguard the State's unique natural environment. As with virtually all churches and community-oriented institutions throughout Hawai'i, fostering a productive harmony between humanity and nature is an integral part of its teachings and practices.

The primary economic opportunity created by this project will be the establishment of new teacher and support staff positions at the proposed new pre-school. Including facilities that provide these types of jobs within a predominantly residential area is considered to be very much "in balance" with the rural-residential environment of the 'Āhuimanu – Kahalu'u community.

Churches are generally regarded as an activity and use that add to a community's sense of identity. Using the project site for a church is considered a very wise use of this land because it is a near-ideal location for a social institution that will serve the entire Windward Coast.

Kahekili Highway provides a highly efficient transportation route for people to travel to and from church functions by either car or bus. The church's location alongside this highway will also ensure that there will be very little traffic impact on adjoining and nearby residential areas.

The architectural character of the new church facilities will be consistent with and reflect the rural-residential character of the local community. (See the report cover and *Figures 2.3 and 2.3*.) Native and tropical landscaping will also be integrated throughout the building areas. The expanded church is intended and expected to be an aesthetic as well as socially positive addition to ʻĀhuimanu and Kahaluʻu.

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

- ***(A) Encourage management practices which conserve and fully utilize natural resources.***
- ***(B) Promote irrigation and wastewater management practices which conserve and fully utilize vital water resources.***
- ***(C) Promote recycling of wastewater.***
- ***(G) Promote the optimal use of solid wastes***

Discussion

Impacts on natural resources will be extremely small and minimized. Low-flush toilets, waterless urinals and other available water-conserving appliances will be used to reduce water usage and wastewater generation. Landscaping materials that generally require no more than natural rainfall for irrigation will be used. Two-thirds of the church-generated wastewater will be treated on site to a high level so that it can be released and used to replenish the water table without adversely affecting groundwater quality. The church will be an active promoter and practitioner of recycling, both to raise funds and support other community fundraising efforts, and to be and set an example as a responsible member of the community.

Guideline (3): Flora and fauna.

- ***(A) Protect endangered species of indigenous plants and animals, and introduce new plants or animals only upon assurance of negligible ecological hazard.***
- ***(B) Foster the planting of native as well as other trees, shrubs, and flowering plants compatible to the enhancement of the environment.***

Discussion

No endangered species of indigenous plants or animals were found during surveys of the project site by qualified professionals. Native and tropical plant materials that are commonly found in the ʻĀhuimanu – Kahaluʻu community will be used to landscape the project site.

Guideline (4): Parks, recreation, and open space.

- ***(A) Establish, preserve and maintain scenic, historic, cultural, park and recreation areas, including the shorelines, for public recreational, educational, and scientific uses.***

Discussion

The proposed project will not impact any existing historic, cultural, park or recreation area, or the shoreline. As discussed in *Section 3.11*, project impacts on existing scenic views of the Koʻolau Mountains from Kahekili Highway will be minimal. The outdoor play court that will be part of this project will be available for public recreational use during the daytime when not being used by the church.

Guideline (5): Economic development.

(B) Promote and foster the agricultural industry of the State, and preserve and conserve productive agricultural lands.

Discussion

While part of this project will be located on agricultural-zoned lands, it will have no impact efforts to preserve and conserve productive agricultural lands. The ~2.7-acre AG-2 zoned portion of the site is poorly suited for agricultural use because it is small and isolated from other ag lands by a highway and concrete drainage channel. It also has poor drainage and soil conditions due to it being used as a collection area for construction and waste materials from the construction of Kahekili Highway and the ʻĀhuimanu Stream drainage channel.

Guideline (8): Community life and housing.

(B) Develop communities which provide a sense of identity and social satisfaction in harmony with the environment and provide internal opportunities for shopping, employment, education, and recreation.

(E) Recognize community appearances as major economic and aesthetic assets of the counties and the State; encourage green belts, plantings, and landscape plans and designs in urban areas; and preserve and promote mountain-to-ocean vistas.

Discussion

It is believed that, like other social and cultural institutions, this church will contribute to the sense of identity, social harmony, and appearance of the ʻĀhuimanu – Kahaluʻu community. The pre-school, adult classrooms, and outdoor play court will provide "internal" (to this community) employment, education, and recreation opportunities.

5.5 CITY AND COUNTY OF HONOLULU – GENERAL PLAN

Adopted by resolution initially in 1977 and last comprehensively revised and updated in 1992, the General Plan for the City and County of Honolulu sets forth the long-range objectives for the general welfare and prosperity of the people of Oʻahu, and broad policies to attain those objectives. The objectives and policies are organized into 11 subject areas and are intended to guide and coordinate the formulation and implementation of City land use plans and regulations, and budgeting policies and decisions for public facility capital improvements, operations and maintenance.

The relationship of the proposed project to applicable objectives and policies of the City and County of Honolulu General Plan is discussed below.

III. 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 6: ***Design surface drainage and flood control systems in a manner which will help preserve their natural settings.***

Policy 8: ***Protect plants, birds, and other animals that are unique to the State of Hawaii and the Island of O'ahu.***

Policy 9: ***Protect mature trees on public and private lands and encourage their integration into new developments.***

Objective B: ***To preserve and enhance the natural monuments and scenic views of O'ahu for the benefit of both residents and visitors.***

Policy 2: ***Protect O'ahu's scenic views, especially those seen from highly developed and heavily traveled areas.***

Discussion

The proposed project's design gives full consideration to the site's topography, existing flood hazard conditions, and existing vegetation. The basic land form of the site – a fairly level upper plateau along 'Āhuimanu Road and a gently sloping lower area to the north, with a relatively steep incline between the two - will be maintained. The increase in surface runoff due to the increase in impervious building area will be detained on site as necessary to ensure that peak runoff into the adjoining drainage channel is no greater than under existing conditions. All development in the flood prone lower area will fully comply with the City's Flood Hazard District development regulations, including the location of habitable building floors above established base flood elevations.

No unique-to-Hawaii species of plants, birds, or other animals were found during flora and fauna surveys of the project site. The retreat center layout will be designed to wherever possible retain existing mature trees and incorporate them in between the bungalows, rather than require their wholesale removal. Scenic views of the Ko'olau Mountains from Kahekili Highway across the project site's north/lower area will be virtually unchanged and only minimally impacted by some of the retreat center bungalows.

V. Transportation and Utilities

Objective B: ***To meet the needs of the people of O'ahu for an adequate supply of water and for environmentally sound systems of waste disposal.***

Policy 4: ***Encourage the lowering of the per capita consumption of water and the per capita production of waste.***

Policy 5: ***Provide safe, efficient, and environmentally sensitive waste collection and waste disposal services.***

Discussion

The City Board of Water Supply has indicated that its existing water system is presently adequate to accommodate this proposed development. Measures to minimize water consumption, such as waterless urinals and dual-flush toilets, will be incorporated into the project design.

The City's wastewater collection system will accommodate approximately 2,000 gallons per day (gpd) of the project-generated wastewater, or one-third of the total wastewater flow of ~6,000 gpd. A new individual wastewater treatment system will be provided on the project site to

treat the remaining ~4,000 gpd. This system will use four septic tanks designed and manufactured by Environmental Waste Management Systems, Inc. These tanks are designed to use a very efficient anaerobic treatment process and produce effluent that can safely be discharged into the ground.

VII. Physical Development and Urban Design

Objective A: ***To coordinate changes in the physical environment of O'ahu to ensure that all new developments are timely, well designed, and appropriate for the areas in which they will be located.***

Policy 8: ***Locate community facilities on sites that will be convenient to the people they are intended to serve.***

Policy 9: ***Exclude from residential areas uses which are major sources of noise and air pollution.***

Discussion

The project site's location adjacent to a signalized intersection on Kahekili Highway provides excellent access for those who will be attending church functions and/or enrolling their children in the pre-school. This road is the primary arterial route used by people traveling between the Kailua-Kāne'ohe area and Honolulu to the south, and Kahalu'u and points further north up the Windward Coast. The project site is one of the most central and easy-to-reach locations that could possibly be available for a church or other community facility that serves Windward O'ahu residents.

Only local area residents who attend the church should impact traffic on residential streets mauka of the church site and makai of Kahekili Highway. This is not expected to be large enough to have a material impact on existing traffic conditions on these roads.

The church will not be a major source of either noise or air pollution. The combination of (1) air conditioning of all church buildings except the retreat center bungalows (which will be infrequently and primarily used for sleeping), (2) locating the pre-school playground on the interior side of the classroom building, or away from nearby residences, and (3) providing a six-foot high fence or masonry wall and dense landscaping along the common property line with adjoining residences, should together virtually eliminate the potential for noise generated by church activities to reach levels that would be unreasonably disturbing to neighbors.

Church and pre-school activities will not generate any significant air pollution. The only potential source of air pollution will be vehicle emissions from the numbers of cars arriving for and leaving Sunday morning worship services. However, virtually all passenger cars now have emission control systems that eliminate noticeable or potentially harmful levels of air pollution. To the best of our knowledge air pollution has never been cited as a problem at any of many equally large and larger churches throughout O'ahu. The above-mentioned six-foot high fence or masonry wall and dense landscaping will further mitigate against any potential for nearby residents to be impacted by air pollution.

IX. Health and Education

Objective B: ***To provide a wide range of educational opportunities for the people of O'ahu.***

Policy 5: ***Facilitate the appropriate location of learning institutions from the preschool through the university levels.***

Discussion

As noted in *Section 2*, this project will include a new pre-school for up to 60 students. Frequent inquiries received by the First Assembly Windward Church from both church and non-church members demonstrate that there is a substantial demand for pre-school facilities along the Windward Coast. The location is considered highly appropriate for the reasons discussed immediately above under *"VII. Physical Development and Urban Design"*.

X. Culture and Recreation

Objective D: ***To provide a wide range of recreational facilities and services that are readily available to all residents of O'ahu.***

Policy 10: ***Encourage the private provision of recreation and leisure time facilities and services.***

Discussion

Also as noted in *Section 2*, this project will include a new covered play court. The church plans to make the outdoor play court available for general community use when it is not being used for church functions. Use will be limited to daytime hours only, since the court will not be lighted.

5.6 CITY AND COUNTY OF HONOLULU – KO'OLAUPOKO SUSTAINABLE COMMUNITIES PLAN

The O'ahu General Plan designates the central portion of the Ko'olau Poko Sustainable Communities Plan area as an urban fringe area that is to remain a predominantly residential suburb with limited future population growth. The northern and southern portions of Ko'olau Poko are designated rural areas that are to remain in predominantly agricultural and preservation land uses. 'Āhuimanu Valley is at the northern end of the urban fringe area, and Kahalu'u lies within the rural area.

Ko'olaupoko's Role in O'ahu's Development Pattern

Nine planning principles related to Ko'olau Poko's role in O'ahu's development pattern are established in Section 3.1.2 of the Ko'olau Poko Sustainable Communities Plan (SCP) to guide future land use and development in the area. The following principles are applicable to this proposed project:

- ***Maintain the predominantly low-rise, low-density, single family form of residential development in the area's urban fringe and rural communities.***
- ***Avoid urbanization of flood- and erosion-prone areas and seek to restore the natural filtering, flood control, recreational, biological and aesthetic values of streams, fishponds and wetlands.***

- ***Preserve scenic views of ridges, upper valley slopes, and shoreline areas from trans-Koolau and coastal highways ….***
- ***Encourage continuation of small-scale agricultural uses in urban areas.***

Discussion
While the proposed church redevelopment and expansion is not a residential development, it will be done in accordance with the building density, height, and setback, etc. requirements of the project site's underlying single-family residential and agricultural zoning, and thus will be in keeping with the 'Āhuimanu community's single-family residential character.

Development within the flood-prone lower portion of the project site will be at a very low density, in keeping with the rural character of the areas mauka and to the north. No alterations will be made to the existing 'Āhuimanu Stream drainage channel. Total structure coverage of the land, including the covered outdoor play court, will be just under 10% of the land area of the agricultural zoned lot. Building coverage for the proposed retreat center will be just 4.2% of the lot area. The floors for these buildings will actually be elevated above ground at the required base flood elevations, and the ground underneath them will be stabilized with landscaping or other means to preclude any potential for erosion. (See *Section 2.2.3* for a more detailed description of the new facilities construction.)

As previously noted, scenic views of the Ko'olau Mountains from Kahekili Highway across the project site's north/lower area will be virtually unchanged and only minimally impacted by some of the retreat center bungalows.

No agricultural use of the lower, ~2.7-acre agricultural zoned portion of the project site has occurred in at least 30 years, or since completion of the construction of the Kahalu'u Flood Control Project and Kahekili Highway. Surface soils in most of this area consist of dredge material and spoils from construction of these two adjoining public works projects. The poor soil and drainage conditions, together with its small size, isolation from other agricultural lands, and lack of direct access to a street, render the property poorly suited for any form of agricultural use.

Agricultural Use

The following general policy, planning principle and guideline related to agricultural development (Section 3.5 of the Ko'olau Poko SCP) are applicable to this project:

General Policy:
- ***Encourage agricultural use of small lots and prevent incremental conversion of agricultural lands to exclusive residential or other non-agricultural uses.***

Planning Principle:
- ***Appropriate Development Standards – Zoning and subdivision codes should prevent the conversion of agricultural lots to residential or other non-agricultural uses.***

Guideline:

- ***Zoning standards should limit the floor area of dwellings and prevent inappropriate urban uses, such as meeting facilities and conditional uses that have no direct relationship to agricultural or local community needs. …***

Discussion

The poor suitability for agricultural use of the lower, ~2.7-acre agricultural zoned portion of the project site is discussed immediately above.

This parcel is on the edge of and physically isolated from other agricultural zoned lands in this area of Kahalu'u by the concrete lined 'Āhuimanu Stream drainage channel. As such, its use for non-agricultural purposes would not lead to or be part of an incremental conversion of agricultural lots to non-agricultural uses. This parcel also has no direct access to a street; the only available access is through the adjoining residential zoned lot.

Churches and other meeting facilities are permitted uses in the AG-2 General Agricultural District, subject to review and issuance by the Director of Planning and Permitting of a Conditional Use Permit. The development proposed on the agricultural zoned parcel will be very low in intensity and size, and will fully comply with the AG-2 District floor area and other zoning standards.

Residential Use

The following general policy and planning principles related to residential development (Section 3.6 of the Ko'olau Poko SCP) are applicable to this project:

General Policy:

- ***Allow community facilities such as schools and churches, with appropriate limitations on scale, siting and intensity of activity to respect residential uses and the prevailing character of the surrounding neighborhood.***

Planning Principles:

- ***Transit-, Bicycle- and Pedestrian-Oriented Residential Streets – Encourage bus, pedestrian, and bicycle travel, particularly to reach neighborhood destinations such as schools, parks, and convenience stores, recognizing the need for accessible design and safe travel conditions for elderly and/or disabled people.***
- ***Environmental Compatibility – Encourage energy efficient features, such as the use of solar panels for heating water, and passive solar design, such as the use of window recesses and overhangs and orientation of openings to allow natural ventilation. Also, resource conservation measures such as water flow constrictors and facilities for the sorting of waste materials for recycling should be incorporated in the design of new development …, but in each case visual impacts of such measures should be minimized.***
- ***Hillside and Floodplain Development Standards – … Development within the 100-year floodplain needs to conform with regulations and guidelines of the Federal Emergency Management Agency (FEMA).***

Discussion
With the proposed expansion, First Assembly of God Windward will be able to serve a growing church membership from both nearby and more distant communities in Koʻolau Poko and Koʻolau Loa. One of the primary reasons for acquiring the project site was its central location directly adjacent to the main north-south highway serving Windward Oʻahu, which provides its members highly direct and convenient access. This site was also selected because its convenient access to Kahekili Highway ensures that traffic and related impacts on adjoining residential areas would be minimized.

The church site is also adjacent to a bus stop that serves two major bus routes, including the circle island route and one that runs between Kahaluʻu and Honolulu via Kāneʻohe. A walkway will be provided along the project site's frontage on ʻĀhuimanu Road in order to provide a safe pedestrian path between the bus stop and the church.

Solar panels, passive solar design, waterless urinals, dual-flush toilets and other energy and resource conserving measures will be incorporated into the project design. The sanctuary, multi-purpose building, and classroom building will all be air conditioned, but will have doors and windows that can be left open and allow for significant air flow and natural ventilation. Buildings will be closed and air conditioning used only when necessary to provide reasonable comfort and reduce noise to levels that will not unduly disturb the church's neighbors.

Cans and bottles will be recycled as a fundraiser, as well as to conserve resources. The church will also actively support and participate in City agency and community-based recycling programs.

All development on the project site will comply with City Flood Hazard District regulations. These regulations were adopted pursuant to the U.S. National Flood Insurance Act of 1968 and FEMA guidelines.

5.7 CITY AND COUNTY OF HONOLULU – LAND USE ORDINANCE

The purpose of the County Land Use Ordinance (LUO) is to regulate land use in a manner that will encourage orderly development in accordance with adopted land use policies, including the Oʻahu General Plan and the Koʻolau Poko Sustainable Communities Plan. The LUO is intended to provide reasonable land use and building development and design standards. These standards are applicable to the location, height, bulk and size of structures, yard areas, off-street parking facilities, and open spaces, and the use of structures and land for agriculture, industry, business, residences or other purposes [Chapter 21, Revised Ordinances of Honolulu (ROH)].

Discussion
As noted in *Section 1* of this Draft EA, 1.22 acres of the project site is within a R-10 Residential District, and 2.74 acres is within a AG-2 General Agricultural District. A church is defined as a meeting facility in the LUO and is a permitted use in both districts subject to the submittal and City Department of Planning and Permitting (DPP) review and approval of a Conditional Use Permit (CUP) application.

Meeting facilities must meet the same standards with respect to minimum lot area and width/depth, minimum front and side yards, maximum building area and height, etc. as the primary uses allowed in these districts: These standards for a meeting facility use are:

	R-10 District	AG-2 District
Min. Lot Area	10,000 SF	2 acres
Min. Lot Width/Depth	100 feet	150 feet
Min. Front Yard	30 feet	15-20 feet
Min. Side/Rear Yards	15 feet	10-15 feet
Max Building Area	50% of lot	10% of lot
Max. Building Height	25 feet	15-25 feet

Note: Within the AG-2 District, maximum allowable building height is 15 feet within the minimum allowed yard widths (15 feet for front yard and 10 feet for side and year yards), and increases by 2 feet for every one foot of additional yard width up to a maximum height of 25 feet.

The proposed project will be designed in compliance with all of the above standards. The minimum required off-street parking will also be provided.

The following procedural steps must be completed by the project applicant in connection with the preparation and review of CUP application:

- The project plan must be presented to the neighborhood board for the area where the project is located prior to application submittal.
- Prior written notice of this presentation must be provided to all owners of adjoining properties.

Both of these actions were completed by the applicant prior to preparation of this Draft EA. They will be done again after completion of the Final EA and prior to the filing with DPP of a CUP application.

5.8 CITY AND COUNTY OF HONOLULU – SPECIAL MANAGEMENT AREA GUIDELINES

The review and procedural guidelines of Sections 25-3.2 and 25-3.3 of the Revised Ordinances of Honolulu (ROH) are used by the Department of Planning and Permitting and the City Council to guide their review and approval of developments proposed in the Special Management Area (SMA). These guidelines are derived from Section 205A-26 HRS. As already noted, the project site is within the SMA. Discussed below is the consistency of the proposed project with the SMA guidelines that apply to this project type and location.

a. All development in the special management area shall be subject to reasonable terms and conditions set by the council in order to ensure that:

(3) Provisions are made for solid and liquid waste treatment, disposition, and management which will minimize adverse effects upon special management area resources; and

(4) Alterations to existing landforms and vegetation, except crops, and construction of structures shall cause minimum adverse effect to water resources and scenic and

recreational amenities and minimum danger of floods, landslides, erosion, siltation or failure in the event of earthquake.

Discussion
As discussed above in *Section 5.5* under *"V. Transportation and Utilities"*, the collection and disposal of liquid waste generated by the project will be handled in a safe, efficient and environmentally sensitive manner. Solid waste collection and disposal will be handled by a private contractor, in the same manner as is currently done at the adjoining Hoʻokipa apartment complex and at the shopping center and townhouse complexes in Temple Valley.

As discussed above in *Section 5.5* under *"III. Natural Environment"*, the basic landform of the project site and as many as possible of the existing mature tress will be maintained. Structures will be low in height and not impact scenic views of the Koʻolaus from Kahekili Highway. There will be no adverse effect on existing recreational amenities. Site grading and drainage will be done in a manner that will preclude the creation of any flood, landslide, erosion or siltation hazards.

b. No development shall be approved unless the council has first found that:

(1) The development will not have any substantial, adverse environmental or ecological effect except such adverse effect is minimized to the extent practicable and clearly outweighed by public health and safety, or compelling public interests. Such adverse effect shall include, but not be limited to, the potential cumulative impact of individual developments, each one of which taken in itself might not have a substantial adverse effect, and the elimination of planning options;

(2) The development is consistent with the objectives and policies set forth in Section 25-3.1 and area guidelines contained in HRS Section 205A-26; and

(3) The development is consistent with the County General Plan, Development [and Sustainable Community] Plans, and zoning.

Discussion
Unavoidable short-term environmental effects will occur during construction, including soils disturbance, erosion, limited clearing, construction noise, dust and exhaust emissions, and views of construction. All of these impacts will be minimal and have no significant or lasting impact on the existing environment. Following construction, these short-term impacts will cease, and there will be beneficial long-term impacts such as improved site appearance.

The project is an independent action and is unrelated to any other known or potential future project in the area. It will not contribute to any short- or long-term cumulative impacts.

The project is consistent with the objectives, policies and area guidelines of the Hawaiʻi Coastal Zone Management Program, the objectives and policies of the Oʻahu General Plan, the policies, planning principles and guidelines of the Koʻolau Poko Sustainable Communities Plan, and the development regulations in the Land Use Ordinance. Further, it will contribute toward the implementation of several of the General Plan and Sustainable Communities Plan objectives, policies, principles and guidelines. This is discussed in detail in *Sections 5.3 through 5.6* above.

c. The council shall seek to minimize, where reasonable:

(4) Any development which would substantially interfere with or detract from the line of sight toward the sea from the State highway nearest the coast; and

(5) Any development which would adversely affect water quality, existing areas of open water free of visible structure, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land.

Discussion

The project site is about 2/3rds of a mile from the nearest coastline and, consequently, any development on it will have no impact on the line of sight toward the sea from Kamehameha Highway. Site grading, landscaping and drainage will be handled in a manner that will preclude any adverse impacts on existing areas of open water or potential fisheries and fishing grounds. Construction of the project will not disturb any significant wildlife habitats.

As previously noted, no agricultural use of the lower, ~2.7-acre agricultural zoned portion of the project site has occurred in at least 30 years, or since completion of the construction of the Kahalu'u Flood Control Project and Kahekili Highway. Soil and drainage conditions on this parcel, together with its small size, separation from other agricultural lands, and lack of direct access indicate that there is little if any potential for viable agricultural use.

Section 6.0
Determination of Significance

6.0 DETERMINATION OF SIGNIFICANCE

This section describes the determination that is anticipated with respect to the whether or not the proposed project/action will have a significant impact on the environment, and the reasons for this anticipated determination.

6.1 ANTICIPATED DETERMINATION

A Finding of No Significant Impact (FONSI) is anticipated for this project.

6.2 REASONS SUPPORTING THE ANTICIPATED DETERMINATION

In making this anticipated determination, all proposed project phases, both expected primary and secondary consequences, and cumulative as well as short and long-term effects have been considered. The findings and reasons supporting this determination are also based on a comprehensive analysis of the project vis-à-vis the 13 significance criteria presented in Chapter 343 HRS and the Hawaii Administrative Rules, Chapter 200, Subchapter 6 - Determination of Significance, Section 11-200-12 - Significance Criteria.

The analysis for each of these 13 criteria is summarized below.

(1) Involve an irrevocable loss or destruction of any natural or cultural resources.

The proposed project will not involve any known destruction of existing natural or cultural resources. Expert studies were done to assess potential project impacts on Botanical, Avian, and Mammalian Resources (Appendix B), Archaeological Resources (Appendix C), and Cultural Resources (Appendix D). All three studies found that there would be no significant impacts.

In the event that any sub-surface remains are encountered during the course of project construction, all work in the immediate vicinity will be stopped and the State Historic Preservation Division (SHPD) of the State of Hawai'i Department of Land and Natural Resources will be notified. All treatment of such remains will be conducted in full compliance with SHPD requirements.

(2) Curtail the range of beneficial uses of the environment.

This project will not place any new nor expand any existing limits on beneficial uses of the environment. It will continue and expand the existing use of the property. The ability of the church to minister to the spiritual and social needs of its members, and to provide social benefits to the community at large, will be expanded. In particular, community members will be able to enroll their children in the new pre-school, join with church members in many of the adult classes and programs that will be available, and on a limited basis use the outdoor play court.

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

The proposed project supports, rather than conflicts, with applicable State long-term environmental policies and guidelines, as expressed in Chapter 344 HRS. A complete discussion of the project's relationship to these policies and guidelines is provided in *Section 5.4* of this Draft EA.

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

The proposed project is not expected to have any adverse effects on the economy or social welfare of the community or State. Impacts will be relatively small and beneficial. They include new jobs at the pre-school and new and expanded church-sponsored social groups and educational classes that will be open to anyone who lives in the community, as well as church members.

(5) Substantially affects public health.

The project is not expected to have a substantial impact, either adverse or beneficial, on public health. Church services and programs are expected to benefit members spiritually, emotionally and socially, and while it can be reasonably expected that there will also be collateral benefits on physical health, this cannot be readily measured. Many of the adult classes and social programs will also be available to residents of ʻĀhuimanu and Kahaluʻu who are not church members. In terms of the community's overall public health, the impact of the proposed church expansion should not be substantial, but it should be positive.

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

The project will not have any substantial secondary – or primary – adverse impacts on the environment. There will be no impact on population. The impacts on public facilities will be minimal.

The additional church and pre-school generated traffic can be accommodated on the existing roads and highways serving the project site without causing a significant change in existing levels of service or reducing them to an unsatisfactory condition. The existing BWS water system is adequate to accommodate the increased demand for potable water. The City's existing wastewater system can handle about one-third of the projected maximum project wastewater flow without any adverse impacts.

Treatment and disposal of the other two-thirds will be handled by a new onsite system. This new system will be state-of-the-art and use four septic tanks designed and manufactured by Environmental Waste Management Systems, Inc. The tanks are designed to use a very efficient anaerobic treatment process and produce effluent that can safely be discharged into the ground.

(7) Involves a substantial degradation of environmental quality.

As discussed in detail in *Chapter 3*, the project will not involve a substantial degradation of any part of the natural or existing built environment. In a majority of cases there will be no impact or a beneficial impact. Where adverse impacts will result, they are relatively small and/or can be effectively mitigated. Overall environmental quality in the community will be virtually unchanged.

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

The proposed church expansion is a "stand alone" project and is in no way tied to or connected with any other proposed or potential action. It is part of a larger "One Church in Six Locations" vision for the Assembly of God Church on Oʻahu. However, this is a vision and not a commitment, and in any event it is a vision that should benefit the larger community. The steps that would be taken in course of realizing this vision would not involve a significant commitment of or create an adverse impact on existing environmental resources. It should also be noted fulfillment of this vision would not further impact ʻĀhuimanu or Kahaluʻu or other Windward communities, as all of the other five proposed church locations are in other parts of Oʻahu.

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

Surveys by qualified professionals have indicated that there are no endangered plants or animal habitats located within the project site. Nor was any rare, threatened or endangered plant or animal species encountered during these surveys.

(10) Detrimentally affects air or water quality or ambient noise levels.

There will be short-term effects on air quality and ambient noise levels during construction, and there is also a potential for such effects on water quality. All City and County of Honolulu and State Department of Health rules which regulate construction-related activities will be complied with in order to avoid and mitigate any adverse impacts.

After construction, there will be no adverse impacts on air and water quality. Church activities that could generate significant noise levels will be conducted in fully enclosed and air conditioned spaces in order to minimize the potential for adverse noise impacts on neighbors.

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

The lower part of the church property, where the parking lot, retreat center and covered outdoor play court will be located, is in a flood zone. These facilities will be constructed in full compliance with the City's flood hazard district regulations to ensure that there will be no potential adverse effects, should parts or all of this area become flooded in the future.

The retreat center bungalows will be built on concrete piers so that their habitable floors will be above the established base flood elevations for the area. The building support piers will be structurally capable of withstanding flooding without damage, and will be spaced far enough

apart to not obstruct the flow and drainage of flood waters from the site after the storm subsides.

(12) Substantially affects scenic vistas and view-planes identified in county or state plans or studies.

This project is not located where it could substantially impact any scenic vistas or view-planes that are identified in City or State plans or studies.

As noted in *Section 3.11*, unobstructed views of the Ko'olaus are currently available from Kahekili Highway over the north/lower elevation portion of the project site. The appearance of this area will be changed as a result of the proposed construction of the retreat center bungalows, covered outdoor play court, and parking lot. However, impacts on views across the property from Kahekili Highway will be minimal due to the low heights of these facilities, the very low building coverage (less than 10%), and the fact that the ground elevation is ~10 feet or more below the elevation of the highway. As many of the existing trees as possible will also be retained in order to substantially maintain the existing site appearance and screen the view of the new buildings from passers-by on the highway.

(13) Require substantial energy consumption.

Construction of the project will not require substantial energy consumption relative to other similar projects. The resulting expansion of energy-consuming development in the 'Āhuimanu – Kahalu'u community will be negligible. After the project is completed, energy will be conserved by using modern energy efficient appliances and fixtures and employing solar power and other green design concepts as much as feasible.

6.3 SUMMARY

As stated above, there are no significant environmental impacts that are expected to result from the proposed project. A Finding of No Significant Impact (FONSI) is anticipated. The proposed expansion of church facilities and the addition of a pre-school will allow the church to increase its service to members who live all along the Windward Coast, and to the residents in general of the surrounding 'Āhuimanu and Kahalu'u communities. Impacts to the surrounding environment will be very limited and will be at very low levels where they do occur.

Section 7.0
Consulted Agencies, Organizations, and Individuals

7.0 CONSULTATION WITH AGENCIES, ORGANIZATIONS, AND INDIVIDUALS

The agencies, organizations and individuals that received copies of the Pre-Assessment Consultation Package and this Draft Environmental Assessment are noted below. Also noted are those recipients of the Pre-Assessment Consultation Package that responded with written comments.

Distribution	Pre-Assessment Consultation Package Recipient	Pre-Assessment Consultation Comments Received	Draft EA Recipient
FEDERAL AGENCIES			
U.S. Army Engineering District, Honolulu			X
U.S. Fish and Wildlife Service			X
STATE AGENCIES AND ELECTED OFFICIALS			
Office of Environmental Quality Control	X		X
Department of Transportation	X	X	X
Department of Business, Economic Development & Tourism (DBEDT), Office of Planning	X		X
Department of Land and Natural Resources (DLNR), Office of Conservation and Coastal Lands	X		X
DLNR, Historic Preservation Division	X		X
O‘ahu Island Burial Council	X		X
Office of Hawaiian Affairs	X	X	X
University of Hawai‘i Environmental Center	X		X
State Senator Clayton Hee	X		X
State Representative Coleen Meyer	X		X
CITY AND COUNTY OF HONOLULU AGENCIES AND ELECTED OFFICIALS			
Department of Planning and Permitting	X	X	X
Department of Transportation Services	X	X	X
Department of Environmental Services	X		X
Board of Water Supply	X	X	X
Honolulu Fire Department	X		X

Distribution	Pre-Assessment Consultation Package Recipient	Pre-Assessment Consultation Comments Received	Draft EA Recipient
Honolulu Police Department	X		X
Councilmember Donovan Dela Cruz	X		X
STATE LIBRARIES			
Hawai'i State Library			X
Kāne'ohe Public Library			X
COMMUNITY ORGANIZATIONS AND INDIVIDUALS			
Kahalu'u Neighborhood Board No. 29, Ms. Amy Luersen (Chair)	X	X (Minutes from 8/8/07 NB No. 29 Meeting Presentation)	X
NB No. 29, Mr. Kenneth LeVasseur (4th District Representative)	X		X
NB No. 29, Mr. Wayne K. Panoke (4th District Representative)	X		X
KEY Project, Mr. John Reppun (Director)	X		X
Wai'ahole-Waikane Community Assn., Mr. Richard Garcia (Chair)	X		X
Ho'okipa Kahalu'u Residents Association, Ms. Roylene Kamanu (Manager)	X		X
Ms. Filomina Parubrub (TMK 4-7-25: 033)	X	X	X
Timothy and Eileen Lum (TMK 4-7-25: 033)	X		X
Ms. Polly Yamamoto (TMK 4-7-25: 034)	X	X	X
Mr. Clifford Nakaoka (TMK 4-7-25: 035)	X		X
Mr. Letwell T. A. Pahole (TMK 4-7-25: 036)	X		X
Mr. Robert Bohol (TMK 4-7-25: 045)	X		X
Mr. Hiroshi Kato	X		X
Pastor Robert Nakata Kahaluu United Methodist Church	X		X
Pastor Eldean Kukahiko Hope Chapel Kahalu'u Church	X		X
Pastor Keith Rider Light of Promise Ministry	X		X

Comments Received and Responses
Pre-Assessment Consultation Letter and Handout

Agencies, Elected Officials, and Neighborhood Board

GROUP 70 INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia, CSI, CDT
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Cami Kloster, AICP
Katherine M. MacNeil, AIA
Frank B. McCue
Kāwika McKeague
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Scott Tangonan
Tom Young, AIA

Ralph E. Portmore, AICP
Of Counsel

June 11, 2007

Subject: Pre-Assessment Consultation for Draft Environmental Assessment and Special Management Area Use Permit
First Assembly of God Windward Church Redevelopment/Expansion
Corner Kahekili Highway and ʻĀhuimanu Road, Kahaluʻu, Oʻahu
TMK: (1) 4-7-25: 008 and 026

Aloha:

On behalf of the First Assembly of God Church, Group 70 International, Inc. is currently undertaking the preparation of a Draft Environmental Assessment (EA) and Special Management Area Use Permit (SMP) application for the proposed redevelopment and expansion of its Windward Community Church facility in Kahaluʻu. We are beginning the EA and SMP application preparation with a pre-consultation process to contact and solicit comments from agencies and other interested parties regarding the scope of this proposed project. Enclosed for your review and comment is a handout providing a summary description of this proposal.

Any comments you may have regarding the scope of this assessment would be welcomed. They may be provided to us in writing via regular mail, email or fax, or by telephone. Please address them to:

Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813-4307
Attn: Ralph Portmore
Tel: 523-5866 or 551-4439 direct
Fax: 523-5874
Email: rportmore@group70int.com

We would appreciate receiving your comments no later than July 9, 2007. Thank you for your participation in the pre-assessment consultation phase of this environmental assessment process.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Ralph E. Portmore

Ralph E. Portmore, AICP
Of Counsel

cc: Pastor John Rogers; Pastor Janet Kusuhara; Charles Kaneshiro, AIA

PROJECT INFORMATION SUMMARY

Type of Application:	Environmental Assessment (EA) Special Management Area (SMA) Use Permit
Project:	Redevelopment/Expansion of First Assembly of God Windward Church
Site Location & Address *(Figure 1)*:	Kahaluʻu, at intersection of ʻĀhuimanu Road and Kahekili Highway 47-323 ʻĀhuimanu Road, Kāneʻohe, Hawai'i 96744
Parcel Tax Map Keys and Size *(Figure 2)*:	4-7-025:008 – 1.219 acres / 53,100 SF (R-10) 4-7-025:026 – 2.738 acres / 119,267 SF (AG-2)
Total Project Land Area:	3.957 acres
Existing Use:	Sanctuary, classroom, office and kitchen. Total floor area is ~2,060 SF. The congregation is about 100 persons. Part-time onsite staff = 2.
Proposed Use:	<u>R-10 Residential District Parcel</u> - Redeveloped/Expanded Church Sanctuary & Multi-Purpose Room (Separate Buildings) - New Classroom Building - Total = ~21,360 SF <u>AG-2 General Agricultural District Parcel</u> - New Retreat Center (~5,040 SF) - New Covered Play Court (~6,960 SF) - Relocated and Expanded Off-Street Parking (~80 spaces)
Applicant/Recorded Fee Owner:	First Assembly of God 3400 Moanalua Road Honolulu, Hawai'i 96819 Contact Person: Pastor John Rogers Telephone: 836-2300
Authorized Agent:	Group 70 International, Inc. 925 Bethel Street, 5th Floor Honolulu, Hawai'i 96813 Contact Person: Ralph Portmore Telephone: 523-5866; 551-4439 direct Email: rportmore@group70int.com
EA Accepting Authority:	Department of Planning and Permitting City and County of Honolulu
State Land Use District:	Urban (both parcels)

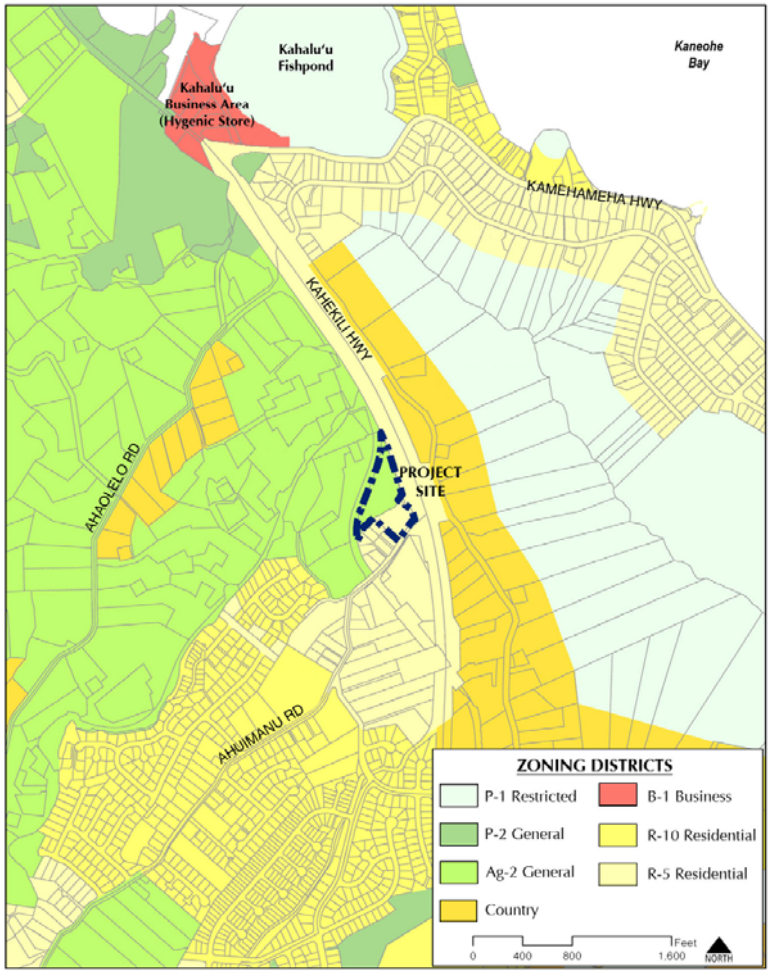


Figure 1: PROJECT LOCATION MAP

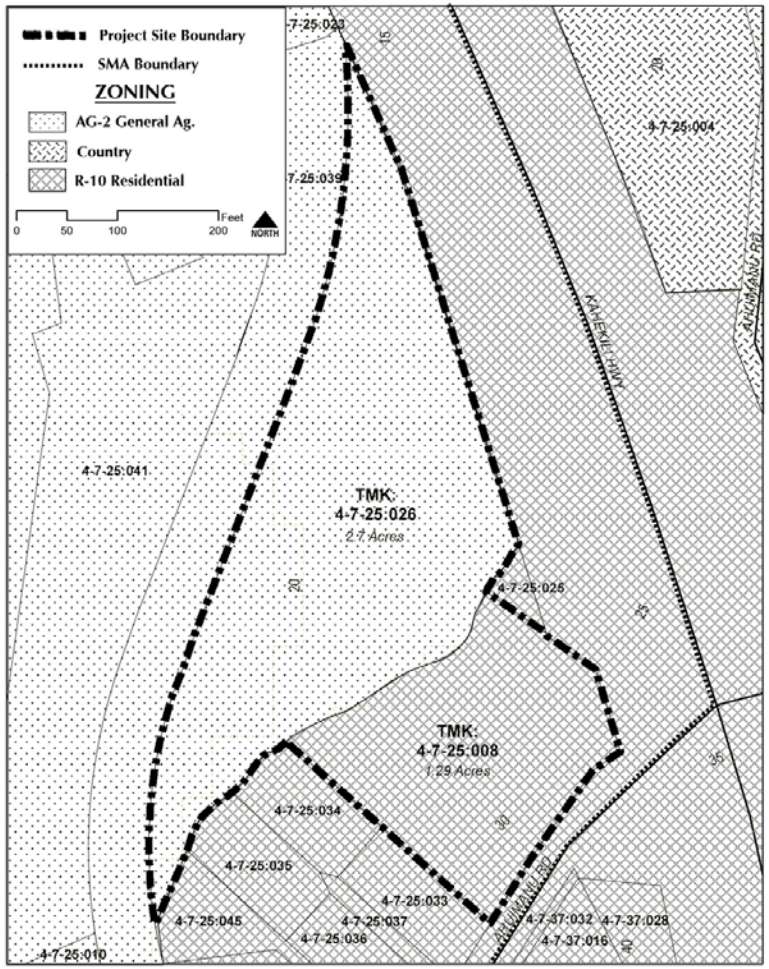


Figure 2: TAX MAP KEY AND PROPERTY BOUNDARY MAP

Sustainable Communities Plan (SCP):	Ko'olau Poko
SCP Land Use Map Designation:	Residential and Agriculture
SCP Public Facilities Map Designation:	None
Existing Zoning (LUO):	Parcel 008 – R-10 Residential District Parcel 026 – AG-2 Agricultural District
Special Management Area District:	Yes
Flood Zone Designation:	Parcel 008 – FIRM Zone XS, Areas of 500-year flood, and areas protected by levees for 100-year flood. Parcel 026 – FIRM Zone AE, 100-year flood hazard area with base flood elevations determined – shown as ranging from ~25 feet at north end to ~29 feet at south end of AG-2 zoned parcel.
Historic Register:	No Listing (both parcels)
Anticipated Determination:	Finding of No Significant Impact (FONSI)

OVERVIEW OF PROPOSED PROJECT

The First Assembly of God is proposing to completely replace its existing buildings and facilities at its Windward O'ahu Church in Kahalu'u *(Figure 1)*. All new facilities would be built on the existing nearly 4-acre site that is owned by the church *(Figure 2)*.

Existing Use

The existing church occupies a single building that fronts on 'Āhuimanu Road, on the R-10 Residential zoned portion of the church property. It includes the church sanctuary, a multi-purpose/classroom, an office, a kitchen, and restrooms *(Figure 3)*. Total floor area is approximately 2,060 square feet (SF).

Proposed New Construction

Proposed new construction is briefly described as follows:

- The existing facility containing the sanctuary and multi-purpose room will be replaced with two separate buildings. The Sanctuary Building will contain the sanctuary and support spaces, two classrooms/meeting rooms, church offices and a conference room, and restrooms and storage. A Multi-Purpose Building will include a large multi-purpose room, kitchen and restrooms. The fixed seating capacity for the sanctuary will be approximately 500 people.
- A Classroom Building that includes three preschool classrooms, the preschool office, restrooms and storage on the ground floor. The preschool will be able to accommodate up to 60 students. Five classrooms for adult classes, Sunday School and small group meetings will be located on the 2nd floor. The total seven classrooms (including two in the Sanctuary Building) could accommodate up to 140 people. However, actual usage at any one time is estimated to generally not exceed 60 to 80 people, and only infrequently range up to 100 or more people. Usage of these classrooms will mostly occur in the evenings and on weekends, or at times other than when the preschool is in session.

These three buildings will be connected to each other via covered walkways. They will all be located on the R-10 Residential zoned parcel *(Figure 2)*. A rendering of the entry to the new Sanctuary and Classroom Buildings is shown in *Figure 4*.

Other proposed new facilities, to be located on the AG-2 General Agricultural zoned parcel include:

- A Retreat Center where one to five day church retreats would be held for up to 100 people. Sleeping quarters would be provided in 13 small bungalow buildings, and there would be a restroom/shower building. Retreat sessions will be held in a small outdoor amphitheater or the multi-purpose room (especially during inclement weather), and the bungalows will also used as needed for breakout sessions during a retreat. All buildings will be built with floors above grade at the required flood elevation, and will be interconnected via open walkways.
- A covered outdoor Play Court, which will be the size of a standard basketball court. It will be available for general community use when not being used by the church.
- A new paved and landscaped Parking Lot with ~80 spaces.

A preliminary site plan of the entire project is shown on *Figure 5*.

Anticipated Impacts

This project will increase in the type and extent of church use at this site compared to the current level of use. However, church activities will generally continue to be at a relatively low level that is in keeping with the rural-residential character of the neighborhood in which the church is located.

In particular, it is anticipated that the impacts of traffic generated by church activities should be minimal even with the increase over existing levels. This is due to the fact that most church-related traffic will be generated during off-peak times when overall traffic volumes are low, such as on Sunday mornings. The church's location adjacent to a signalized intersection on Kahekili Highway will also preclude there being any significant impacts on nearby residential areas.

It is also anticipated that other potential environmental impacts resulting from church operations, as well as from construction of the new church facilities, will not be significant. Construction-related traffic, air and noise impacts will be limited and short-term in nature. The project will fully comply with government regulations during construction to mitigate any potential impacts.

In summary, now significant impacts are expected, and a Finding of No Significant Impact (FONSI) is anticipated.

CONTENT OF ENVIRONMENTAL ASSESSMENT

This report, when completed, will serve the dual functions of an Environmental Assessment (EA) and Special Management Area Use Permit (SMA Use Permit or SMP) application for the proposed project. It will be prepared in accordance with the provisions of Revised Ordinances of Honolulu (ROH) Chapter 25, Special Management Area, and the 'Content Guide for Preparing an EA Required with a SMP Application', as published by the City Department of Planning and Permitting (DPP). Preparation and processing shall also comply with the procedural requirements and steps set forth in Chapter 343 Hawai'i Revised Statutes (HRS), and in the State of Hawai'i Administrative Rules, Title 11, Department of Health.

Figure 3: EXISTING CHURCH BUILDING

Figure 4: ENTRY VIEW OF NEW SANCTUARY AND PRESCHOOL BUILDINGS

Figure 5: PRELIMINARY SITE DEVELOPMENT PLAN

The EA report will be presented in eight sections. General information on the proposed project, as summarized in this package, will be presented in *Section 1*. *Section 2* will present a detailed description of the project, including site characteristics, proposed construction, anticipated use/occupancy levels, estimated project costs, anticipated construction schedules, and required land use approvals. *Section 3* will describe the environment setting, potential impacts and mitigation measures. Description and an analysis of alternatives will be provided in *Section 4*. *Section 5* will relate the proposed project to existing State and City and County of Honolulu plans and policies, including the State of Hawai'i Coastal Zone Management (CZM) Program. The anticipated determination of no significant impact and reasons in support of this finding will be presented in *Section 6*. *Section 7* will list the agencies and organizations that will receive copies of the Draft EA. A list of references will be provided in *Section 8*.

PRE-ASSESSMENT CONSULTED AGENCIES AND ORGANIZATIONS

The following government agencies, elected officials and community organizations are being contacted as part of this EA pre-assessment consultation process:

State of Hawai'i Agencies and Elected Officials
Office of Environmental Quality Control
Department of Transportation
Department of Business, Economic Development & Tourism, Office of Planning
Department of Land and Natural Resources, Office of Conservation and Coastal Lands
Department of Land and Natural Resources, State Historic Preservation Division
O'ahu Island Burial Council
Office of Hawaiian Affairs
University of Hawai'i Environmental Center
State Senator Clayton Hee, 23rd Senate District
State Representative Coleen Meyer, 47th House District

City and County of Honolulu Agencies and Elected Officials
Department of Planning & Permitting
Department of Transportation Services
Department of Environmental Services
Board of Water Supply
Fire Department
Police Department
City Councilmember Donovan Dela Cruz, 2nd Council District

Community Organizations
Kahalu'u Neighborhood Board Association No. 29
KEY Project

Information packages that include the same project description material and applicant contact information provided in this package are also being mailed to abutting property owners and several Kahalu'u community leaders and residents.

LINDA LINGLE
GOVERNOR

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

BARRY FUKUNAGA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:
HWY-PS
2.5466

SEP - 4

AUG 3 1 2007

Mr. Ralph E. Portmore, AICP
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4307

Dear Mr. Portmore:

Subject: Pre-Assessment Consultation for Draft Environmental Assessment and Special Management Area Use Permit
First Assembly of God Windward Church Redevelopment/Expansion
Corner of Kahekili Highway and Ahuimanu Road, Oahu, Kahaluu
TMK: (1) 4-7-25:008 and 026

Thank you for consulting with us regarding the subject project. We have the following recommendations:

1. Applicant shall prepare a Traffic Assessment Report for our review and approval. The report should include an analysis of the project impacts (but not limited) at the intersections of Kahekili Highway with Ahuimanu Road and Kamehameha Highway. Recommended roadway improvements, if any, at these intersections should be mentioned in the Traffic Study.

2. Your site plan shows four parking stalls near the entrance to Ahuimanu Road. If these parking stalls inhibit ingress to your facility by causing queuing problems on Ahuimanu Road and subsequently Kahekili Highway, they will need to be removed.

3. A Drainage Report should be prepared for our review and approval. No additional storm water runoff will be permitted to discharge onto the State Highway rights of way.

4. Our department has a future bikeway planned (a signed shared roadway/bikeway type) on Kahekili Highway from Kamehameha Highway to Haiku Road.

5. Our department has future plans to widen Kahekili Highway from Kamehameha Highway to Haiku Road, which should be a consideration for your proposed site plan.

6. Submit project construction plans to us for our review and approval.

If you have any questions, please contact Ronald Tsuzuki, Head Planning Engineer, at 587-1830.

Very truly yours,

BRENNON T. MORIOKA, Ph.D., P.E.
Deputy Director - Highways

GROUP 70 INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia, CSI, CDT
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Cami Kloster
Katherine M. MacNeil, AIA
Mike Mau
Frank B. McCue
Kāwika McKeague
Ross K. Morishige, AIA
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Scott Tangonan
Tom Young, AIA
Roberto B. Yumol, AIA

Ralph E. Portmore, AICP
Of Counsel

November 23, 2007

Mr. Brennon T. Morioka, Ph.D., P.E., Deputy Director
Department of Transportation
State of Hawai'i
869 Punchbowl Street
Honolulu, Hawai'i 96813-5097

Subject: Pre-Assessment Consultation for Draft Environmental Assessment and Application for Special Management Area (SMA) Use Permit
First Assembly of God Windward Church Redevelopment/Expansion
Corner of Kahekili Highway and 'Āhuimanu Road, O'ahu, Kahalu'u
TMK: (1) 4-7-25:008 and 026

Reference: HWY-PS 2.5466

Dear Mr. Morioka:

Thank you for your letter of August 31, 2007 concerning our pre-assessment consultation request for the above described project. Provided below are our responses to your comments and recommendations:

1. *Preparation of Traffic Impact Assessment Report (TIAR)* – A copy of the TIAR is enclosed for your review and approval. This report is also included as Appendix F in the Draft EA for this project, a copy of which will be mailed to you once it is completed.

2. *Four Parking Stalls Near Project Entrance* – These are the pickup/drop-off stalls that are required under the City and County Land Use Ordinance (Sec. 21-5.180) for a pre-school. We understand your concern about the potential for inhibiting ingress and causing queuing problems on the adjacent roads. It is planned that, if necessary, a monitor will be stationed at this location during peak periods to prevent the use of these spaces for parking, and where appropriate to require cars to bypass these spaces when they are full and instead use the church parking lot. The City Department of Planning and Permitting shares this concern and will be addressing it with appropriate conditions during the permit review and approval process.

3. *Drainage Report* – The project engineer has done a drainage study, which is included in their Preliminary Engineering Report. This report is included as Appendix B in the Draft EA, a copy of which is being mailed separately to you. No stormwater runoff will flow from the project site onto the State highway. All site runoff currently and will continue to flow away from the highway to the north end of the property, and eventually into the 'Āhuimanu Stream drainage channel.

Group 70 International, Inc. • Architecture • Planning • Interior Design • Building Diagnostics • Assets Management • Environmental Services
925 Bethel Street, 5th Floor • Honolulu, Hawai'i 96813-4307 • Ph (808) 523-5866 • Fax (808) 523-5874 • www.group70int.com • mail1@group70int.com

4. *Future Plans for a Bikeway* – As indicated by the Project Site Development Plan, a copy of which is included in the enclosed TIAR and the Draft EA (Figure 2.2) that will be sent to you, there are no elements of the proposed project that should have an impact on the existing use or any future plans for improving Kahekili Highway. The First Assembly of God Church looks forward to the completion of the bikeway, and will urge its members who live within biking distance to use it when attending functions at this church.

5. *Future Plans to Widen Kahekili Highway* – As noted in response to #4 above, the proposed project design and site layout should not impact any of your department's future plans for improving the highway.

6. *Project Construction Plans* – These plans will be prepared in connection with the preparation of the SMA Use Permit and Conditional Use Permit applications for this project, and will be submitted at that time for your review and approval. This will occur following completion of this environmental review process.

Your comments and this response letter will be included in the Draft EA. As noted, a copy of the Draft EA will be provided to you upon its completion. We appreciate your input and participation in the pre-assessment consultation process.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Ralph E. Portmore, AICP
Of Counsel

Enclosure

PHONE (808) 594-1888 FAX (808) 594-1865

JUL - 6 2007
GROUP 70 INT'L

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

July 3, 2007 HRD07_3084

Ralph E. Portmore, AICP
Group 70 International
925 Bethel Street, 5th Floor
Honolulu, Hawai'i 96813-4307

Dear Mr. Portmore:

Re: Pre-Assessment Consultation for Draft Environmental Assessment and Special Management Area Use Permit
First Assembly of God Windward Church Redevelopment/Expansion
Corner Kahekili Highway and 'Āhuimanu Road, Kahalu'u, O'ahu
TMK: (1) 4-7-25:008 and 026

The Office of Hawaiian Affairs (OHA) is in receipt of your June 11, 2007 letter seeking comments to be considered for a draft Environmental Assessment (EA) for the subject project, the proposed redevelopment and expansion of the First Assembly of God church facility in Kahalu'u.

Based on the information included with your letter, the First Assembly of God intends to completely replace the existing buildings and facilities on the subject tax map key parcels.

While OHA has no specific comments at this time, we request the opportunity to review the draft EA when it is completed and to be continued to be included in any future consultation.

Thank you for the opportunity to provide comments at this early stage in the draft EA process. Should you have any questions, please contact Keola Lindsey, Lead Advocate- Culture at (808) 594-1904.

'O wau iho nō,

Clyde W. Nāmu'o
Administrator

GROUP 70 INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia, CSI, CDT
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Cami Kloster
Katherine M. MacNeil, AIA
Mike Mau
Frank B. McCue
Kāwika McKeague
Ross K. Morishige, AIA
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Scott Tangonan
Tom Young, AIA
Roberto B. Yumol, AIA

Ralph E. Portmore, AICP
Of Counsel

November 23, 2007

Mr. Clyde W. Namu'o, Administrator
Office of Hawaiian Affairs
State of Hawai'i
711 Kapi'olani Boulevard, Suite 500
Honolulu, Hawai'i 96813

Subject: Pre-Assessment Consultation for Draft Environmental Assessment and Application for Special Management Area (SMA) Use Permit First Assembly of God Windward Church Redevelopment/Expansion Corner of Kahekili Highway and 'Āhuimanu Road, O'ahu, Kahalu'u TMK: (1) 4-7-25:008 and 026

Reference: HRD07_3084

Dear Mr. Morioka:

Thank you for your letter of July 3, 2007 concerning our pre-assessment consultation request for the above described project. We appreciate your taking the time to review this matter and inform us that you have no specific comments at this time.

Your comments and this response letter will be included in the Draft EA. A copy of the Draft EA will be provided to you upon its completion. Please feel free to contact me at 441-2106 if you have any questions.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Ralph E. Portmore, AICP
Of Counsel

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 768-8000 • FAX: (808) 527-6743
INTERNET: www.honolulu.gov • DEPT. WEB SITE: www.honoluludpp.org

MUFI HANNEMANN
MAYOR

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUE
DEPUTY DIRECTOR

RECEIVED JUL 10 2007 GROUP 70 INT'L

2007/ELOG-1654

July 9, 2007

Mr. Ralph Portmore
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4307

Dear Mr. Portmore:

Subject: Preparation Notice for Draft Environmental Assessment
First Assembly of God - Kaneohe
Tax Map Key 4-7-25: 8 and 26

This responds to your request for preliminary comments for the Draft Environmental Assessment (DEA) being prepared for the redevelopment/expansion of the First Assembly of God Windward Church in Kaneohe.

Upon review of the information provided, the Department of Planning and Permitting (DPP) offers the following comments regarding information that should be included in the DEA:

1. Required Land Use Approvals - In addition to an EA, SMP and Conditional Use Permit, the DEA should also state whether a CUP minor for joint development of all of the parcels will also be obtained.

   The DPP notes that 89/SPR-44 was previously processed for Parcel 8. The DEA should describe what was granted under this permit, subsequent modifications, and the status of compliance with all conditions contained therein.

2. Site Description - A description of the existing project site should be provided, including: (a) surrounding streets; (b) adjoining uses and structures;(c) site topography and existing features, including trees and landscaping; (d) ingress/egress; (e) internal circulation;(f) structures and other facilities; (g) utilities; (h) easements; (i) parking and loading; and (j) uses.

3. Proposed Project - The DEA should provide the following information about the proposed project:

   a. A description of each structure and their proposed uses, including: schedule of activities (days and hours), projected numbers of persons to be accommodated by each use, anticipated frequency of the activities; numbers and kinds of employees.

b. Total project density; the size (building and floor areas, height, number of floors) and function of each structure; planned setbacks of all structures from perimeter property lines; internal circulation; and the location and number of parking and loading spaces to service the development. The parking calculation should be described.

c. Project traffic impacts and/or proposed mitigation measures. Consultation with the Department of Transportation Services and the DPP's Traffic Review Branch is advised regarding the need for a project traffic study. The results of these discussions; e.g., any recommended action should be included.

d. A description of all other project infrastructure and utility requirements and methods for meeting them, including: water, wastewater, drainage, electrical, fire, and refuse disposal.

e. A description of any proposed site alterations, grading and/or filling.

f. Project costs and proposed development schedule.

g. A general discussion concerning the projects compliance with the state land use designations, long-range land use policies, and zoning districts.

h. A view study of the proposed project in relation to coastal views.

4. Appropriate maps and site plans (drawn to scale) should be included in the DEA that clearly delineates the zoning districts, the Special Management Area (SMA) boundary, and the flood district designation(s) of the site.

5. Public Notification - The DEA should describe the measures (i.e., meetings, notices, distribution of project information, etc.) taken and proposed, to apprise adjoining properties, the surrounding community, and the general public about the proposed development. Any preliminary comments received should also be discussed.

We hope these comments prove helpful, and we look forward to reviewing the DEA. Should you have any questions, please contact Geri Ung of our staff at 768-6044.

Very truly yours,

FOR Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:pl
Doc. 550387

GROUP 70 INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia, CSI, CDT
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Cami Kloster
Katherine M. MacNeil, AIA
Mike Mau
Frank B. McCue
Kāwika McKeague
Ross K. Morishige, AIA
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Scott Tangonan
Tom Young, AIA
Roberto B. Yumol, AIA

Ralph E. Portmore, AICP
Of Counsel

November 23, 2007

Mr. Henry Eng, FAICP, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawai'i 96813

Subject: Pre-Assessment Consultation for Draft Environmental Assessment and Application for Special Management Area (SMA) Use Permit First Assembly of God Windward Church Redevelopment/Expansion Corner of Kahekili Highway and 'Āhuimanu Road, O'ahu, Kahalu'u TMK: (1) 4-7-25:008 and 026

Reference: 2007/ELOG-1654

Dear Mr. Eng:

Thank you for your letter of July 9, 2007 concerning our pre-assessment consultation request for the above described project. Provided below are our responses to your comments:

1. *Required Land Use Approvals* – All required land use approvals and permits, including a Joint Development CUP, will be described in the Section 2.3 of the Draft EA.

   With respect to 89/SPR-44, no record of this previously application could be found in either the City's or the church's files. (The First Assembly of God did not own and operate the church that existed at that time.) Consequently, we are unable to indicate (a) whether or not a permit was issued; (b) if one was issued, whether or not the permitted improvements were actually made; (c) whether any modifications to the permit (if issued) were subsequently made; or (d) the status of compliance with any conditions that may have been imposed.

2. *Site Description* – A thorough site description of the proposed project, including all of the elements cited in your comment letter, will be provided in the Draft EA.

3. *Proposed Project* – The Draft EA will include the following information:

   a. *Structures and Their Proposed Uses* – All listed items will be included.

   b. *Building Densities and Layout, Vehicle Circulation and Parking, Etc.* – All listed items will be included.

   c. *Traffic Impacts* – A Traffic Impact Assessment Report has been completed and will be included as Appendix F. Project impacts and proposed mitigation measures will be discussed in Section 3.14. The City Department

of Transportation Services was included in the pre-assessment consultation process; a copy of their comment letter and our response will be included in Appendix G. The applicant's planning and traffic consultants met with DPP's Traffic Review Branch on October 16, 2007 and are following up with addressing several issues related to project design details that were discussed.

d. *Infrastructure and Utility Requirements* – All listed items will be included.

e. *Site Grading* – All listed items will be included.

f. *Costs and Development Schedule* – The proposed development schedule and a rough estimate of project costs will be included.

g. *Compliance with Policies and Plans* – Project consistency or compliance with applicable environmental and land use policies and plans will be discussed in Chapter 5.

h. *View Study* – Preparation of "a view study of the proposed project in relation to coastal views" is not really applicable to this project. This is due to the project site's low elevation and distance (~2/3rds of a mile) from the nearest coastline. The project site is neither visible from any coastline nor is any coastline area visible from the site. This situation will be noted in Chapter 5 (Section 5.3) of the Draft EA. Existing visual resources in the vicinity of the project site and potential project impacts will be fully discussed in Section 3.11.

4. *Appropriate Maps and Site Plans* – All listed items will be included.

5. *Public Notification* – Extensive measures have already been taken by the applicant to apprise public agencies, adjoining property owners, the surrounding community, and the general public about the proposed development. These will be documented in Chapter 7 and Appendices G and H.

Your comments and this response letter will be included in the Draft EA. As the accepting agency, the appropriate number of copies of the Draft EA will be provided to you upon its completion. We appreciate your input and participation in the pre-assessment consultation process.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Ralph E. Portmore

Ralph E. Portmore, AICP
Of Counsel

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8305 • Fax: (808) 523-4730 • Internet: www.honolulu.gov

MUFI HANNEMANN
MAYOR

MELVIN N. KAKU
DIRECTOR

RICHARD F. TORRES
DEPUTY DIRECTOR

RECEIVED
JUN 29 2007
GROUP 70 INT'L

June 27, 2007

TP6/07-212935R

Mr. Ralph Portmore
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4307

Dear Mr. Portmore:

Subject: Pre-Assessment Consultation for Draft Environmental Assessment and Special Management Area Use Permit for First Assembly of God Windward Church Redevelopment/Expansion Project in Kahaluu

This is in response to your June 11, 2007 letter request for comments on the proposed Draft Environmental Assessment and the Special Management Area Use Permit application.

The EA/SMP application should include a traffic assessment of the various uses, including but not limited to Sunday worship (500 seating capacity), pre-school (staff, 60 students), and Retreat Center (100). In addition, the report should indicate, if any, measures to mitigate any potential traffic congestion.

The applicant should also consult with the State Department of Transportation to determine access and egress/ingress onto Kahekili Highway which is a State controlled roadway.

Should you have any questions on the matter, please contact Mr. Bruce Nagao of the Transportation Planning Division at 768-8351.

Sincerely,

Melvin N. Kaku

MELVIN N. KAKU
Director

GROUP 70 INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia, CSI, CDT
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Cami Kloster
Katherine M. MacNeil, AIA
Mike Mau
Frank B. McCue
Kāwika McKeague
Ross K. Morishige, AIA
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Scott Tangonan
Tom Young, AIA
Roberto B. Yumol, AIA

Ralph E. Portmore, AICP
Of Counsel

November 23, 2007

Mr. Melvin N. Kaku, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, Hawai'i 96813

Subject: Pre-Assessment Consultation for Draft Environmental Assessment and Application for Special Management Area (SMA) Use Permit First Assembly of God Windward Church Redevelopment/Expansion Corner of Kahekili Highway and 'Āhuimanu Road, O'ahu, Kahalu'u TMK: (1) 4-7-25:008 and 026

Reference: TP6/07-212935R

Dear Mr. Kaku:

Thank you for your letter of June 27, 2007 concerning our pre-assessment consultation request for the above described project. Provided below are our responses to your comments:

1. *Preparation of Traffic Impact Assessment Report (TIAR)* – A TIAR for this project has been completed and will be included as Appendix F in the Draft EA. A copy of the Draft EA will be mailed to you once it is completed.

2. *Consultation with the State Department of Transportation (DOT)* – DOT was included in our pre-assessment consultation and has provided comments. They will also be provided with a copy of the Draft EA and the TIAR.

   This project will not have any vehicular ingress/egress, or derive any other form of access, directly from Kahekili Highway. All access will be from 'Āhuimanu Road. Consultations with DOT staff concerning potential project impacts on this highway are ongoing.

Your comments and this response letter will be included in the Draft EA. As noted, a copy of the Draft EA will be provided to you upon its completion. We appreciate your input and participation in the pre-assessment consultation process.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Ralph E. Portmore, AICP
Of Counsel

BOARD OF WATER SUPPLY

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

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CUNDIFF
MARC C. TILKER

LAVERNE T. HIGA, Ex-Officio
BARRY FUKUNAGA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DEAN A. NAKANO
Deputy Manager and Chief Engineer

June 28, 2007

RECEIVED
JUN 29
GROUP 70 INT'L

Mr. Ralph Portmore
Group 70 International, Incorporated
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4307

Dear Mr. Portmore:

Subject: Your Letter Dated June 11, 2007 Regarding Pre-Assessment Consultation for Draft Environmental Assessment and Special Management Area Use Permit First Assembly of God Windward Church Redevelopment / Expansion

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

The existing water system is presently adequate to accommodate the proposed development. However, please be advised that this information is based upon current data and, therefore, the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of your building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

The project is subject to Board of Water Supply Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the building permit.

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

The construction drawings should be submitted for our review and approval.

If you have any questions, please contact Robert Chun at 748-5440.

Very truly yours,

for KEITH S. SHIDA
Principal Executive
Customer Care Division

GROUP 70 INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia, CSI, CDT
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Cami Kloster
Katherine M. MacNeil, AIA
Mike Mau
Frank B. McCue
Kāwika McKeague
Ross K. Morishige, AIA
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Scott Tangonan
Tom Young, AIA
Roberto B. Yumol, AIA

Ralph E. Portmore, AICP
Of Counsel

November 23, 2007

Mr. Keith S. Shida., Principal Executive
Customer Care Division
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawai'i 96843

Subject: Pre-Assessment Consultation for Draft Environmental Assessment and Application for Special Management Area (SMA) Use Permit
First Assembly of God Windward Church Redevelopment/Expansion
Corner of Kahekili Highway and 'Āhuimanu Road, O'ahu, Kahalu'u
TMK: (1) 4-7-25:008 and 026

Dear Mr. Shida:

Thank you for your letter of June 28, 2007 concerning our pre-assessment consultation request for the above described project. Provided below are our responses to your comments:

We appreciate being informed that the existing water system is presently adequate to accommodate the proposed project, and understand that this is only a preliminary determination and is subject to change. The project civil engineer will periodically consult with your office as project planning and design proceeds.

We understand that the applicant will be required to pay the Water System Facilities Charges, and that the project is subject to BWS Cross-Connection Control and Backflow Prevention requirements prior to issuance of a building permit.

Coordination of on-site fire protection requirements with the Honolulu Fire Department has been initiated and is ongoing.

Project construction plans will be prepared in connection with the preparation of the SMA Use Permit and Conditional Use Permit applications for this project. The appropriate drawings will be submitted at that time for your review and approval. This will occur following completion of this environmental review process.

Your comments and this response letter will be included in the Draft EA. A copy of the Draft EA will be provided to you upon its completion. We appreciate your input and participation in the pre-assessment consultation process.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Ralph E. Portmore

Ralph E. Portmore, AICP
Of Counsel

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

MUFI HANNEMANN
MAYOR

BOISSE P. CORREA
CHIEF

GLEN R. KAJIYAMA
PAUL D. PUTZULU
DEPUTY CHIEFS

OUR REFERENCE BS-DK

RECEIVED
JUN 15 2007
GROUP 70 INT'L

June 13, 2007

Mr. Ralph E. Portmore, AICP
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4307

Dear Mr. Portmore:

This is in response to your letter of June 11, 2007, requesting comments on a Pre-Assessment Consultation, Draft Environmental Assessment and Special Management Area Use Permit.

The First Assembly of God Windward Church Redevelopment/Expansion project should have no significant impact on the facilities or operations of the Honolulu Police Department.

If there are any questions, please call Major Janna Mizuo of District 4 at 247-2166 or Mr. Brandon Stone of the Executive Office at 529-3644.

Sincerely,

BOISSE P. CORREA
Chief of Police

By
JOHN P. KERR
Assistant Chief of Police
Support Services Bureau

Serving and Protecting With Aloha

GROUP 70 INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia, CSI, CDT
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Cami Kloster
Katherine M. MacNeil, AIA
Mike Mau
Frank B. McCue
Kāwika McKeague
Ross K. Morishige, AIA
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Scott Tangonan
Tom Young, AIA
Roberto B. Yumol, AIA

Ralph E. Portmore, AICP
Of Counsel

November 23, 2007

Mr. John P. Kerr, Assistant Chief of Police
Support Services Bureau
Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, Hawai'i 96813

Subject: Pre-Assessment Consultation for Draft Environmental Assessment and Application for Special Management Area (SMA) Use Permit First Assembly of God Windward Church Redevelopment/Expansion Corner of Kahekili Highway and 'Āhuimanu Road, O'ahu, Kahalu'u TMK: (1) 4-7-25:008 and 026

Reference: BS-DK

Dear Assistant Chief Kerr:

Thank you for your letter of June 13, 2007 concerning our pre-assessment consultation request for the above described project. We appreciate being informed that the proposed project should have no significant impact on the facilities or operations of the Police Department.

Your comments and this response letter will be included in the Draft EA. A copy of the Draft EA will be provided to you upon its completion. Please feel free to contact me at 441-2106 if you have any questions.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Ralph E. Portmore

Ralph E. Portmore, AICP
Of Counsel

HONOLULU FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

MUFI HANNEMANN
MAYOR

KENNETH G. SILVA
FIRE CHIEF

ALVIN K. TOMITA
DEPUTY FIRE CHIEF

RECEIVED
JUL - 9
GROUP 70 INT'L

July 3, 2007

Mr. Ralph E. Portmore, AICP
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4307

Dear Mr. Portmore:

Subject: Preassessment Consultation for Draft Environmental Assessment and Special Management Area Use Permit
First Assembly of God Windward Church Redevelopment/Expansion
Corner of Kahekili Highway and Ahuimanu Road
Kahaluu, Oahu, Hawaii
Tax Map Key: 4-7-025: 008 and 026

In response to your letter dated June 11, 2007, regarding the above-mentioned subject, the Honolulu Fire Department (HFD) reviewed the material provided and requires that the following be complied with:

1. Provide a fire apparatus access road for every facility, building, or portion of a building hereafter constructed or moved into or within the jurisdiction when any portion of the facility or any portion of an exterior wall of the first story of the building is located more than 150 feet (45 720 mm) from a fire apparatus access road as measured by an approved route around the exterior of the building or facility. (1997 Uniform Fire Code, Section 902.2.1.)

2. Provide a water supply, approved by the county, capable of supplying required fire flow for fire protection to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed or moved into or within the county.

   On-site fire hydrants and mains capable of supplying the required fire flow shall be provided when any portion of the facility or building is in excess of

the 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building. (1997 Uniform Fire Code, Section 903.2, as amended.)

3. Submit civil drawings to the HFD for review and approval.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 723-7151.

Sincerely,

KENNETH G. SILVA
Fire Chief

KGS/SK:bh

GROUP 70 INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia, CSI, CDT
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Cami Kloster
Katherine M. MacNeil, AIA
Mike Mau
Frank B. McCue
Kāwika McKeague
Ross K. Morishige, AIA
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Scott Tangonan
Tom Young, AIA
Roberto B. Yumol, AIA

Ralph E. Portmore, AICP
Of Counsel

November 23, 2007

Mr. Kenneth G. Silva, Fire Chief
Honolulu Fire Department
636 South Street
Honolulu, Hawai'i 96813-5007

Subject: Pre-Assessment Consultation for Draft Environmental Assessment and Application for Special Management Area (SMA) Use Permit
First Assembly of God Windward Church Redevelopment/Expansion
Corner of Kahekili Highway and 'Āhuimanu Road, O'ahu, Kahalu'u
TMK: (1) 4-7-25:008 and 026

Dear Chief Silva:

Thank you for your letter of July 3, 2007 concerning our pre-assessment consultation request for the above described project. Provided below are our responses to your comments:

1. *Fire Apparatus Access Road* – Appropriate fire apparatus access will be provided to every building and facility. A project development plan that shows site access and circulation will be included in the Draft EA (Figure 2.2). A copy of the Draft EA will be mailed to you once it is completed.

2. *Required Fire Flow* – On-site water mains and fire hydrants will be installed where appropriate to ensure adequate fire flow to all parts of the project. Plans for the project water system are included in the civil engineer's Preliminary Engineering Report. This report will be included as Appendix B in the Draft EA.

3. *Civil Drawings* – Project construction plans will be prepared in connection with the preparation of the SMA Use Permit and Conditional Use Permit applications for this project. The applicable civil drawings will be submitted at that time for your review and approval. This will occur following completion of this environmental review process.

Your comments and this response letter will be included in the Draft EA. As noted, a copy of the Draft EA will be provided to you upon its completion. We appreciate your input and participation in the pre-assessment consultation process.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Ralph E. Portmore, AICP
Of Counsel

Group 70 International, Inc. • Architecture • Planning • Interior Design • Building Diagnostics • Assets Management • Environmental Services
925 Bethel Street, 5th Floor • Honolulu, Hawai'i 96813-4307 • Ph (808) 523-5866 • Fax (808) 523-5874 • www.group70int.com • mail1@group70int.com

KAHALUU NEIGHBORHOOD BOARD NO. 29
(Heeia Kea, Ahuimanu, Kahaluu, Waihee, Kaalaea, Waiahole, Waikane, Hakipuu, Kualoa

c/o KEY PROJECT • 47-200 WAIHEE ROAD • KANEOHE, HAWAII, 96744
PHONE (808) 527-5749 • FAX (808) 527-5760 • INTERNET: http://www.honolulu.gov

"LET US NOT EVER HAVE AN UNHAPPY MINORITY; RATHER, LET US BUILD A COMMUNITY CONSENSUS."

REGULAR MEETING MINUTES
WEDNESDAY, AUGUST 8, 2007
KEY PROJECT

CALL TO ORDER – Chair Amy Luersen called the meeting to order at 7:03 p.m. with a quorum of thirteen members present.

MEMBERS PRESENT – Daniel Bender, Ned Busch, Richard Garcia, Gregory Geboski, David Henkin, Kelikokauaikekai Hoe, Rocky Kaluhiwa, Amy Luersen, Kurt Mench, D. Keala Naluai, Jean-Paul Renoir, Elwin Spray, Richard Vermeesch.

MEMBERS ABSENT – Kenneth LeVasseur, Wayne Panoke.

GUESTS – Rick Towill, Art Machado Jr. (Kaneohe Bay Regional Council – KBRC), Craig Nishimura (Mayor's Representative – Deputy Director, Department of Design and Construction – DDC), Ralph Portmore (Group 70 International); Pastor John Rogers (Red Hill) and Pastor Janet Kusuhara (Ahuimanu) – First Assembly of God; Lt. Binford Strickland (Marine Corps Base Hawaii – MCBH; U.S. Marine Corps – USMC), Barry Usagawa; Major Rick Collins, Lt. Butch Malone, and Chief Warrant Officer Peter O'Hare (USMC – Blue Angels); Lt. Richard Robinson and Lt. John Cheong (Honolulu Police Department – HPD District 4-Kaneohe); Jacce Mikulanec (Councilmember Donovan Dela Cruz Office staff), Elwin Spray (Neighborhood Commission Office staff).

PRESENTATIONS

Proposed development at First Assembly of God site on Ahuimanu Road – Ralph Portmore, from Group 70 International was present to discuss plans of the First Assembly of God at their Ahuimanu Road property. Garcia asked for the Board to note that he is a member of the congregation. Portmore introduced Pastors John Rogers (Red Hill) and Janet Kusuhara (Ahuimanu). The project is at TMK 4-7-25:008 and 026, totally 3.957 acres. Portmore distributed a project information summary, including zoning maps, a project overview, photos and development drawings. The project is early in the process of looking at the planned creation of a new sanctuary, parking lot, education (classroom and multi-use) building, covered courtyard and retreat center at the current site. The first step is the preparation of a Draft Environmental Assessment (EA) and a Special Management Area Use Permit (SMP) application (a year and a half project), with scoping or the welcoming of comments now at the beginning of the preparation (two months into the year and a half process). The current church has 120 members, with the growth anticipated for up to two services at 300 to 400 people. The retreat center would have overnight bungalows, for approximately 100 at a time, and 10-15 retreats a year. Traffic would include deliveries but the entrance way will be moved from the current 100 feet from Kahekili Highway to 250 feet from the highway.

Comments included concerns from the adjacent landowner about:

1. Increased noise – vehicles and activity, with existing residences adjacent to site
2. Exhaust from vehicles (especially with prevailing winds and re-location of entry way)
3. Traffic – jam/congestions backing up of road
4. Accidents – dangerous roadway, reported and unreported accidents (especially at dusk and dawn)
5. Dip – slope on road – safety issue

Bender asked about the site activity; Portmore explained that the weekend activity would mostly be on Sunday morning but that a pre-school could be expected with 60 students. Bender stressed that the location is a cork for the whole area, not just the upper Ahuimanu Road residents, who would all be using the road at school drop off/pick up hours; Portmore said he would address the issue with the traffic study. A question about sewage hookup was asked, with Portmore explaining that there would be an on-site treatment system. Busch asked about land use permits; Portmore confirmed that no variances were required. Busch asked about parking, with Portmore explaining that a City formulae exists of one stall for every 75 square feet of sanctuary (of eighty to ninety stalls), which, pointing to the Red Hill example, is too many stalls but that overflow could be added to the retreat area. Busch pointed to the St. Ann's example of the backup of drop off backing up onto the adjacent roadway. Vermeesch suggested the traffic study include different vehicle numbers going north and south on Kahekili Highway. Henkin suggested future projects could have packets distributed in advance, that holding multiple services would potentially double the need for parking, that a written commitment to the limitation of overnight accommodations be secured (to not allow it to be turned into a hotel operation), and possible mitigation to community, through defining impacts and benefits. Pastor Kusuhara reported activity by the current church in support of food bank (site), outreach to homeless, adoption of adjacent housing center, its use for community meetings and the need for day care operation. Naluai pointed out the need to adjust to the adjacent canal. Kaluhiwa said she saw good activities at the site but agreed with the concern about bed and breakfast operation; Portmore pointed out that the design includes communal bathrooms. Bender asked about increasing the size of the pre-school; Portmore said the number of students generally could not be increased because of the number of square footage of space. Busch asked about the timetable, with Portmore pointing to the multipurpose building planned for 2009, the sanctuary and classroom in 2010, the retreat center in 2012 and the covered court in 2013. Renior asked about funding, which was explained as not developed, but that the church site is part of a regional group of six Hawaii churches. Portmore reported to Usagawa that the Board of Water Supply had said that water was sufficient but that the City had said that waste water disposal had to be designed for the project. Henkin commented that he didn't mean that the church was not involved in the community but asked about how the church, now to become ten times bigger, could be a larger part of the community. Henkin made several suggestions to be considered: retreat availability for local groups, basketball court available for community, bicycle paths, and running paths. Naluai commented on the users needing to be faith-based, saying that the church is not obligated to be open. Chair Luersen asked possible users; Rogers said the retreat was not to be rented and Portmore added that there was no concept of it being available for weddings, explaining that non-church members were welcomed but that the use of the facilities would be through a member.

Chair Luersen summarized concerns about traffic, noise, sewage, parking, traffic egress/ingress on weekends and daily traffic hours, retreat, exhaust emissions and how to connect to bicycle paths. Chair Luersen thanked the group for the presentation. Portmore said that additional material would be sent out to Board members at the end of September.

GROUP 70 INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia, CSI, CDT
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Cami Kloster
Katherine M. MacNeil, AIA
Mike Mau
Frank B. McCue
Kāwika McKeague
Ross K. Morishige, AIA
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Scott Tangonan
Tom Young, AIA
Roberto B. Yumol, AIA

Ralph E. Portmore, AICP
Of Counsel

December 8, 2007

Ms. Amy Luerson, Chair
Kahalu'u Neighborhood Board No. 29
c/o KEY Project
47-200 Waihe'e Road
Kane'ohe, Hawai'i 96744

Subject: Pre-Assessment Consultation for Draft Environmental Assessment and Application for Special Management Area (SMA) Use Permit First Assembly of God Windward Church Redevelopment/Expansion Corner of Kahekili Highway and 'Āhuimanu Road, O'ahu, Kahalu'u TMK: (1) 4-7-25:008 and 026

Dear Chair Luerson and Board Members:

Thank you for providing me and other church representatives with the opportunity to appear before your Board at its August 8th Meeting to make a presentation on the above-referenced project, and to respond to questions and hear your concerns. The purpose of this letter is to respond briefly to the major concerns that were raised, as summarized in the Meeting Minutes. Each of these concerns will be addressed in detail in the Draft EA, a copy of which will be mailed to you upon its completion.

1. *Traffic Impacts on Kahekili Highway & 'Āhuimanu Road/Kahekili Highway Intersection* – A traffic impact study has been completed, a copy of which will be included as Appendix F in the Draft EA. It has been determined that there will be sufficient capacity on Kahekile Highway and at the 'Āhuimanu Road/Kahekili Highway Intersection to accommodate the project-generated traffic once it is completed, which is currently projected to occur in 2013. The highest vehicle-to-capacity (v/c) ratio at this intersection is projected to be 0.69 during the weekday late afternoon peak-hour. These ratios are projected in 2013 to be 0.50 during the weekday morning peak hour, and 0.55 during the Sunday morning peak hour when the church will generate the most traffic. Based on these findings, we do not anticipate that completion of this project will not cause any undue travel delays or other traffic-related problems for people using 'Āhuimanu Road and Kahekili Highway.

2. *Traffic Ingress/Egress and Potential Backup of Church Drop-off Traffic onto 'Āhuimanu Road* – The applicant understands that traffic related to the drop off and pickup of people at the church cannot be permitted to queue or back up onto 'Āhuimanu Road. It is planned that, if necessary, a traffic monitor will be stationed at the pickup/drop-off location during peak periods to prevent the use of these spaces for parking, and where appropriate to require cars to bypass these spaces when they are full and instead use the church parking lot. The City Department of Planning and Permitting has also expressed this concern and will be addressing it with appropriate conditions during the permit review and approval process.

3. *Traffic Ingress/Egress and Road Safety/Accident Potential on 'Āhuimanu Road* – The ingress/egress driveway to the project will be located and designed in a manner that will preclude the creation of any safety or accident hazards. Roadway improvements to 'Āhuimanu Road in front of the project site will also be made as needed. The City Departments of Planning and Permitting and Transportation Services will thoroughly review the project plans during the permit review and approval process, and will require any improvements that may be needed to maintain adequate road and traffic safety.

   However, the applicant is not in a position to alter any existing conditions along the portion of 'Āhuimanu Road that extends mauka of the project site. Any existing problems in this area should be brought to the attention of the City Department of Transportation Services.

4. *Increased Noise* – Noise from church worship services and other functions that could potentially generate high noise levels will be controlled by restricting such activities to interior enclosed spaces. All church buildings except the retreat center bungalows will be air conditioned, and windows and doors, etc. will be kept closed when necessary to avoid adverse noise impacts. Church bazaars and similar outdoor functions that could generate noticeable noise levels will occur only infrequently and will end at an appropriate hour. Overall, it is not expected that noticeable noise levels from church activities will be much different from those sometimes generated by residential development. The frequency of their occurrence should be less often.

5. *Increased Air Pollution from Vehicle Exhaust* – It is recognized that there will be additional traffic generated by the project, compared to existing church operations, which will result in increased air emissions. However, this increase will be small relative to the total vehicular traffic in the area (primarily along the abutting Kahekili Highway), and will not substantially impact air quality in the general area.

   The location of the project's vehicular ingress and egress along the common property line with two abutting residences will increase the potential for increased air emissions to adversely impact the occupants of these residences. This will be mitigated by maintaining a minimum separation of 10 feet between the property line and driveway, constructing a 6-feet high fence or masonry wall in this setback area, and planting a dense row of evergreen trees along the church side of the fence or wall. These measures, together with the prevailing winds, are expected to substantially "block" and reduce emissions to a level that will rarely if ever be noticeable.

6. *Wastewater Treatment and Disposal* – The City Department of Environmental Services has indicated it will allow only the new sanctuary and multi-purpose building to be connected to the existing sewer main. An on-site individual wastewater treatment system is planned to service the new classroom building and retreat center. Approximately one-third of the wastewater generated by the

new project will flow into the existing City system, and the treatment and disposal of the other two-thirds will be handled by the new on-site system.

This new system will be state-of-the-art and use four septic tanks designed and manufactured by Environmental Waste Management Systems, Inc. The tanks are designed to use a very efficient anaerobic treatment process and produce effluent that can safely be discharged into the ground. No adverse impacts on groundwater quality, soils, drainage or other existing or future conditions without the project are anticipated.

7. *Retreat Center Use* – This facility is planned to be used only for church-related retreats. It is estimated that roughly 10 retreats will be held on average per year, with no more than 15 in any given year. The retreats are anticipated to be from one to three days long, but could extend for as long as five days.

   Attendees will stay overnight at the center for multi-day retreats: 12 one-room bungalows will be provided that will each sleep up to 8 people in 4 bunk beds. Furnishings will be "Spartan" and limited to the bunk beds, small storage cabinets for clothing and other personal articles, and carpeting. A separate bungalow will be provided that has two separate rooms for retreat leaders.

   Maximum capacity will be ~100 people, including retreat leaders. However, currently envisioned retreats are expected to involve no more than ~60 people, and it is expected that the full capacity will be rarely if ever be used.

   The church's multi-purpose building will be used to serve meals and for full-group meetings. The bungalows will be used for breakout or small group sessions, as well as for sleeping quarters. Weather permitting, the outdoor amphitheater will also be used for full-group meetings and possibly for some breakout sessions.

8. *Potential Connections to Bike Paths* – The State Department of Transportation has indicated that it is planning a bicycle path along Kahekili Highway. A suitable path from this bikeway into the church compound will be provided, and members who live within biking distance will be encouraged to use it when attending functions at the church. The applicant is also willing to work with its neighbors and community groups on plans for any other bikeway improvements that may be under consideration for 'Āhuimanu.

A copy of the portion of the August 8th Meeting Minutes that summarized the project presentation and discussion, and this response letter, will be included in the Draft EA. As noted, a copy of the Draft EA will be provided to you upon its completion.

We appreciate your participation in the pre-assessment consultation process via the presentation and discussion at your August 8th meeting. Please feel free to contact me at 441-2106 if you have any questions and/or if you would like the applicant or any of the project consultants to attend a Neighborhood Board meeting in the near future to further discuss the project.

Please note that the applicant will be requesting the opportunity to make a second presentation to the Neighborhood Board in approximately four to six months, once the environmental review process is completed and just prior to the submittal of applications for SMA and Conditional Use Permits. Such a presentation is required for the Conditional Use Permit application. A formal public hearing will also be conducted by the Department of Planning and Permitting and held in the community during the early stages of the processing of the SMA Use Permit application.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Ralph E. Portmore, AICP
Of Counsel

Enclosure

Comments Received and Responses
Contact Letter and Handout

Adjacent Property Owners and Community Leaders

GROUP 70 INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia, CSI, CDT
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Cami Kloster, AICP
Katherine M. MacNeil, AIA
Frank B. McCue
Kāwika McKeague
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Scott Tangonan
Tom Young, AIA

Ralph E. Portmore, AICP
Of Counsel

June 11, 2007

Subject: Proposed Redevelopment / Expansion of First Assembly of God Windward Church

Aloha:

On behalf of the First Assembly of God Church, Group 70 International, Inc. is currently undertaking the preparation of a Draft Environmental Assessment (EA) and Special Management Area Use Permit (SMP) application for the proposed redevelopment and expansion of its Windward Community Church facility at the corner of Kahekili Highway and ʻĀhuimanu Road in Kahaluʻu.

This process has just begun and will take approximately 4 to 6 months. The City and County Department of Planning and Permitting (DPP) is the accepting authority for both the EA and SMP application. Once these are accepted, processing of the SMP application will take an additional 6 to 8 months.

Enclosed for your information and review is a handout providing a summary description of this proposal. Any comments you may have regarding this project would be welcomed. They may be provided to us in writing via regular mail, email or fax, or telephone. Please address them to:

Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813-4307
Attn: Ralph Portmore
Tel: 523-5866 or 551-4439 direct
Fax: 523-5874
Email: rportmore@group70int.com

We would appreciate receiving your comments no later than July 9, 2007, if you wish to have them considered in connection with the preparation of the Draft EA. Comments received thereafter will also receive full consideration at later stages in the application process. Thank you.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Ralph E. Portmore

Ralph E. Portmore, AICP
Of Counsel

cc: Department of Planning and Permitting, Pastor John Rogers; Pastor Janet Kusuhara; Charles Kaneshiro, AIA

GENERAL PROJECT INFORMATION

Type of Project:	Redevelopment/Expansion of First Assembly of God Windward Church
Required Applications/Approvals:	Environmental Assessment (EA) Special Management Area (SMA) Use Permit Conditional Use Permit (CUP)
Site Location & Address *(Figure 1)*:	Kahaluʻu, at intersection of ʻĀhuimanu Road and Kahekili Highway 47-323 ʻĀhuimanu Road, Kāneʻohe, Hawaiʻi 96744
Parcel Tax Map Keys and Size *(Figure 2)*:	4-7-025:008 – 1.219 acres / 53,100 SF (R-10) 4-7-025:026 – 2.738 acres / 119,267 SF (AG-2)
Total Project Land Area:	3.957 acres
Existing Use:	Sanctuary, classroom, office and kitchen. Total floor area is ~2,060 SF. The congregation is about 100 persons. Part-time onsite staff = 2.
Existing Zoning (LUO):	Parcel 008 – R-10 Residential District Parcel 026 – AG-2 Agricultural District
Proposed Use:	<u>R-10 Residential District Parcel</u> - Redeveloped/Expanded Church Sanctuary & Multi-Purpose Room (Separate Buildings) - New Classroom Building - Total = ~21,360 SF <u>AG-2 General Agricultural District Parcel</u> - New Retreat Center (~5,040 SF) - New Covered Play Court (~6,960 SF) - Relocated and Expanded Off-Street Parking (~80 spaces)
Applicant/Recorded Fee Owner:	First Assembly of God 3400 Moanalua Road Honolulu, Hawaiʻi 96819 Contact Person: Pastor John Rogers Telephone: 836-2300
Authorized Agent:	Group 70 International, Inc. 925 Bethel Street, 5th Floor Honolulu, Hawaiʻi 96813 Contact Person: Ralph Portmore Telephone: 523-5866; 551-4439 direct Email: rportmore@group70int.com

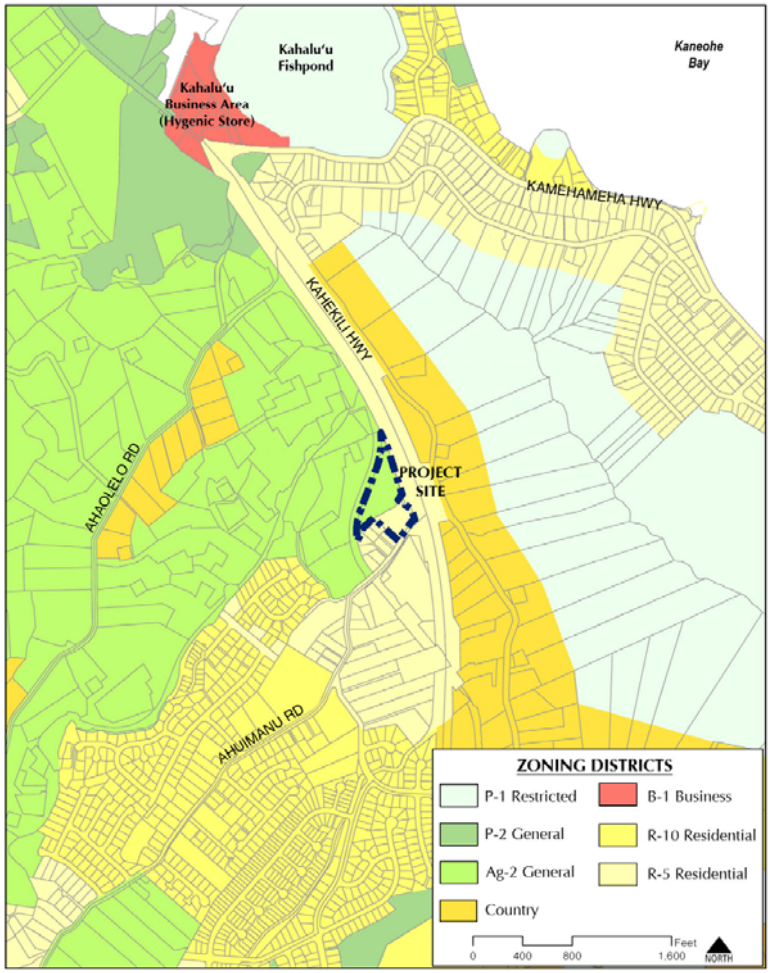


Figure 1: PROJECT LOCATION MAP

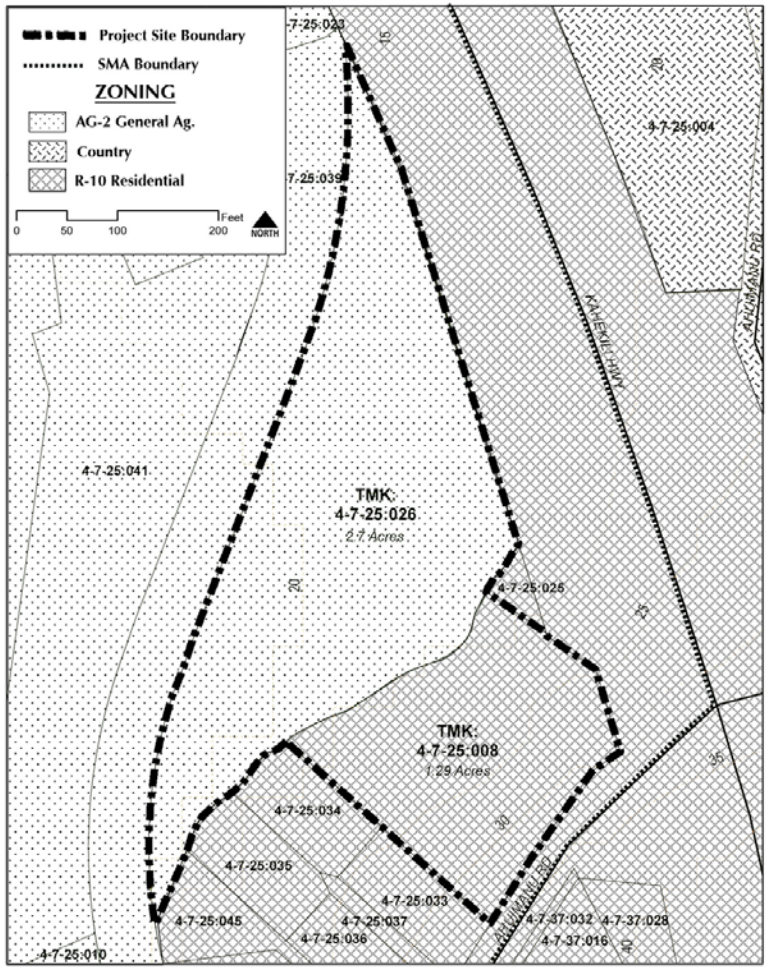


Figure 2: TAX MAP KEY AND PROPERTY BOUNDARY MAP

State Land Use District:	Urban (both parcels)
Sustainable Communities Plan (SCP):	Koʻolau Poko
SCP Land Use Map Designation:	Residential and Agriculture
SCP Public Facilities Map Designation:	None
Special Management Area District:	Yes
Flood Zone Designation:	Parcel 008 – FIRM Zone XS, Areas of 500-year flood, and areas protected by levees for 100-year flood. Parcel 026 – FIRM Zone AE, 100-year flood hazard area with base flood elevations determined – shown as ranging from ~25 feet at north end to ~29 feet at south end of AG-2 zoned parcel.
Historic Register:	No Listing (both parcels)

DESCRIPTION OF PROPOSED PROJECT IMPROVEMENTS

The First Assembly of God is proposing to completely replace its existing buildings and facilities at its Windward Oʻahu Church in Kahaluʻu *(Figure 1)*. All new facilities would be built on the existing nearly 4-acre site that is owned by the church *(Figure 2)*.

Existing Use

The existing church occupies a single building that fronts on ʻĀhuimanu Road, on the R-10 Residential zoned portion of the church property. It includes the church sanctuary, a multi-purpose/classroom, an office, a kitchen, and restrooms *(Figure 3)*. Total floor area is approximately 2,060 square feet (SF).

Proposed New Construction

Proposed new construction is briefly described as follows:

- The existing facility containing the sanctuary and multi-purpose room will be replaced with two separate buildings. The Sanctuary Building will contain the sanctuary and support spaces, two classrooms/meeting rooms, church offices and a conference room, and restrooms and storage. A Multi-Purpose Building will include a large multi-purpose room, kitchen and restrooms. The fixed seating capacity for the sanctuary will be approximately 500 people.
- A Classroom Building that includes three preschool classrooms, the preschool office, restrooms and storage on the ground floor. The preschool will be able to accommodate up to 60 students. Five classrooms for adult classes, Sunday School and small group meetings will be located on the 2nd floor. The total seven classrooms (including two in the Sanctuary Building) could accommodate up to 140 people. However, actual usage at any one time is estimated to generally not exceed 60 to 80 people, and only infrequently range up to 100 or more people. Usage of these classrooms will mostly occur in the evenings and on weekends, or at times other than when the preschool is in session.

These three buildings will be connected to each other via covered walkways. They will all be located on the R-10 Residential zoned parcel *(Figure 2)*. A rendering of the entry to the new Sanctuary and Classroom Buildings is shown in *Figure 4*.

Other proposed new facilities, to be located on the AG-2 General Agricultural zoned parcel include:

- A Retreat Center where one to five day church retreats would be held for up to 100 people. Sleeping quarters would be provided in 13 small bungalow buildings, and there would be a restroom/shower building. Retreat sessions will be held in a small outdoor amphitheater or the multi-purpose room (especially during inclement weather), and the bungalows will also used as needed for breakout sessions during a retreat. All buildings will be built with floors above grade at the required flood elevation, and will be interconnected via open walkways.
- A covered outdoor Play Court, which will be the size of a standard basketball court. It will be available for general community use when not being used by the church.
- A new paved and landscaped Parking Lot with ~80 spaces.

A preliminary site plan of the entire project is shown on *Figure 5*.

ENVIRONMENTAL PRE-ASSESSMENT CONSULTED PARTIES

The following government agencies, elected officials and community organizations have been contacted as part of the pre-assessment consultation process for the Environmental Assessment:

State of Hawaiʻi Agencies and Elected Officials
Office of Environmental Quality Control
Department of Transportation
Department of Business, Economic Development & Tourism, Office of Planning
Department of Land and Natural Resources, Office of Conservation and Coastal Lands
Department of Land and Natural Resources, State Historic Preservation Division
Oʻahu Island Burial Council
Office of Hawaiian Affairs
University of Hawaiʻi Environmental Center
State Senator Clayton Hee, 23rd Senate District
State Representative Coleen Meyer, 47th House District

City and County of Honolulu Agencies and Elected Officials
Department of Planning & Permitting
Department of Transportation Services
Department of Environmental Services
Board of Water Supply
Fire Department
Police Department
City Councilmember Donovan Dela Cruz, 2nd Council District

Community Organizations
Kahaluʻu Neighborhood Board Association No. 29
KEY Project

Figure 3: EXISTING CHURCH BUILDING

Figure 4: ENTRY VIEW OF NEW SANCTUARY AND PRESCHOOL BUILDINGS

Figure 5: PRELIMINARY SITE DEVELOPMENT PLAN

OTHER CONTACTED PARTIES

In addition, this "Project Summary Description" packet has been sent to the abutting property owners, residents associations and property managers, and to the church and community leaders listed below for their information. Comments, questions, requests for additional information, and requests for additional copies of this packet can be addressed to the project's authorized agent. Contact information is listed on the first page of this packet.

Ms. Roylene Kamanu, Ho'okipa Kahaluu Residents Association
Mr. Nelson Rodriguez, Hawai'i Affordable Properties
Mrs. Filomena Parubrub, and Mr. and Mrs. Timothy and Eileen Lum
Ms. Polly S. Yamamoto
Mr. Cliford Nakaoka
Mr. Letwell T. A. Pauole
Mr. Robert Bohol
Mr. Hiroshi Kato
Pastor Robert Nakata, Kahalu'u United Methodist Church
Pastor Eldean Kukahiko, Hope Chapel Kahalu'u Church
Pastor Keith Rider, Light of Promise Ministry

-----Original Message-----
From: edwin.parubrub@us.army.mil
Sent: Wednesday, July 11, 2007 9:28 PM
To: Ralph Portmore
Cc: ailyn lum; Walter Parubrub; mparubrub@netzero.com
Subject: Proposed Redevelopment / Expansion of First Assembly of God Windward Church

Aloha Mr. Portmore,

I'm writing on behalf of my mother Filomena Parubrub, senior citizen and landlord of 47-325 Ahuimanu Road. She is unable to compose her own written paper or email to express her disagreement with the proposed design layout of the future First Assembly of God Church.

My mom is in favor of the overall concept, however, she is specifically in disagreement with the location of the roadway and parking as indicated on the proposed design. Concerns regarding the roadway and parking location are as follows:

1. The location would create additional bothersome noise for tenants of her property such as engine noise, car doors opening and closing and people talking.

2. Roadway would add additional engine exhaust fumes that would blow towards my mom's property as trade winds are the common direction of the breeze, causing nauseating odor and health concerns.

3. As services and school start and end, additional traffic would be added to the intersection of Ahuimanu Road and Kahikili and would probably end up backing up in front of my mom's property causing poor entry and exit for my mothers tenants. This would be especially worse during morning and afternoon workday commutes.

4. The location of the roadway entrance on Ahuimanu Road and the fact that there are frequent drivers that speed down Ahuimanu Road toward Kahikili Highway presents a combination for increased frequency and possibly lethal accidents. There have been reported and unreported accidents directly in front of my mom's house. The cause is due to a blind spot on Ahuimanu Road heading toward Kahikili Highway. As you drive down Ahuimanu Road toward Kahikili Highway, there is a dip before my moms house. The roads highest point elevation is at my mom's house. This makes it difficult for a speeding driver to see someone coming out of the current location of the driveway, especially during dawn, dusk, and night.

My mom suggests placing the entrance on Kahikili Highway and parking on the Kahikili side of the property to avoid the above concerns.

Respectfully,
Edwin Parubrub

GROUP 70 INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia, CSI, CDT
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Cami Kloster
Katherine M. MacNeil, AIA
Mike Mau
Frank B. McCue
Kāwika McKeague
Ross K. Morishige, AIA
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Scott Tangonan
Tom Young, AIA
Roberto B. Yumol, AIA

Ralph E. Portmore, AICP
Of Counsel

December 8, 2007

Mrs. Filomina Parubrub
47-325 ʻĀhuimanu Road
Kaneʻohe, Hawaiʻi 96744

Subject: Pre-Assessment Consultation for Draft Environmental Assessment and Application for Special Management Area (SMA) Use Permit
First Assembly of God Windward Church Redevelopment/Expansion
Corner of Kahekili Highway and ʻĀhuimanu Road, Oʻahu, Kahaluʻu
TMK: (1) 4-7-25:008 and 026

Dear Mrs. Parubrub:

Thank you for the July 11, 2007 email sent on your behalf by your son Edwin. We also appreciate your son's attendance at the August 8th Kahaluʻu Neighborhood Board meeting, where he listened to our presentation and briefly discussed the project with us afterwards.

The purpose of this letter is to respond to the concerns that were raised in his email message, all of which relate to the proposed locations of the church's entry drive and parking area. You specifically suggest that the entrance to the project be off of Kahekili Highway, and that the parking be at the Kahekili side to the property.

Unfortunately, providing direct access to the project from Kahekili Highway is not an option. This is because access to this highway is controlled and restricted to intersecting streets. You will notice as you drive along Kahekili Highway that there are no driveway connections along its entire length. The State Department of Transportation will not under any circumstances allow the church to connect its driveway and parking area directly to this highway.

The project's parking area does not extend into the north end, or Kahekili side, of the property because this low area is needed for a drainage detention basin. Even if it was possible to locate parking there, this would not be desirable because of the relatively long distances people would have to walk from their cars to the church sanctuary.

Four concerns about the current proposed locations of the access drive and parking are raised in your son's message in support of your suggestion:

1/2 *Noise and Air Pollution from Traffic Using the Driveway* – It is true that there will be noise generated by car doors opening and closing at the drop-off/pickup area that will be in front of the sanctuary and pre-school, across the driveway from your home, and to some degree also by small groups of people talking in this area. However, the times when these conditions occur should be relatively limited. Most people will drive directly to the parking lot, which will be far enough from your home so that such activities should not be audible.

Noise from church worship services and other functions that could potentially generate high noise levels will be controlled by restricting such activities to interior enclosed spaces. All church buildings except the retreat center bungalows will be air conditioned, and windows and doors, etc. will be kept closed when necessary to avoid adverse noise impacts. Church bazaars and similar outdoor functions that could generate noticeable noise levels will occur only infrequently and will end at an appropriate hour. Overall, it is not expected that noticeable noise levels from church activities will be much different from those sometimes generated by residential development. The frequency of their occurrence should be less often.

With respect to noise from people talking, it is expected that most people who gather to talk before and after church services, etc. will congregate in the courtyard in the middle of the three main church buildings, rather than in front of the sanctuary. Seating and other amenities, the view of the Koolaus, and the fact that it is along the path between the sanctuary and the parking lot are expected to "draw" people to this location. Members will be invited and encouraged to use the courtyard, and the covered walkways along the sides of the surrounding buildings, for this purpose. The distance from your property line and the intervening buildings should significantly reduce any potential noise impacts from people gathered in the courtyard.

With respect to the impact of auto emissions, it is expected that only a limited number of cars will be stopping and idling briefly at drop-off/pickup area; as noted, most cars will drive straight through to the parking lot. The overall volume of traffic should not be sufficient to generate serious car exhaust emission problems, especially when taking into consideration the very limited pollution generated by cars with modern emission control systems.

To reduce any potential noise or air quality impacts to the minimum possible level, we propose to provide a buffer consisting of a fence or wall and dense landscaping along your property line. Such a buffer will also increase your visual privacy. We would like to meet with you and/or other family members to go over options and select a plan for providing this buffer that is most appealing to you. I will contact your son in the near future to discuss the scheduling of such a meeting at your convenience.

3/4. *Traffic Ingress/Egress and Road Safety/Accident Potential on ʻĀhuimanu Road* – The ingress/egress driveway to the project will be located and designed in a manner that will preclude the creation of any new safety or accident hazards. Roadway improvements to ʻĀhuimanu Road in front of the project site will also be made as required by the City to ensure proper traffic flow.

The traffic impact study that was done for the project indicates that traffic at the ʻĀhuimanu Road-Kahekili Highway intersection will be well below capacity at all three peak traffic flow times (weekday mornings and late afternoons, and Sunday mornings). In other words, it is not expected, except

possibly during very brief periods following Sunday morning worship services, that traffic will back up to your property along ʻĀhuimanu Road. In any event, traffic exiting the church site will not have the right of way, but will need to yield to traffic on ʻĀhuimanu Road. Consequently, any back-up of traffic exiting the church should occur within the church parking lot.

(A copy of the Traffic Impact Assessment Report will be included as Appendix F in the Draft EA. A copy of the entire Draft EA report will be mailed to you upon its completion. We would also welcome the opportunity to further discuss these findings with you at a future meeting.)

The church is not in a position to alter any existing conditions along the portion of ʻĀhuimanu Road in front of and extending mauka of your home. Any conditions in this area that you consider to present a safety and/or traffic flow problem should be brought to the attention of the City Department of Transportation Services.

In summary, the City Departments of Planning and Permitting and Transportation Services will thoroughly review the project plans during the permit review and approval process, and will require any improvements that may be needed to ensure that this project will not cause any traffic flow or safety problems.

Each of your concerns will be addressed in greater detail in the Draft EA. A copy of Mr. Parubrub's email and this response letter will also be included in this report. As noted, a copy of the Draft EA will be mailed to you upon its completion.

We greatly appreciate your family's input and participation in the pre-assessment consultation process. As noted, I will contact your son shortly to discuss our meeting to review options for the providing a buffer fence/wall and landscaping along our common property line. Please also feel free to contact me at 551-4439 if you have any questions.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Ralph E. Portmore, AICP
Of Counsel

cc: Ms. Ailyn Lum

47-325 Ahuimanu Rd., #A
Kaneohe, HI 96744
7 July 2007

ATTN: Ralph Portmore
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813-4307

Dear Mr. Portmore:

This letter is in response to your notification of the development of the First Assembly of God Church property into a school/retreat center. As the neighboring property most severely affected by this proposed plan, I am going on record in opposition of the current site plan. The inconsideration of this plan is immense from both the environmental and esthetic effects it will have on my property's value and me.

The current church property (TMK 4-7-25-008) has a common property boundary with only 2 neighbors: Mrs. Parubrub and myself. The expanded property (TMK 4-7-25-026) adds 2 more properties and a second side of my property. This gives the church very few people directly impacted, but as you can see, my property will have the most exposure.

For the last 3 years, I have lived in this home. I purchased it in part, for the country feel of nature and woods around my home. I have tended the wooded area around me on both sides, as the Church has not. I have weeded and pruned trees to maintain the area. The proposal takes ALL this wooded area and replaces it with asphalt on my two borders. This turns my country home into an urban nightmare.

Secondly, we are on a flood zone fringe area. By asphalting me in on two sides, my property will be not only the low point, but also the only green area between the neighboring houses, the church, and the stream. My property already gets the run off from the neighboring 3 houses. Now, without the chance to drain further into the surrounding woods and field, my lot will become a worthless swampland with any reasonable rainfall. There will be no other open ground to absorb the run off.

The driveway and parking placement will also mean that the fence line (i.e. my property line) will become the dumping ground for trash. Drink containers, papers, etc. will get blown or thrown to my fence line and become my problem to keep clean. The human tendency to "toss it over the fence" will mean my yard will be the new community dump.

The placement of the road and parking lot also affect me from a noise aspect. On school/church days, the placement of the pre-school is directly opposite my home. My property will get all the pick-up/drop-off noise, as well as the playground noise. The distance will be only that of the roadway. During non-school/church times, this new strip will become the new raceway for motorized scooters and the like.

The new school building will also impact the airflow to my home. The proposed school is a full standard 2 story building in close proximity to my home. I have two such building on two other sides of me at present. This will make the third. The loss of airflow will add to the heat of my home in the summers. It will decrease the water

evaporation during the rainy season adding to the marshy conditions expected in the winter months.

Finally, this school/church will have a negative impact on the community rush hour traffic pattern. At present, the "log jam" starts halfway between Ahuimanu Road and Ahuimanu Place on a weekday. With the addition of the new school traffic, coming off Ahuimanu Road will now be like all the other roads in Temple Valley and the new jamming point will start north of Ahuimanu Road.

In conclusion, I am distressed by the insensitivity of the Church to the few neighbors it has. This design has no consideration of for us, the neighbors. It negatively impacts us all and most severely, me. I should have realized this lack of concern earlier when the survey team traipsed through my yard without permission, and pounded spikes into my yard. Now my property is destine to change from a nice country home to a noisy, trashy, hot, urbanized swamp. I will be hard pressed to even try to sell it with these plans on the books. As such, I will fight this development for the sake of my property, my home.

Yours,

Polly S. Yamamoto

Polly S. Yamamoto

Cc: Coleen Meyer, Clayton Hee, Donovan Dela Cruz

GROUP 70 INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia, CSI, CDT
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Cami Kloster
Katherine M. MacNeil, AIA
Mike Mau
Frank B. McCue
Kāwika McKeague
Ross K. Morishige, AIA
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Scott Tangonan
Tom Young, AIA
Roberto B. Yumol, AIA

Ralph E. Portmore, AICP
Of Counsel

December 8, 2007

Ms. Polly S. Yamamoto
47-325 'Āhuimanu Road, #A
Kane'ohe, Hawai'i 96744

Subject: Pre-Assessment Consultation for Draft Environmental Assessment and Application for Special Management Area (SMA) Use Permit First Assembly of God Windward Church Redevelopment/Expansion Corner of Kahekili Highway and 'Āhuimanu Road, O'ahu, Kahalu'u TMK: (1) 4-7-25:008 and 026

Dear Ms. Yamamoto:

Thank you again for your July 7, 2007 letter expressing your opposition to the current site plan for the above referenced project.

As you know, we briefly replied to you in a July 12, 2007 letter (Attachment 1), in which we requested an opportunity to meet with you to discuss your concerns. You graciously agreed to meet with me and Pastor Kusuhara on September 1, 2007, at which time we reviewed your concerns and responded to them. A copy of notes summarizing the discussion is attached to this letter as Attachment 2.

The concerns raised in your July 7, 2007 letter were substantially addressed at our September 1st meeting. The purpose of this letter is to update you on the current status of planning for this project. This is provided below, organized by subject areas as in the attached Summary Meeting Notes.

1. *Trees Along Common Property Line* – It was agreed at our meeting that Mr. Richard Garcia, a member of the church, would survey the areas where trees are causing problems with you and prune or remove the problem trees. However, after briefly inspecting the area, Mr. Garcia realized this is not something he or other church members could do, but rather it would require a professional tree trimmer. The church is currently in the process of engaging a contractor who would then meet with you to determine what work needs to be done and provide the church with an estimate of the cost. We also realize now that any trimming or removal of major trees will be subject to the City's review and approval as part of its consideration of the permit applications for the proposed church expansion project.

   In summary, the applicant continues to be committed to working with you to address any problems or concerns you have with the existing trees located along our common property line. We will be in touch in the near future to meet with you and come up with proposal that will be included in the project's permit applications. Submittal of the permit applications is expected to occur in four to six months.

Group 70 International, Inc. • Architecture • Planning • Interior Design • Building Diagnostics • Assets Management • Environmental Services
925 Bethel Street, 5th Floor • Honolulu, Hawai'i 96813-4307 • Ph (808) 523-5866 • Fax (808) 523-5874 • www.group70int.com • mail1@group70int.com

2. *Potential Drainage Problems* – As we discussed at our meeting, the project site will be graded and improved as needed to ensure that all stormwater runoff will drain away from your property. The preliminary drainage plans will be included in Appendix A of the Draft EA, a copy of which will be mailed to you once it is completed.

3. *Access Driveway Along Common Property Line* – The church remains committed to providing a wall or fence and dense landscaping, or other suitable buffer that you may prefer, along the common property line to minimize potential for you to be bothered by trash or noise or air pollution. We will contact you in the near future to review options and agree on a proposal that will be included in the project permit applications.

4. *Pre-school Playground* – As was discussed at our meeting, this playground has been relocated to the interior courtyard side of the classroom building. The revised site development plan will be included as Figure 2.2 in the Draft EA.

5. *Traffic* – The traffic impact study that was done for the project indicates that the additional traffic generated by the project will not substantially change projected traffic conditions without the project, and that traffic volumes projected for the ʻĀhuimanu Road-Kahekili Highway intersection in the year 2013, when project completion is anticipated, will be well below capacity at all three peak traffic flow times – namely, weekday mornings and late afternoons, and Sunday mornings. A copy of the full Traffic Impact Assessment Report will be included as Appendix F in the Draft EA.

Each of your concerns will be addressed in greater detail in the Draft EA. A copy of your letter, our initial response letter, the summary notes from our September 1st meeting, and this response letter will also be included in this report. As noted, a copy of the Draft EA will be mailed to you upon its completion.

We greatly appreciate your taking an interest in this project and participating in the pre-assessment consultation process. As noted, I will contact you shortly to discuss our meeting to review options for tree trimming/removal and providing a buffer fence/wall and landscaping along our common property line. Please also feel free to contact me at 551-4439 if you have any questions.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Ralph E. Portmore, AICP
Of Counsel

Attachments

GROUP 70
INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia, CSI, CDT
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Cami Kloster, AICP
Katherine M. MacNeil, AIA
Frank B. McCue
Kāwika McKeague
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Scott Tangonan
Tom Young, AIA

Ralph E. Portmore, AICP
Of Counsel

July 12, 2007

Ms. Polly S. Yamamoto
47-325 Ahuimanu Road, #A
Kaneohe, HI 96744

Sent Via Fax – 239-9474

Re: Your 7 July 2007 Comment Letter on the Proposed Redevelopment / Expansion of First Assembly of God Windward Church

Aloha Ms. Yamamoto:

Thank you very much for your letter expressing your opposition to the current site plan for this proposed project. Please rest assured that we will give your comments very careful consideration.

Mr. Richard Garcia, a member of the First Assembly of God Windward Church and a local resident, will be in contact with you in the near future to further discuss with you the specific concerns raised in your letter. The purpose of this is to ensure we fully understand your concerns.

Group 70 (the project architects and planners) will then meet with Mr. Garcia and church leaders to go over your comments and discuss options for addressing them. Following this we (Group 70) will revise the draft site plan to incorporate changes which respond to your concerns in ways that we and church leaders consider feasible. We will then request a meeting with you to go over the proposed revisions, and give you reasonable time to respond. Once we have completed this review and revision process, we will prepare and send you a letter that responds in detail to your initial and any new or modified concerns.

We fully intend to do our best to address each of your concerns. Your patience and understanding are greatly appreciated.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Ralph E. Portmore, AICP
Of Counsel

cc: Rep. Coleen Meyer, Sen. Clayton Hee, Councilmember Donovan Dela Cruz, Pastor John Rogers; Pastor Janet Kusuhara; Richard Garcia Charles Kaneshiro, AIA

SUMMARY MEETING NOTES

TO: Pastor John Rogers, Pastor Janet Kusuhara, Richard Garcia, Charles Kaneshiro
FROM: Ralph Portmore
DATE: 9/1/07
RE: MEETING WITH MS. POLLY YAMAMOTO

The purpose of the meeting was to go over Ms. Yamamoto's concerns about the project and discuss and offer possible ways of addressing them. It began at ~1:45 PM and ended a little after 3 PM. In attendance, in addition to Ms. Yamamoto, were Pastor Janet Kusuhara, Stan Kusuhara, Richard Garcia, and Ralph Portmore. The discussion covered the following topics:

Loss of Wooded Area – Ms. Yamamoto indicated she would prefer that the church access be directly from Kahekili Highway, and that the parking be shifted to the northeast end of the property, adjacent to the highway. This would then permit at least the area bordering the north side of her house lot to remain wooded, rather than developed as part of the parking lot, and for there to be more of a buffer between the east side of her house and the new church facilities.

It was explained that the State will not allow driveways off of Kahekili Highway, and that access had to come off of Ahuimanu Road. It was also explained that a drainage detention basin needed to be provided at the low point on the site, which is at the northeast end, and thus the part of the parking area behind her house could not be shifted to this location. Ms. Yamamoto appreciated the explanation and indicated she now understood why the entrance and parking lot were in their proposed locations.

Ms. Yamamoto indicated that several of the trees along the common boundary lines between her property and the church site are getting too large and causing problems with falling fruit and blocking the sunlight from reaching other smaller desired trees and plants. It was agreed that Richard Garcia would survey these areas with Ms. Yamamoto and prune or remove at church expense those trees where she requests it.

Potential Drainage Problems – Ms. Yamamoto was worried that current problems with storm runoff running onto her property from the church site would become even worse when the new church facilities were built. The drainage plans for the church site were reviewed in detail to point out to her that all drainage originating on the church site would be retained on the site and drain to the north into the detention basin. It was also indicated that the church would slightly regrade the area along the east and north common property lines where necessary to ensure that storm runoff that reaches the property lines will drain onto the church site and not "pond" on her property.

Ms. Yamamoto indicated that, while she has no engineering training and is not capable of determining the soundness of the drainage plan, it sounded feasible. She asked that she be able to review it further. We indicated we will provide her with more detailed plans as they are developed. It was also indicated that it will be about six months before project plans will be completed and submitted to the City for approval, and that City review of the plans should take at least another six months.

Access Driveway Alongside Common Property Line – Ms. Yamamoto was concerned about trash, noise and air pollution that would impact her as a result of the proximity of the new access driveway to her house. It was offered that the church would provide a six-foot high masonry wall along the property line to substantially reduce noise levels and the flow of vehicle emissions on her property, and block trash from entering it. She appreciated the offer but indicated a masonry wall might be too much of a visual intrusion, and she might prefer a wood fence. She asked for time to think it over. We concurred and indicated that a decision on what type and height of fence or wall to include in the project plans did not need to be made until the permit applications are submitted, which will be about six months from now.

It was acknowledged that the classroom building and a fence or wall on the property line would likely reduce air flow to Ms. Yamamoto's property and definitely reduce the sense of openness.

Preschool Playground – It was offered that, to further reduce noise levels, the church was willing to relocate the pre-school playground to the interior courtyard side of the classroom building, or on the opposite side of the building from her house. She agreed this would reduce noise impacts and requested that this change be made. We concurred.

Traffic – It was acknowledged that the expanded church and new pre-school would increase traffic. However, it was pointed out that, while the pre-school traffic represents the greater problem because much of its traffic will occur at the same time the morning and late-afternoon peak traffic hours, it is expected that net increase will not be that great because many of the pre-school users will be people who are already driving on Kahekili Highway past the site.

Conclusion – Ms. Yamamoto expressed her appreciation for our taking the time to meet with her and discuss possible ways to reduce the impact on her home. She also was very appreciative of the church's offer to prune or remove the trees along their property line that are causing problems. She requested that we keep her informed about progress with the project on a regular basis, and that we continue to be available to discuss with her any concerns that she may have. We agreed to do so.

Section 8.0
List of References

8.0 LIST OF REFERENCES

City and County of Honolulu, Department of Real Property Assessment: Tax Map Key Sheet Number 4-7-25.

City and County of Honolulu, Department of Planning and Permitting, October 26, 2006: General Plan for City and County of Honolulu.

City and County of Honolulu, Planning Department of Planning and Permitting. August 2000: Koʻolaupoko Sustainable Communities Plan.

City and County of Honolulu, Planning Department of Planning and Permitting, February 2007 Agency/AWG Draft: Kahaluʻu Community Master Plan. (Prepared by Helber Hastert & Fee, Planners.)

Revised Ordinances of Honolulu, Chapter 21: Land Use Ordinance

City and County of Honolulu, Department of Planning and Permitting, 2007: GIS Database Zoning Data.

Revised Ordinances of Honolulu, Chapter 25: Special Management Area

City and County of Honolulu, Department of Planning and Permitting, 2007: GIS Database Special Management Area (SMA) Data.

Hawaiʻi Revised Statutes, Chapter 205: Land Use Commission.

Hawaiʻi State Land Use Commission, 2007: State Land Use District Map.

Hawaiʻi Revised Statutes, Chapter 205A: Coastal Zone Management.

Hawaiʻi Revised Statutes, Chapter 226: Hawaiʻi State Planning Act.

Hawaiʻi Revised Statutes, Chapter 344: State Environmental Policy.

U.S Department of Agriculture, Soil Conservation Service, August 1972: Soil Survey of Islands of Kauaʻi, Oʻahu, Maui, Molokaʻi and Lānaʻi, State of Hawaiʻi. (Prepared in cooperation with the University of Hawaiʻi Agricultural Experiment Station.)

U.S. Department of Homeland Security, Federal Emergency Management Agency, September 30, 2004: Flood Insurance Rate Map, City and County of Honolulu, Hawaii, Panel 260 of 395, Map Number 15003C0260F.

NOTE: See also Appendices A through F.

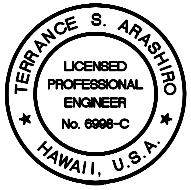
Appendix A
Preliminary Engineering Report

PRELIMINARY ENGINEERING REPORT

For

FIRST ASSEMBLY OF GOD - WINDWARD

Kaneohe, Oahu, Hawaii



Prepared for:

Group 70 International
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813

Prepared by:

Austin, Tsutsumi & Associates, Inc.
Civil Engineers • Surveyors
501 Sumner Street, Suite 521
Honolulu, Hawaii 96817-5031

October 2007

TABLE OF CONTENTS

		Page
I.	INTRODUCTION	1
II.	PROPOSED PROJECT	
	A. Location	1
	B. Project Description	1
III.	EXISTING CONDITIONS	
	A. Topography, Soil Conditions and Drainage	2
	B. Existing Infrastructure	4
IV.	PROPOSED INFRASTRUCTURE IMPROVEMENTS	
	A. Grading and Drainage	5
	B. Infrastructure	6
V.	CONCLUSION	8

TABLES

Table 1 – Preliminary Drainage Calculations
Table 2 – Preliminary Water Demand Calculations
Table 3 – Preliminary Wastewater Calculations

FIGURES

Figure 1 – Vicinity Map and Location Map
Figure 2 – Preliminary Site Plan
Figure 3 – Soils Map
Figure 4 – Flood Zone Map
Figure 5a – Existing Utility Plan
Figure 5b – Proposed Utility Plan
Figure 6 – Proposed Grading and Drainage Map

PRELIMINARY ENGINEERING REPORT
FIRST ASSEMBLY OF GOD - WINDWARD
KANEOHE, OAHU, HAWAII

I. INTRODUCTION

The purpose of this report is to provide an overview of the preliminary engineering design for the First Assembly of God – Windward church development project (Project) in Kaneohe, Oahu. The Project is being developed by First Assembly of God – Windward (Owner). This report evaluates the existing site conditions and defines requirements for roadway, water, wastewater, and drainage utilities, along with other site improvements.

II. PROPOSED PROJECT

A. Location

The proposed project site is located at 47-323 Ahuimanu Road, and is also denoted as Tax Map Key: (1) 4-7-25: 8 & 26. Currently the site is bordered by Ahuimanu Road to the south, two residential properties to the southwest, the Kahuluu Flood Control Channel (Ahuimanu Channel) to the west and north, and Kahekili Highway to the east. The site is 3.957 acres in total area. Refer to Exhibit 1 for Location and Vicinity Map.

B. Project Description

The proposed project consists of replacing of the existing church building with a new sanctuary building and multi-purpose building, 12 bungalow-style retreat cottages, an 8-classroom building, an 88-stall parking lot and an open-air recreational court. Refer to Exhibit 2 for Preliminary Site Plan.

Preliminary site work includes removal of the existing church building and parking lot, clearing and grubbing of the vacant land and excavation and embankment for the proposed grading. Existing terrain will be followed to the maximum extent practicable. An interior parking lot and driveway will be constructed to access the various facilities. The single access to the site will be from Ahuimanu Road. Utility infrastructure will include waterlines, wastewater collection and treatment system, storm drains, and underground electrical and telephone lines. Any off-site public infrastructure work will conform to the "Standard Specifications" and "Standard Details" of the Department of Public Works, City and County of Honolulu.

There are remnants of Ahuimanu Stream and an old abandoned property wall along portions of the old stream bank. The old stream runs the length of the property along the east side and serves as the primary drainage collector for Kahekili Highway in this vicinity. The stream had previously served as the main drainageway through this area prior to the construction of the flood control channel. The depression left by the stream and abandoned structures will be infilled and /or removed to facilitate the site improvements.

An on-site detention system will be constructed within the lower open area of the Project, situated in the north end of the site.

III. EXISTING CONDITIONS

A. Topography, Soil Conditions and Drainage

1. Topography

The smaller parcel (1.219 acres) is currently occupied by the church building which will be demolished. The larger parcel (2.738 acres) is undeveloped land with full vegetative cover. The smaller parcel lies on a slight bluff, level with Ahuimanu Road. The larger parcel slopes down from Ahuimanu Road and towards the drainage channel. The slopes are generally in the 1 to 8 percent range with an average gradient of about 2 percent. Elevations at the site range from 18 to 34 feet mean sea level (MSL).

2. Soil Conditions

Soil on the site is mainly Hanalei silty clay (HnA), typically found on 0 to 2 percent slopes on bottom lands on the islands of Kauai and Oahu. Refer to Exhibit 3 for Soils Map. A representative soil profile consists of about 10 inches of dark-gray and very dark-gray silty clay that has dark-brown and reddish mottles. The subsurface layer is very dark gray and dark-gray silty clay about 3-inches thick. The subsoil, about 13-inches thick, is mottled, dar-gray and dark grayish-brown silty clay loam that has angular blocky structure. The substratum is stratified alluvium. Permeability is moderate, and runoff is very slow. The erosion hazard is no more than slight. The Hydrologic Soil Group (HSG) for runoff is Type "C". Descriptions are based on the USDA Soil Conservation Service's publication, "Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai and Lanai," State of Hawaii, dated August 1972.

3. Drainage

Drainage currently is overland flow. There is no collection system and during periods of heavy rainfall, the runoff travels south to north, eventually discharging into the old Ahuimanu Stream alignment which begins within the middle of the property heading east to Kahekili Highway. The old stream, which is normally dry, serves as a large collection swale within the Kahekili Highway right-of-way. Based on as-built plans, there is a 66-inch culvert pipe which discharges from the Kahekili Highway drainage system into the old stream within the State Highway right-of-way. The old stream is fairly straight along the Kahekili Highway boundary, and runs to a low spot along the Ahuimanu Channel wall, approximately 900-feet north of the northernmost end of the property, or 500-feet south of the Ahaolelo Road Bridge.

Based on hydrologic calculations, the existing drainage runoff estimated from the site is approximately 7.74 cubic feet per second (cfs), based on a 10-year recurrence interval, 1-hour duration rainfall (See Table 1 for Preliminary Drainage Calculations).

According to the Flood Insurance Rate Map (FIRM) 150001-0260F, the site currently is located within three flood zones (See Exhibit 4):

- Flood Zone X – Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance of flood.
- Flood Zone AE – Base Flood Elevations Determined (25' mean sea level (msl) to 30' msl)
- Floodway Area in Zone AE – Channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

The floodway area is just along the channel property line and encroaches up to approximately 20-feet within the property in limited locations.

B. Existing Infrastructure

1. Water

The City and County Board of Water Supply (BWS) operates a water system within the vicinity of the project consisting of existing 6-inch and 8-inch water mains in Ahuimanu Road. The Church currently has a 5/8-inch water meter that feeds the smaller parcel. Static pressures are in the 104-psi range. See Exhibits 5a and 5b for Existing Utility Plan.

2. Wastewater

The City currently has on-going capacity limitations in the Ahuimanu Community related to the Ahuimanu Wastewater Treatment Plant. There are no plans to upgrade the plant or capacity. An existing 6-inch sewer lateral connected to an 18-inch main is available for tie-in at Ahuimanu Road near the Mauka corner of the property. The invert of the 6-inch lateral is at approximate elevation 23.4-feet mean sea level (msl).

There are no sewer laterals available to tie-in the lower, larger parcel. See Exhibits 5a and 5b for Existing Utility Plan.

Based on current wastewater capacity, the City is allowing just the new sanctuary building and multi-purpose building to connect to the existing sewer lateral (estimated average daily flow = 1,500 gpd). No other connections are allowed at this time. Therefore, the Church will need to provide an on-site individual wastewater treatment system to service the expanded facilities.

3. Roadway

The Project is on Ahuimanu Road, and its existing driveway is approximately 110-feet mauka of the edge of travelway on Kahekili Highway. Ahuimanu Road has 11-foot travel lanes within a 40-foot right-of-way fronting the Project and consists of a.c. paved shoulders and travelway, but no curbs, gutters or sidewalks.

IV. PROPOSED INFRASTRUCTURE IMPROVEMENTS

A. Grading and Drainage

1. Grading

The site will generally remain close to natural terrain as practicable. Regrading will be required to create a level pad for the sanctuary building, multi-purpose building, classroom building and open ball-court. The finish floor of these buildings is anticipated to be 32-feet msl, which is above the estimated regulatory flood elevation of 30-feet msl. This will require importing of approximately 8,000 cubic yards of fill material. The grades for the parking lot and cottages will generally follow existing contours, with the finish floor of the cottages set at 28-feet msl.

2. Drainage

Overall drainage patterns will remain the same as existing, with runoff on the site flowing overland from south to north toward the drainage channel. Based on hydrologic calculations, the drainage runoff estimated for proposed conditions is approximately 13.35 cfs, based on a

10-year recurrence interval, 1-hour duration rainfall. Due to the increase in runoff, a detention basin with 0.74 acre-feet of detention volume is proposed for the lower side of the larger parcel (See Table 1 for Preliminary Drainage Calculations). The basin will overflow following existing drainage patterns, to the swale in Kahekili Highway right-of-way left by the old Ahuimanu Stream alignment. See Exhibit 6 for Grading and Drainage Plan.

The parking lot area will remain lower than existing adjacent residential lots, so as to maintain natural drainage patterns from the adjacent lots. A curb along the new driveway to the parking lot will be provided to keep drainage within the property. In addition, a natural swale will be provided within the landscape area between the driveway and adjacent residential property to keep runoff within the Project.

The sanctuary building, multi-purpose building, and 8-classroom building will be located within flood zone X. The cottages and ball-court will be in flood zone AE. To mitigate the improvements in flood zone AE, the cottages will be built on post and pier above the designated flood elevation (approximately 28' msl) and designed to withstand flood forces. The parking lot and ball-court will be open to allow floodwaters to pass over and the pavement surface will provide better passage for floodwaters.

B. Infrastructure

1. Water System

Based on the BWS's "Water System Standards, 2002," the Project will require an average daily demand of about 12,160 gallons per day (gpd), and a peak hour flow rate of approximately 76 gpm; based on an 8-hour day, which is typical for this type of facility (See Table 2 for Preliminary Water Calculations). The flow rate will require a 1-1/2-inch water meter, with on-site pipes anticipated to range from 1-inch laterals up to 4-inch distribution main.

The fire flow anticipated to be required for the Project is 1,000 gpm for a 1-hour period. This will require an 8-inch detector check meter for fire flow, with 6-inch fire line feeding two (2) on-site fire hydrants. See Exhibit 7 for Proposed Utility Plan. The BWS has reviewed the proposed use and has determined that the existing system is adequate to provide the necessary water demands.

2. Wastewater System

Based on the City's "Wastewater System Standards," the Project will generate an average daily flow of about 6,060 gallons per day of wastewater, a design peak flow of 36,385 gpd. Assuming an 8-hour use period, peak flow translates to about 76 gpm. Of the average daily flow amount, 2,060 gpd is expected to go to the City's collection system, and 4,000 gpd is anticipated to go to a new on-site individual wastewater treatment system (See to Table 3 for Preliminary Wastewater Calculations).

An on-site wastewater collection system consisting of 6-inch gravity sewer mains will be installed to provide wastewater collection for the facilities. The sanctuary building and multi-purpose building near Ahuimanu Road will tie directly to the existing 6-inch sewer lateral. The 8-classroom building and the central restrooms serving the cottages will tie into a new individual wastewater treatment system which will treat, on average, approximately 4,000 gpd. The system will consist of four (4) wastewater treatment tanks by Environmental Waste Management Systems, which will anaerobically treat the wastewater. Leaching fields will be constructed in the open landscape areas to handle disposal needs for the treated effluent. To further reduce the wastewater flow generated, waterless urinals and dual-flush toilets are anticipated to be incorporated in the facility design.

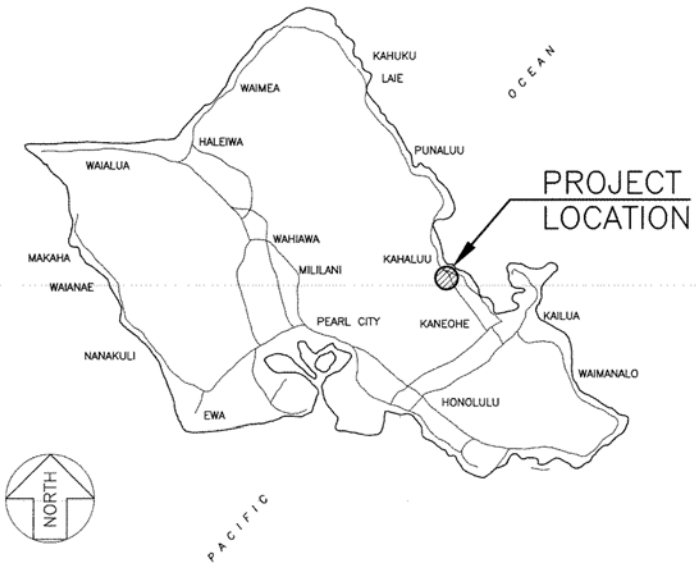
3. Roadway Improvements

As mentioned previously, access to the site will be from Ahuimanu Road. The main entrance driveway will approximately 300-feet from Kahekili Highway and will be 20-feet wide to accommodate emergency vehicles such as fire trucks. A new parking lot consisting of 88 stalls will be located on the lower larger parcel. No off-site roadway improvements are anticipated other than a new driveway apron connecting to Ahuimanu Road.

V. CONCLUSION

The proposed improvements for this project will be designed in accordance with the applicable rules and regulations of the City and County of Honolulu. Existing and future utilities will provide adequate potable water, wastewater treatment and storm drainage management for the Project. Based on the foregoing study, the project is expected to have no adverse effects on existing facilities and the surrounding environment.

X:\2006\06-057\PER pre-final 08-22-07.doc



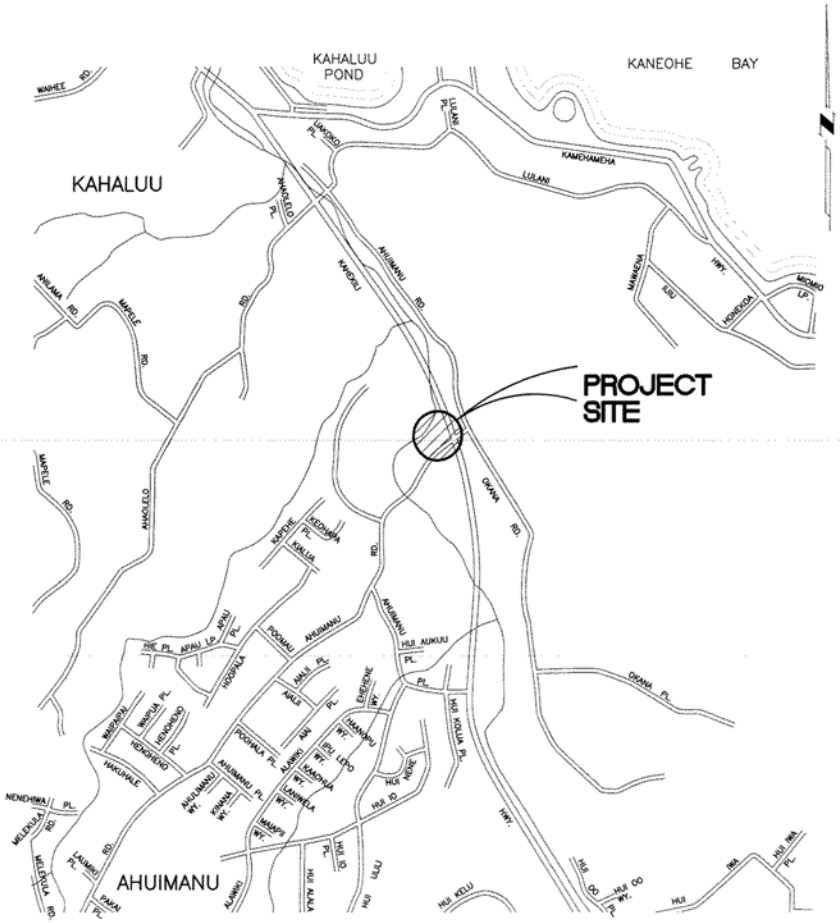
ISLAND OF OAHU

5 0 5 10 15

SCALE IN MILES

VICINITY MAP

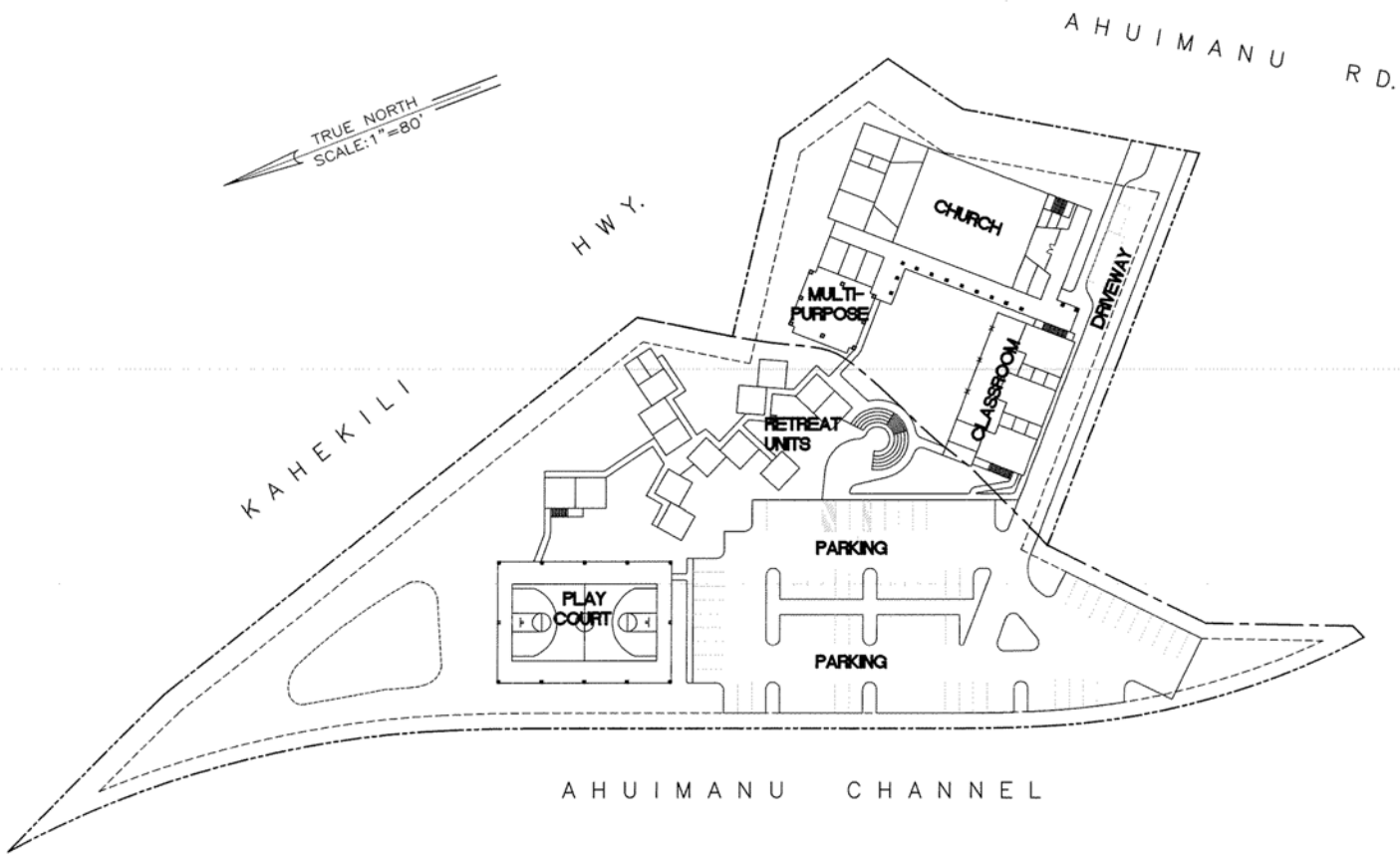
NOT TO SCALE



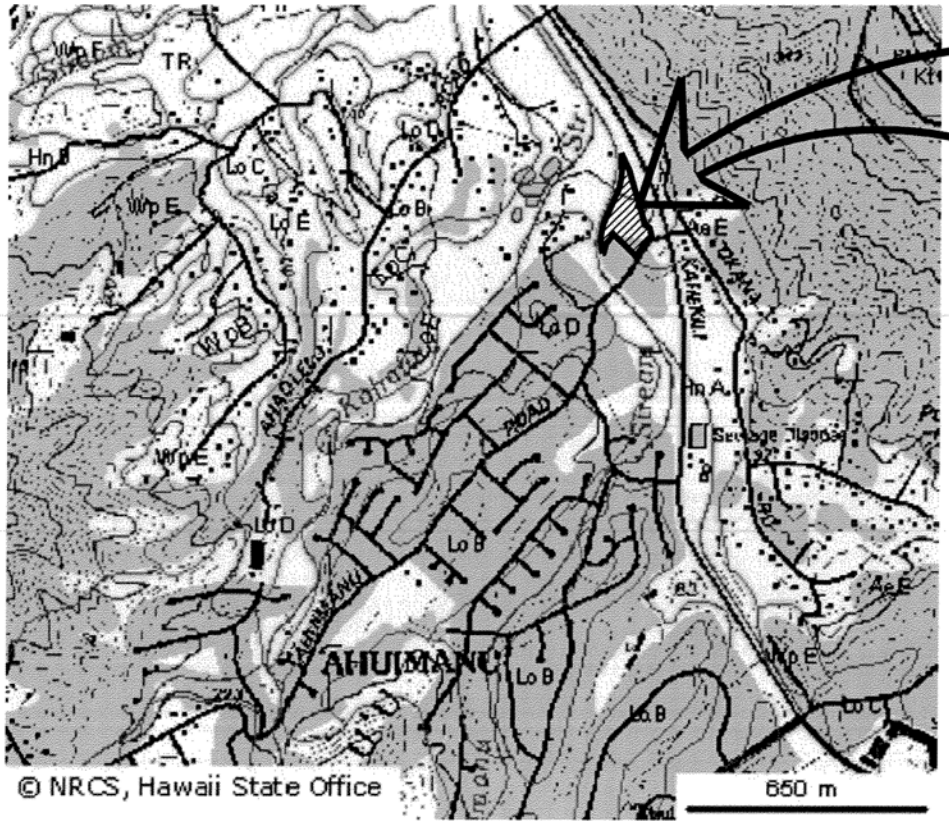
LOCATION MAP

NOT TO SCALE

FIRST ASSEMBLY OF GOD–WINDWARD PRELIMINARY ENGINEERING REPORT KAHALUU, OAHU, HAWAII	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII VICINITY MAP AND LOCATION MAP	EXHIBIT 1



FIRST ASSEMBLY OF GOD–WINDWARD PRELIMINARY ENGINEERING REPORT KAHALUU, OAHU, HAWAII	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII PRELIMINARY SITE PLAN	EXHIBIT 2

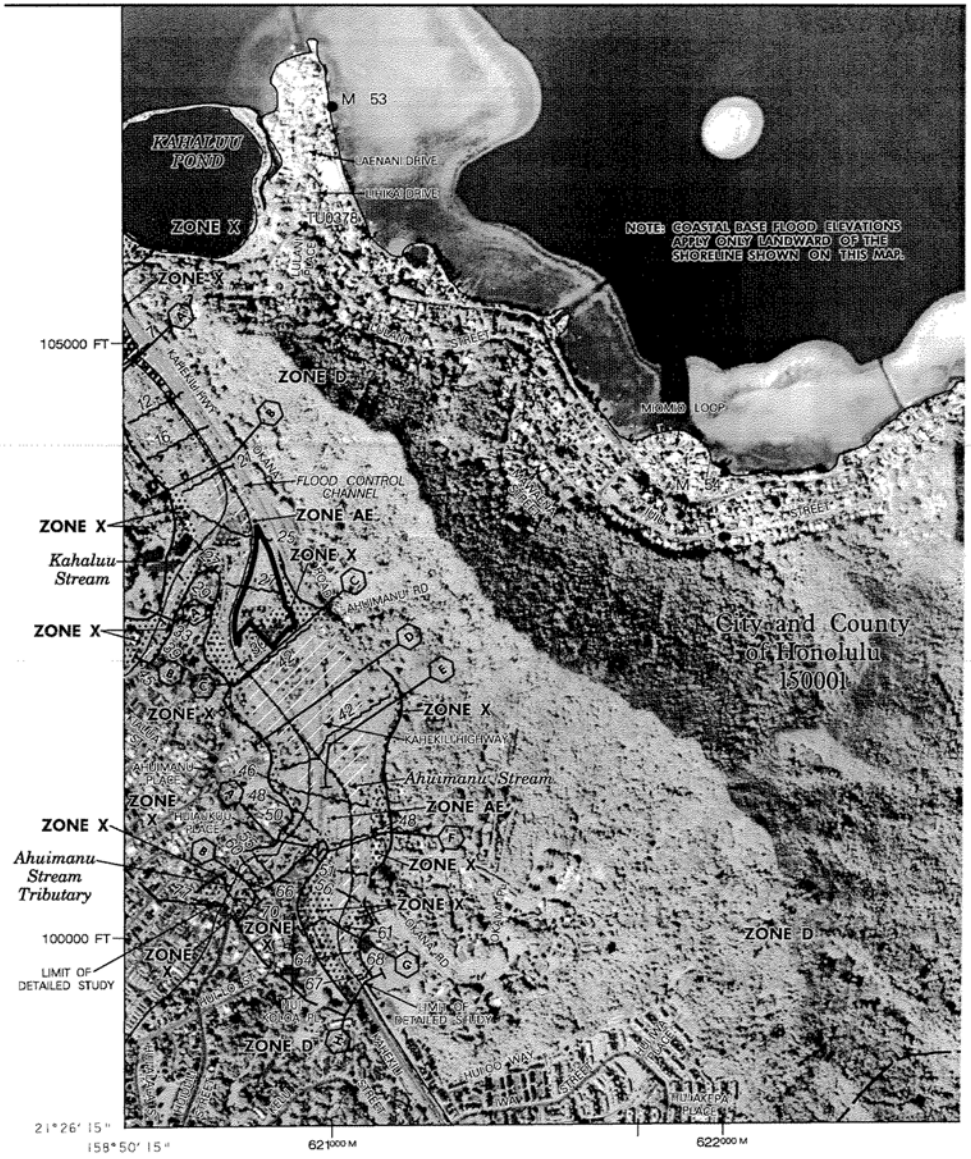


© NRCS, Hawaii State Office

PROJECT SITE

SOIL TYPE: HANALEI SILTY CLAY (HnA)

FIRST ASSEMBLY OF GOD–WINDWARD PRELIMINARY ENGINEERING REPORT KAHALUU, OAHU, HAWAII	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII SOILS MAP	EXHIBIT 3



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL. 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the National Geodetic Vertical Datum of 1929

A — A	Cross section line
23 - - - - 23	Transect line
57° 07' 30", 30° 22' 30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
4278000 M	5000-meter Universal Transverse Mercator grid tick values, zone 4
600000 FT	5000-foot grid tick values: Hawaii State Plane coordinate system, zone 3 (FIPSZONE 5103), Transverse Mercator projection
DM6010 X	Bench mark (see explanation in Notes to Users section of this FIRM panel)
•M 2	Coastal Mile marker

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
November 20, 2000

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 30, 2004 - to change Special Flood Hazard Areas, to update map format, to reflect revised shoreline and to incorporate previously issued Letters of Map Revision.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0260F

FIRM
FLOOD INSURANCE RATE MAP
CITY AND COUNTY OF HONOLULU, HAWAII

PANEL 260 OF 395

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HONOLULU, CITY AND COUNTY OF	150001	0260	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 15003C0260F

MAP REVISED SEPTEMBER 30, 2004

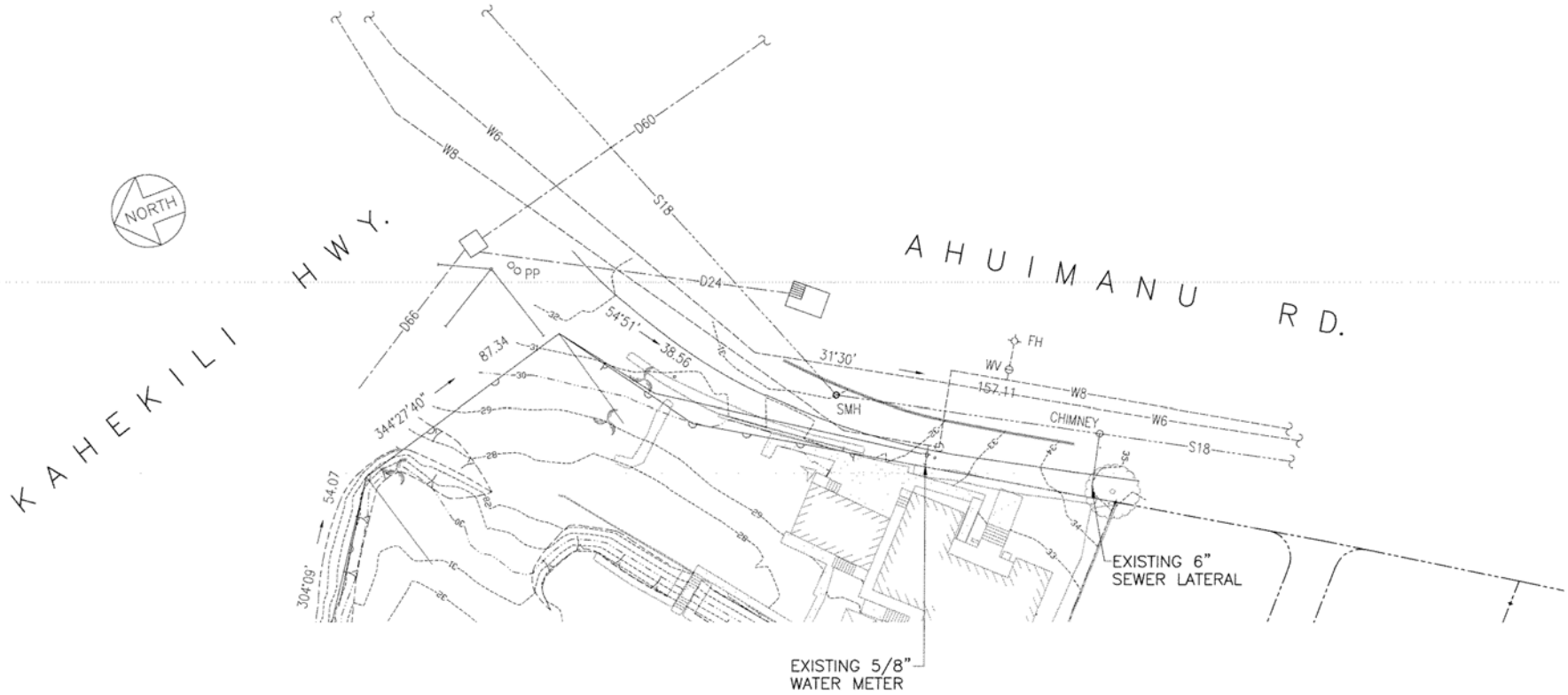
Federal Emergency Management Agency

FIRST ASSEMBLY OF GOD–WINDWARD
PRELIMINARY ENGINEERING REPORT
KAHALUU, OAHU, HAWAII

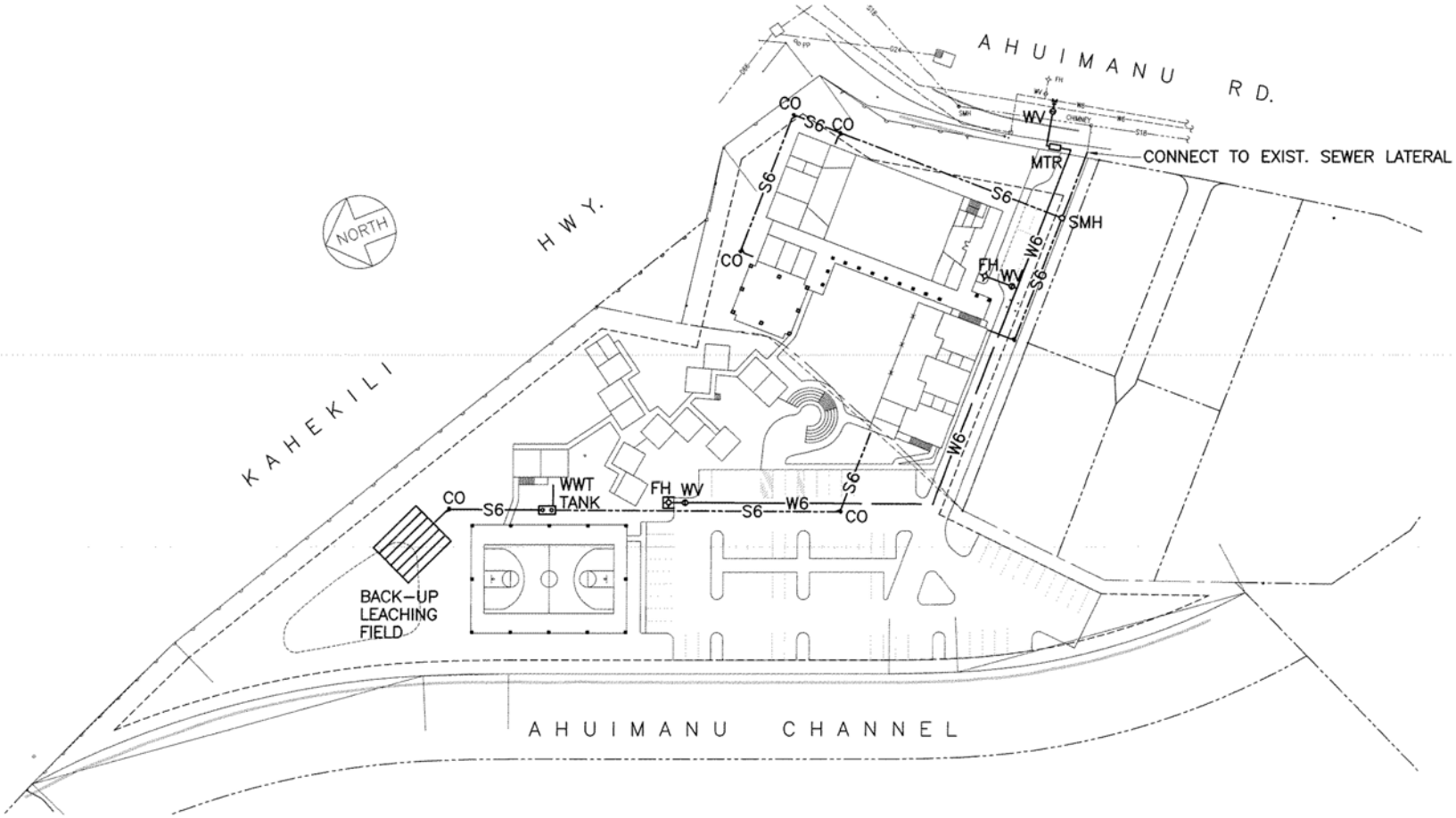
AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS, SURVEYORS • HONOLULU, HAWAII

FLOOD ZONE MAP

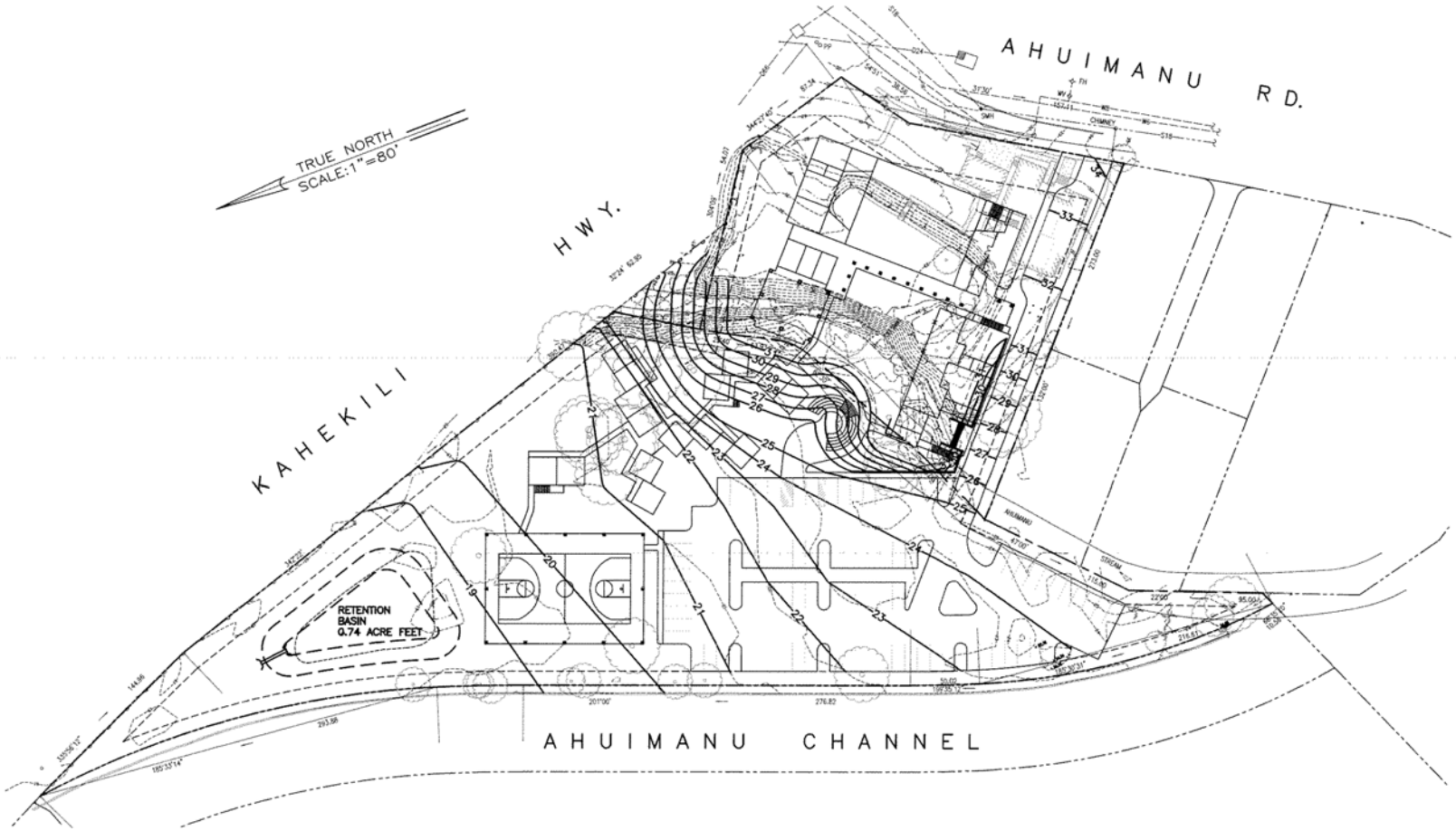
EXHIBIT 4



FIRST ASSEMBLY OF GOD–WINDWARD PRELIMINARY ENGINEERING REPORT KAHALUU, OAHU, HAWAII	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII EXISTING UTILITY PLAN	EXHIBIT 5a



FIRST ASSEMBLY OF GOD–WINDWARD PRELIMINARY ENGINEERING REPORT KAHALUU, OAHU, HAWAII	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII PROPOSED UTILITY PLAN	EXHIBIT 5b



LEGEND

----------20----------	EXISTING CONTOUR LINE
————20————	FINISH CONTOUR LINE
---·---·---·---	PROPERTY LINE

FIRST ASSEMBLY OF GOD–WINDWARD
PRELIMINARY ENGINEERING REPORT
KAHALUU, OAHU, HAWAII

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS, SURVEYORS • HONOLULU, HAWAII

PROPOSED GRADING AND DRAINAGE MAP

EXHIBIT 6

Table 1. PRELIMINARY DRAINAGE CALCULATIONS
FIRST ASSEMBLY OF GOD - WINDWARD
8/24/2007

Ref. "Rules Relating to Storm Drainage Standards," January 2000, City & County of Honolulu, DPP.

Q=CIA

EXISTING CONDITIONS

C-Value:

$$\frac{(0.65)(1.219 \text{ acres}) + (0.20)(2.738 \text{ acres})}{3.957} = 0.34$$

Time of Concentration:
840 feet at average slope of 1.4% = 9.3 minutes

Rainfall Intensity:
2.5 inches/hour x 2.3 correction factor = 5.75 in/hr

Area: 3.957 acres

Q (existing):
(0.34)(5.75 in/hr)(3.957 acres) = **7.74 cfs**

PROPOSED CONDITIONS

C-Value:

$$\frac{(0.85)(1.53 \text{ acres}) + (0.35)(2.427 \text{ acres})}{3.957} = 0.54$$

Time of Concentration:
580 feet at 1.5 fps (grass) = 6.4 min.
430 feet at 5 fps (pavement) = 1.4 min.
7.8 min.

Rainfall Intensity:
2.5 inches/hour x 2.5 correction factor = 6.25 in.hr

Area: 3.957 acres

Q (proposed):
(0.54)(6.25 in/hr)(3.957 acres) = **13.35 cfs**

VOLUME OF RUNOFF INCREASE

Assuming a trapezoidal shaped hydrograph, for proposed Q,
with rising and falling legs based on Tc of 7.8 min:
volume retained = 48,060 cf - 15,762 cf = 32,298 cf
0.74 acre-feet

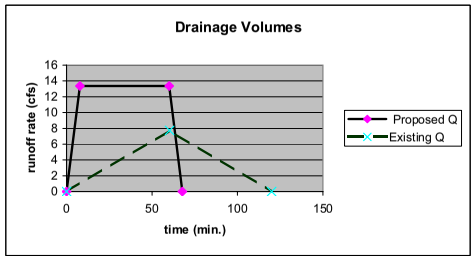


Table 2. PRELIMINARY WATER DEMAND CALCULATION
FIRST ASSEMBLY OF GOD - WINDWARD
8/24/2007

BUILDING FACILITY	NO. PERSONS OR USEABLE AREA	UNITS	DEMAND or Gal/Person/Avg Day	DEMAND Ave. Day Gal/Day	DEMAND*** (8 Hr Day) GPM	DEMAND Max Day GPM	DEMAND Max Day Gal/Day	DEMAND Peak GPM	FIRE FLOW FF Req't GPM
Sanctuary Bldg. & Multi-Purpose Bldg.*	500	persons	4	2,000	4.17	6.25	3,000	12.50	1,000
Church Staff	7	staff	80	560	1.17	1.75	840	3.50	1,000
8-Classroom Bldg.**	160	students	60	9,600	20.00	30.00	14,400	60.00	1,000
Retreat/Recreation Area**	100	persons	53	5,300	11.04	16.56	7,950	33.13	1,000
TOTAL POTABLE WATER				**12,160**	25	38	**18,240**	76	1,000

* Sanctuary Bldg., Multi-Purpose Bldg. and Classroom Bldg. may be used simultaneously.
** The Classroom Bldg. and Retreat/Recreation Area will not be used simultaneously on a given day.
*** Calculations are based on the assumption that water is consumed during a 8-hour period per day.

Table 3. PRELIMINARY WASTEWATER CALCULATIONS
FIRST ASSEMBLY OF GOD - WINDWARD
8/24/2007

BLDG. FACILITY	NO. PERSONS OR USEABLE AREA	UNITS	APPPROX. AREA (acres)	GALLON PER CAPITA PER DAY (gpcd)	AVERAGE FLOW (gpd)	MAX. FLOW FACTOR	MAX. FLOW (gpd)	DRY WEATHER INFILTRATION/ INFLOW (gpcd)	DESIGN AVE. FLOW (gpd)	DESIGN MAX. FLOW (gpd)	WET WEATHER INFILTRATION/ INFLOW RATE	DESIGN PEAK FLOW (gpd)
Sanctuary Bldg. & Multi-Purpose Bldg.*	500	persons	1.2	3	1,500	5	7,500	2500	4,000	10,000	1,500	11,500
Church Staff	7	persons	0	80	560	5	2,800	35	595	2,835	0	2,835
8-Classroom Bldg.**	160	students	1	25	4,000	5	20,000	800	4,800	20,800	1,250	22,050
Retreat/Recreation Area**	100	persons	1.8	40	4,000	5	20,000	500	4,500	20,500	2,250	22,750
TOTAL WASTEWATER					6,060	15	**30,300**	3,335	9,395	33,635	2,750	36,385

* Sanctuary Bldg. & Multi-Purpose Bldg. will connect to the City & County Wastewater System.
** The Classroom Bldg. and Retreat/Recreation Area will not be used simultaneously on a given day.

Appendix B

Survey of Botanical, Avian, and Mammalian Resources

A Survey of Botanical, Avian, and Mammalian Resources, 1st Assembly of God Windward Church and Preschool Site, Kahalu‘u, O‘ahu, Hawai‘i.

Prepared for:

Group 70 international, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813

Prepared by:

Reginald E. David
Rana Productions, Ltd.
P.O. Box 1371
Kailua-Kona, Hawai‘i 96745

&

Eric Guinther
AECOS Consultants
45-309 Akimala Place
Kāne‘ohe, Hawai‘i 96744

August 20, 2007

Table of Contents

Table of Contents 2
Introduction 3
General Site Description 3
Mammalian Survey Methods 5
Mammalian Survey Results 5
Avian Survey Methods 6
Avian Survey Result 6
Botanical Survey Methods 7
Botanical Survey Results 9
Discussion 14
- *Mammalian Resources* 14
- *Avian Resources* 14
- *Botanical Resources* 14

Conclusions 15
- *Faunal Resources* 15
- *Botanical Resources* 15
- *Potential Wetland Resources* 16

Glossary 17
Literature Cited 18

Figures

Figure 1. 1st Assembly of God, Kahalu‘u Site 4
Figure 2. View to the south across Lot 4-7-25:026 showing culvert carrying ‘Āhuimanu Stream (right) and grassy and forested parts of the property 5
Figure 3. Satellite view of the survey area. The 1st Assembly of God church is the white-roofed building at the very bottom. Locations of wetland survey points OP-1 through OP-3 are indicated 8
Figure 4. Cracked sediment deposits in the floor of an abandoned ponding basin located in the forested area of Lot 4-7-25:026 13

Tables

Table 1. Avian Species Detected, 1st Assembly of God, Kahalu‘u Site 6
Table 2. Flora Listing, 1st Assembly of God, Kahalu‘u Site 9
Table 3. Potential Wetland Observation Point Data Summary 12

Introduction

The First Assembly of God Windward Church and Preschool is proposing to redevelop and expand their preschool, church and associated infrastructure on an approximately 3.957-acre site, identified as Tax Map Key (TMK): 4-7-025:008 and 4-7-025:026, which is located in Kahalu‘u at the intersection of ‘Āhuimanu Road and Kahekili Highway, Island of O‘ahu (Figure 1). This report summarizes the findings of the botanical, avian and terrestrial mammalian surveys that were conducted to determine the potential effects of the proposed action on biological resources present on the site, and within the general project area.

A primary goal of the surveys was to determine if there were any Federal or State of Hawai‘i listed endangered, threatened, proposed, or candidate botanical, avian, or mammalian resources on, or in the immediate vicinity of the proposed project site. Federal and State of Hawai‘i listed species status follows species identified in the following referenced documents (Division of Land and Natural Resources (DLNR) 1998, Federal Register 2005, U. S. Fish & Wildlife Service (USFWS) 2005, 2007). Fieldwork was conducted on July 9 & 10, 2007.

The avian phylogenetic order and nomenclature used in this report follows *The American Ornithologists' Union Checklist of North American Birds 7th Edition* (American Ornithologists' Union 1998), and the 42nd through the 47th supplements to *Check-list of North American Birds* (American Ornithologists' Union 2000; Banks et al. 2002, 2003, 2004, 2005, 2006). Mammal scientific names follow *Mammals in Hawaii* (Tomich 1986). Native and naturalized plant names follow *Manual of the Flowering Plants of Hawai‘i* (Wagner et al. and Wagner and Herbst, 1990, 1999) and *Hawai‘i's Ferns and Fern Allies* (Palmer 2003). Ornamental plant names follow *A Tropical Garden Flora: Plants Cultivated in the Hawaiian Islands and Other Tropical Places* (Staples and Herbst 2005). Place names follow *Place Names of Hawaii* (Pukui et al. 1974).

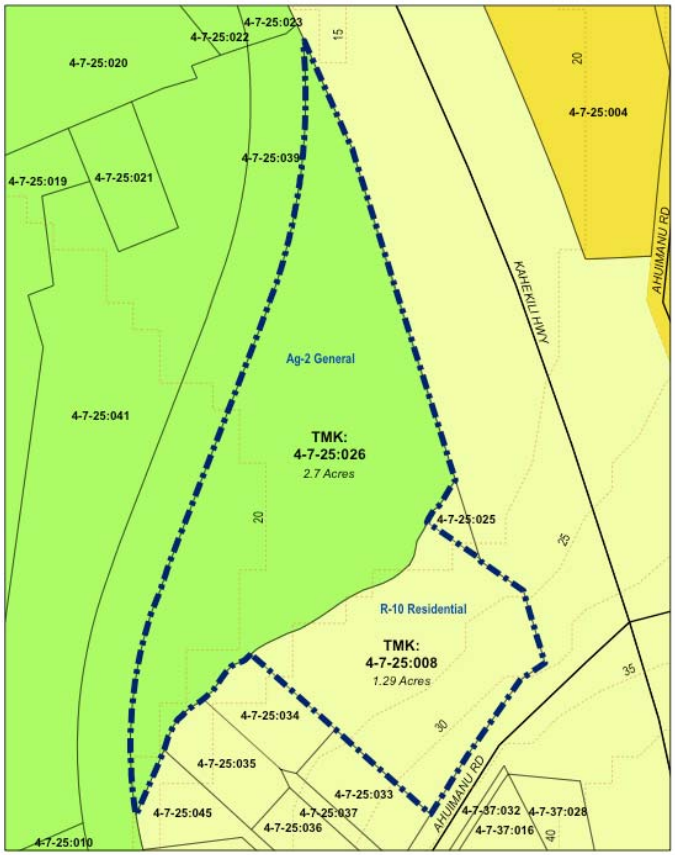
Hawaiian and scientific names are italicized in the text. A glossary of technical terms and acronyms used in the document, which may be unfamiliar to the reader, are included at the end of the narrative text on Page 17.

General Site Description

The 3.957-acre, triangular shaped site is bounded on the east by Kahekili Highway, on the south by ‘Āhuimanu Road and private house lots, and on the west by the channelized ‘Āhuimanu Stream (Figure 1). The current church facilities are located on lot 4-7-025:008, which is developed and landscaped (church buildings, grounds, and parking). Lot 4-7-25:026 is undeveloped and covered mostly by forest and grassland (Fig. 2). A broad, mowed verge is present along Kahekili Highway.

The property lies on the low-sloping bottomland of the valley of ‘Āhuimanu Stream. The subject property and adjacent ones in the area have been highly modified over the years to reduce flooding from several streams that drain the windward slope of the Ko‘olau to a common mouth at Kahalu‘u on Kāne‘ohe Bay.

Figure I



1st Assembly Kahalu‘u
Zoning Overlay with TMK and 5' Contour

The streams are now confined to concrete-lined open box culverts, and the adjacent land graded and filled to carry Kahekili Highway through the valley bottom. On the subject property, drainage swales enter along the southern side of Lot 4-7-25:026, and carry runoff northward along the eastern part of the lot to the confined channel of ʻĀhuimanu Stream. A culvert, presumably draining some part of Kahekili Highway, discharges to the swale system in the southeast corner. Abandoned cars, concrete culvert pipes, and assorted rubbish in forested parts of the lot indicate past uses. The forested southwestern part harbors ornamental plantings.

Figure 2. View to the south across Lot 4-7-25:026 showing culvert carrying ʻĀhuimanu Stream (right) and grassy and forested parts of the property.

Mammalian Survey Methods

All observations of mammalian species were of an incidental nature. With the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or ʻōpeʻapeʻa as it is known locally, all terrestrial mammals currently found on the Island of Oʻahu are alien species, and most are ubiquitous. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal signs. A running tally was kept of all vertebrate species observed and heard within the study area.

Mammalian Survey Results

No mammals were seen during the course of this survey, though scat and sign of domestic dog (*Canis f. familiaris*), was encountered at several locations within the project site. Additionally,

numerous dogs were heard barking from the houses and yards located to the west and south of the project site. Dogs are an introduced species that are considered deleterious to Hawaiian native avian species.

Avian Survey Methods

Two avian count stations were sited some 50-meters into the site on the northern and southern ends of the property. One eight-minute point count was conducted at each station. Field observations were made using Leitz 10 X 42 binoculars to sight birds and by listening for vocalizations. Counts took place between 07:30 a.m. and 9:30 a.m., the peak of daily bird activity. Time not spent conducting station counts was used to search the area for species and habitats not detected during count sessions.

Avian Survey Results

A total of 101 individual birds of 13 different avian species, representing 11 separate families were recorded during station counts. An additional two species, Wandering Tattler (*Tringa incana*), and Spotted Dove (*Streptopelia chinesis*), were recorded as incidental observations while transiting between count stations (Table 1).

Of the 15 different avian species detected during time spent on the site, all but one are considered to be alien to the Hawaiian Islands (Table 1). Two Wandering Tattlers were seen flying over the site. This species is an indigenous migratory shorebird species, that nest in the High Arctic returning to Hawaii and the Tropical Pacific during the fall and winter months.

Avian diversity was relatively low, though densities of several species were relatively high. Three species: Japanese White-eye (*Zosterops japonicus*), Red-vented Bulbul (*Pyconotus cafer*), and Chestnut Munia (*Lonchura atricapilla*) accounted for 45.5% of the total number of individual birds recorded. Japanese White-eyes were the most frequently recorded species, accounting for slightly less than 18% of the total number of individual birds recorded during station counts. We recorded an average of 51 birds per station count.

Table 1 - Avian Species Detected, 1st Assembly of God, Kahaluʻu Site

Common Name	*Scientific Name*	*ST*	*RA*
	GALLIFORMES		
	PHASIANIDAE - Pheasants & Partridges		
	Phasianinae - Pheasants & Allies		
Red Junglefowl	*Gallus gallus*	A	4.00
	CICONIIFORMES		
	ARDEIDAE - Herons, Bitterns & Allies		
Cattle Egret	*Bubulcus ibis*	A	3.50

Common Name	*Scientific Name*	*ST*	*RA*
	CHARADRIIFORMES		
	SCOLOPACIDAE - Sandpipers, Phalaropes & Allies		
	Scolopacinae - Sandpipers & Allies		
Wandering Tattler	*Tringa incana*	IM	**I-2**
	COLUMBIFORMES		
	COLUMBIDAE - Pigeons & Doves		
Spotted Dove	*Streptopelia chinensis*	A	**I-1**
Zebra Dove	*Geopelia striata*	A	3.50
	PASSERIFORMES		
	PYCNONOTIDAE - Bulbuls		
Red-vented Bulbul	*Pycnonotus cafer*	A	8.50
Red-whiskered Bulbul	*Pycnonotus jocosus*	A	4.50
	TURDIDAE - Thrushes		
White-rumped Shama	*Copsychus malabaricus*	A	1.50
	ZOSTEROPIDAE - White-eyes		
Japanese White-eye	*Zosterops japonicus*	A	9.00
	STURNIDAE - Starlings		
Common Myna	*Acridotheres tristis*	A	3.50
	EMBERIZIDAE - Emberizids		
Red-crested Cardinal	*Paroaria coronata*	A	3.50
	CARDINALIDAE - Cardinals Saltators & Allies		
Northern Cardinal	*Cardinalis cardinalis*	A	0.50
	PASSERIDAE - Old World Sparrows		
House Sparrow	*Passer domesticus*	A	1.00
	ESTRILDIDAE - Estrildid Finches		
	Estrildinae - Estrildine Finches		
Common Waxbill	*Estrilda astrild*	A	2.00
Chestnut Munia	*Lonchura atricapilla*	A	5.50

KEY TO TABLE 1

ST Status
IM Indigenous Migrant – a native migratory species that winters in Hawai'i but breeds elsewhere
A Alien – introduced to the Hawaiian Islands by humans
RA Relative Abundance – Number of birds detected divided by the number of count stations (2)
I - Incidental observation, followed by the number of individuals recorded

Botanical Survey Methods

A pedestrian botanical survey was conducted, which noted the occurrence and relative abundance of all species of plants observed. Wandering transects were used to cover the area. This survey was conducted following a relatively dry period on O'ahu, although the windward side was not particularly dry. Plants growing on the properties were in good condition, although many were

not in flower or fruit. Nonetheless, a one-time survey cannot expect to list every plant species growing on a subject property. Some species are seasonal or opportunistic; while others might be present, but in such low numbers that they are simply not encountered.

A plant checklist (Table 2) was compiled from the field observations, with entries arranged alphabetically under family names. Included in the list are scientific name, common name, and status (whether native or not-native) of each species. In addition to identifying the plants present within the study site, qualitative estimates of plant abundance were made. These are coded in the table as explained in the Legend to Table 2 and apply to observations made during the present survey.

Three locations, termed "observation points," were selected to investigate the possibility of wetlands occurring on Lot 4-7-25:026. These were designated OP-1 through OP-3 and their locations shown on Fig. 3, a satellite image of the property. At each observation point, the vegetation present and soil type were noted.

Fig. 3. Satellite view of the survey area. The First Assembly of God church is the white-roofed building at the very bottom. Locations of survey points OP-1 through OP-3 are indicated.

Botanical Survey Results

The project area is characterized by three vegetation areas: 1) forest dominated by gunpowder tree (*Trema orientalis*) and tropical almond (*Terminalia catappa*), with several large monkeypod trees (*Samanea saman*); 2) open, densely covered grass land, supporting mostly elephant grass (*Pennisetum purpureum*), but with significant areas of California grass (*Urochloa mutica*) and more limited areas of Job's tears (*Coix lachryma-jobi*); and 3) a broad highway verge and other areas where regular maintenance mowing occurs.

Table 2 – Flora Listing, , 1st Assembly of God, Kahalu'u Site

Species listed by family	Common name	Status	Occurrence
FERNS			
THELYPTERIDACEAE			
Christella dentata (Forssk.) Brownsey & Jermy	---	Nat.	U (a)
FLOWERING PLANTS			
DICOTYLEDONS			
ACANTHACEAE			
Asystasia gangetica (L.) T. Anderson	Chinese violet	Nat.	O3 (a)
Ruellia prostrata Poir.	wild petunia	Nat.	R1 (c)
AMARANTHACEAE			
Amaranthus spinosus L.	spiny amaranth	Nat.	R (c)
ARALIACEAE			
Schefflera actinophylla (Endl.) Harms	octopus tree	Nat.	U (a)
ASTERACEAE (COMPOSITAE)			
Ageratum conyzoides L.	*maile hohono*	Nat.	U2 (c)
Bidens alba (L.) DC	---	Nat.	U (c)
Calyptocarpus vialis Less.	---	Nat.	U (c)
Crassocephalum crepidioides (Benth.) S. Moore	---	Nat.	U2 (c)
Emilia fosbergii Nicolson	*pualele*	Nat.	U2 (c)
Sonchus oleraceus L.	sow thistle	Nat.	U (c)
Spagneticola trilobata (L.) Pruski	wedelia	Nat.	A (a,c)
BALSAMINACEAE			
Impatiens walleriana J. D. Hook.	busy lizzy	Nat.	U3 (a)
CECROPIACEAE			
Cecropia obtusifolia Bertol.	guarumo	Nat.	R (a)
COMBRETACEAE			
Terminalia catappa L.	tropical almond	Nat.	A (a)
CONVOLVULACEAE			
Convolvulus arvensis L.	field bindweed	Nat.	C (c)
Ipomoea alba L.	moon flower	Nat.	O (b)
Ipomoea obscura (L.) Ker-Gawl.	---	Nat.	
? *Ipomoea cf. indica* (J. Burm.) Merr.	*koali`awa*	**Ind.**	C (b)

Species listed by family	Common name	Status	Occurrence
CUCURBITACEAE			
Momordica charantia L.	balsam pear	Nat.	R
EUPHORBIACEAE			
Aleurites moluccana (L.) Wild.	*kukui*	**Pol.**	R (a)
Chamaesyce hirta (L.) Millsp.	garden spurge	Nat.	O (c)
Chamaesyce hypericifolia (L.) Millsp.	graceful spurge	Nat.	O (c)
Phyllanthus debilis Klein ex Willd.	niuri	Nat.	O (c)
Ricinus communis L.	castor bean	Nat.	U (a,b,c)
FABACEAE			
Acacia confusa Merr.	Formosan koa	Nat.	R (a)
Alysicarpus vaginalis (L.) DC	---	Nat.	O (c)
Canavalia cathartica Thouars	*maunaloa*	Nat.	C (b)
Chamaechrista nictitans (L.) Moench.	partridge pea	Nat.	U (c)
Crotalaria incana L.	fuzzy rattlepod	Nat.	U1 (c)
Indigofera suffruticosa Mill.	indigo	Nat.	R (c)
Leucaena leucocephala (Lam.) deWit	*koa haole*	Nat.	U1 (a,c)
Macroptilium atropurporeum (DC) Urb.	---	Nat.	R1 (c)
Mimosa pudica L.	sensitive plant	Nat.	O (c)
?Pueraria montana (no flwr/fruit)	kudzu	Nat.	O (b)
Samanea saman (Jacq.) Merr.	monkeypod	Nat.	O (a)
LAURACEAE			
Persea americana Mill.	avocado	Nat.	R (a)
MORACEAE			
Ficus microcarpa L. fil.	Chinese banyan	Nat.	R (a)
MYRTACEAE			
Psidium guajava L.	common guava	Nat.	R (a)
Syzigium cumini (L.) Skeels	Java plum	Nat.	O (a)
NYCTAGINACEAE			
Boerhavia coccinea Mill.	false alena	Nat.	R (c)
OXALIDACEAE			
Oxalis corniculata L.	yellow wood sorrel	**Pol.**	R (c)
RUBIACEAE			
Hedyotis corymbosa (L.) Lam.	---	Nat.	R (c)
Paederia foetida L.	maile pilau	Nat.	U (a)
Spermacoce assurgens Ruiz & Pav.	buttonweed	Nat.	U1 (c)
SAPINDACEAE			
Filicium decipiens (Wight & Arnott) Thwaites	fern tree	Nat.	R (a)
SOLANACEAE			
Solanum americanum Mill.	*popolo*	**Ind.**	R (c)
Solanum lycopersicum var. cerasiforme (Dunal) Spooner, G Anderson, & Jansen	cherry tomato	Nat.	R (c)
ULMACEAE			
Trema orientalis (L.) Blume	gunpowder tree	Nat.	C(a)

Species listed by family	Common name	Status	Occurrence
MONOCOTYLEDONES			
ARACEAE			
Dieffenbachia maculata (Lodd.) G. Don	dumb cane	Orn.	U1 (a)
Epipremnum pinnatum (L.) Engler	golden pothos	Nat.	C (a)
Syngonium podophyllum Schott.	nephthytis	Orn.	O (a)
Xanthosoma roseum Schott	‘ape	Nat.	O3 (a)
ARECACEAE			
Cocos nucifera L.	*niu*, coconut	**Pol.**	U (a)
COMMELINACEAE			
Commelina benghalensis L.	hairy *honohono*	Nat.	R (c)
Commelina diffusa N.L. Burm.	day flower	Nat.	U (c)
COSTACEAE			
Costus pulverulentus C. Presl.	---	Orn.	R (a)
CYPERACEAE			
Cyperus involucratus Rottb.	umbrella sedge	Nat.	R (a)
Kyllinga brevifolia Rottb.	*kili‘o‘opu*	Nat.	U (c)
HELICONIACEAE			
Heliconia bihai (L.) L.	Jacquini heliconia	Orn.	R (a)
Heliconia collinsiana Griggs	hanging heliconia	Orn.	R (a)
Heliconia rostrata Ruiz & Pavón	parrot’s-beak heliconia	Orn.	R (a)
POACEAE			
Axonopus compressus (Sw.) P. Beauv.	broad-lf carpet grass	Nat.	C (c)
Coix lachryma-jobi L.	Job’s tears	Nat.	O3 (b)
Cynodon dactylon (L.) Pers.	Bermuda grass	Nat.	A (c)
Digitaria ciliaris (Retz.) Koeler	Henry’s crabgrass	Nat.	R (c)
Eleusine indica (L.) Gaertn.	wiregrass	Nat.	U (c)
Urochloa maxima (Jacq.) R. Webster	Guinea grass	Nat.	O (a,c)
Paspalum conjugatum Bergius	Hilo grass	Nat.	O (c)
Pennisetum purpureum	Elephant grass	Nat.	AA (b)
Sorghum halepense (L.) Pers.	Johnson grass	Nat.	U2 (c)
Sporobolus cf. diander (Retz.) P. Beauv.	Indian dropseed	Nat.	U (c)
Urochloa mutica (Forssk.) Nguyen	California grass	Nat.	AA (b)
ZINGIBERACEAE			
Alpinia purpurata (Vieil.) K. Schum.	red ginger	Orn.	R (a)

Legend to Table 2

STATUS = distributional status for the Hawaiian Islands:
- **Ind.** = A plant native to the Hawaiian Islands and other areas.
- **Pol.** = Aboriginal (Polynesian) introduction to the Hawaiian Islands before 1778.
- Nat. = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.
- Orn. = ornamental; species planted here and not naturalized.

ABUNDANCE = occurrence ratings for plants by area:
- R – Rare — seen in only one or perhaps two locations.
- U - Uncommon- — seen at most in several locations
- O - Occasional — seen with some regularity
- C - Common — observed numerous times during the survey
- A - Abundant — found in large numbers; may be locally dominant.

AA - Very abundant — abundant and dominant; defining vegetation type.

Numbers following an occurrence rating indicate clusters within the survey area. The ratings above provide an estimate of the likelihood of encountering a species within the specified survey area; numbers modify this where abundance, where encountered, tends to be greater than the occurrence rating:
- 1 – several to many plants present
- 2 - many to very many plants present
- 3 – plant abundant, but over a limited area

NOTES:
- (a) – forested land
- (b) – open grassland
- (c) – highway verge and cleared/maintained areas

For the most part, the plant species found in each of these three areas were distinct, in part because the growth of the dominant grasses in the open, grassed areas preclude most other plants. These grasses are far less vigorous in the tree-shaded areas and in places where vegetation maintenance is practiced. In maintained areas, a combination of mowed (lawn) grasses and ruderal weeds occur. The margin area above the walls of the box culvert also yielded a number of weedy species, presumably because this area is also maintained, although less often than the verge of the highway.

The botanical survey did not include the landscaped grounds of the church (Lot 4-27-25:008) as all of the plants present are either ornamentals or lawn grasses. Larger plants noted as present included *ti* (*Cordyline fruticosa*), *noni* (*Morinda citrifolia*), bottlebrush (*Callistemon* sp.), and Manila palm (*Veitchia merrillii*).

The results of observations made specifically at the three observation points (Fig. 3) are given in Table 3. These observations were conducted to assess the potential for wetlands being present on the property. The National Wetland Inventory (NWI, USFWS, undated) for this area indicates a wetland at the north end of the property extending over an area incorporating the concrete-lined channel and land on the west side of the channel. This wetland is classified, PEM1C or a seasonally flooded freshwater wetland with persistent emergent vegetation. Since this area clearly is no longer a wetland, it is likely the case that the NWI data predates construction of the lined stream channel.

Table 3 Potential Wetland Survey Point Data Summary

Observation Point	Soil Properties	Dominant Vegetation
OP-1	Anoxic muck under ~0.8 m (2+ ft) of water	Job’s tears (*Coix lachryma-jobi*), elephant grass (*Pennisetum purpureum*), *Ipomoea* sp.
OP-2	7.5YR 3/2 clay loam	Job’s tears, day flower (*Commelina diffusa*), and *Ipomoea* sp.
OP-3	7.5YR 3/3 clay loam	Elephant grass, ?*Pueraria*, *Ipomoea* sp.

Standing water—apparently the result of blockage of outflow from the street drain—presently characterizes the situation at OP-1, where thick vegetation and debris carried through the drain have dammed a section of the upstream end of a man-made drainage channel that runs along the

base of the Kahekili Highway right-of-way embankment. OP-2 and OP-3 were made along the bottom of this man-made drainage swale overgrown with grasses, yet still evident in the satellite image (Fig. 3). Although the low chroma value at OP-2 and very faint oxidized root channels present in the soil at OP-2 and OP-3 are suggestive of hydric soil, these may be incipient, altering from the original fill graded in when the highway was improved as part of the highway drainage.

Another drainage channel meanders through the forested, south end of the lot. This channel was where ʻĀhuimanu Stream flowed before the Kahaluʻu Flood Control Project was completed. It has somewhat of a man-made appearance (the channel cross-section is narrow and very even) but also an appears to seldom conduct much water flow. Several large trees have grown up in the channel. An interesting aspect is a former pond feature located near where this channel intercepts the north-south drainage channel conducting run-off from the highway to concrete lined ʻĀhuimanu Stream drainage channel that was built as part of the Kahaluʻu Flood Control Project. Construction debris nearby suggests this area, now forested, may have been a base yard or construction storage area at one time. The bottom of a depression feature is covered by a thick, cracked sediment deposit (Fig. 4).

Figure 4. Cracked sediment deposits in the floor of an abandoned ponding basin located in the forested area of Lot 4-7-25:026.

On cursory inspection, two distinct "events" are recorded in the sediment: a deeper deposit with a surface covered by melanid snails (*Melanoides tuberculata*, an aquatic snail in the Family *Thiaridae*) and a redder layer several inches thick deposited above. The three snail shells on the surface in Fig. 4 were lifted from the lower layer for the photograph. Nothing leading towards the

pond today explains the source of the ponded sediment, which may have been directed into the basin from a nearby construction site, either as run-off or by pipe from a dewatering operation.

Discussion

Mammalian Resources

A one-time survey cannot provide a total picture of the wildlife utilizing any given area. Certain species will not be detected for one reason or another. Seasonal variations in populations coupled with seasonal usage and availability of resources will cause different usage patterns throughout a year or, in fact, over a number of years. Coupling the results of a one-time survey with the results of previous surveys conducted in similar habitat on the island of Oʻahu greatly enhances the understanding of the faunal makeup of site.

The findings of the mammalian survey are consistent with the habitat present on the proposed project site, and with it's location on Oʻahu. Although no rodents were detected during the course of this survey, it is likely that roof rats (*Rattus r. rattus*), Norway rats (*Rattus norvegicus*), European house mice (*Mus domesticus*) and possibly Polynesian rats (*Rattus exulans hawaiiensis*) use resources within the general project area. All of these introduced rodents are deleterious to remaining native ecosystems and the native floral and faunal species that are dependant on them for their survival.

Avian Resources

The findings of the avian survey are consistent with the habitat present on the site, and with it's location on the island of Oʻahu. All but one of the 15-avian species detected during the course of this survey are alien to the Hawaiian Islands. The lone native species detected, Wandering Tattler was recorded as an incidental observation as two birds flew across the site headed west. Wandering Tattlers, are a common indigenous migratory shorebird species that nests in the high Arctic in the late spring and summer, returning to Hawaiʻi and the Tropical Pacific during fall and winter months.

From an avian perspective there is nothing unique about the habitat present on the subject property, and none of the habitat present on the site is important habitat for any listed avian or mammalian species currently known from the Island of Oʻahu.

Botanical Resources

A one-time survey cannot provide a total picture of the botanical makeup of any given area. Certain species will not be detected for one reason or another. Seasonal variations in populations coupled with seasonal usage and availability of resources will cause different usage patterns throughout a year or, in fact, over a number of years. However, given the windward Oʻahu location, this July 2007 survey can be expected to have revealed a majority of the plant species occurring on the site.

The flora of the project area is comprised of flowering plants and one fern, overwhelmingly dominated by alien plant species. A total of 74 species of plants are listed in Table 2. Only 5 (6.7%) of the species recorded on the property are thought to have occurred in the Hawaiian Islands before the arrival of James Cook in 1778. Three are ancient Polynesian introductions (so-called "canoe plants") and two are probable indigenous species. No endemic species were observed on the property.

The vegetation of dense grasses in the low areas on the property suggests the potential presence of wetlands. Both California grass and Job's tears are classified as facultative wetland plants (FACW), a category that covers species found in wetlands between 67 and 99% of observed occurrences (Puttock and Imada, 2004; Reed, 1988). Elephant grass is a facultative (FAC) species in Hawai'i, a category encompassing species occurring in wetlands between 34 and 66% of observations (or roughly as often in wetlands as not). In general, the property appears well-drained, and only the low area along the drainage swale at the base of the Kahekili Highway right-of-way embankment has potential to fulfill the hydrology requirement under Army Corps of Engineers (ACOE) wetlands delineation methodology (ACOE, 1987). At OP-1 and OP-2, the very bottom of this swale is dominated by Job's tears. Most of the swale is covered by elephant grass. The result of the cursory soil inspection also suggests a wetland area may be present at OP-1 and OP-2.

Any wetlands existing in the lower portion of the project site prior to construction of the Kahalu'u Flood Control Project and Kahekili Highway improvements have long since been destroyed; the surveyed property lies on land between these two government projects completed over 30 years ago. The incipient wetland conditions existing along the swale at the base of the Kahekili Highway right-of-way embankment are essentially man-induced, incidentally created by highway drainage and infrequent maintenance of the drainage channel.

Conclusions

Faunal Resources

The results of the faunal survey indicate that there are no special concerns or legal constraints related to faunal resources within the project site. It is not expected that the modification of the habitat currently found on the site or the construction of the proposed buildings and infrastructure will have a negative impact on any avian or mammalian species currently listed as endangered, threatened, or that are currently proposed for listing under either federal or State of Hawai'i endangered species statutes (DLNR, 1998, Federal Register, 1999, 2005).

Botanical Resources

The results of the botanical survey indicate there are no special concerns or legal constraints related to botanical resources in the project site. The highly altered environments of lowland, windward O'ahu no longer support rare or listed species of Hawaiian native plants. Our survey revealed no plant species listed as endangered, threatened, or currently proposed for listing under either federal or State of Hawai'i endangered species statutes at the project site (DLNR, 1998, Federal Register, 1999, 2005).

Potential Wetland Resources

Whether the wetland resources that may be present are of a jurisdictional nature or not requires consideration of ongoing legal fluctuations in jurisdictional authority granted the ACOE, as well as the fact that the potential wetland in question here is man-induced, located in a man-made highway stormwater conveyance ditch, and could be substantially altered by maintenance of that channel (that is, is non-permanent). The drainage channel at the base of the Kahekili Highway right-of-way embankment, or at least its drainage carrying capacity, must be preserved. The proposed project does not intend to alter the configuration of this channel, but will result in better maintenance of the feature as the slopes are incorporated into the landscaping of the proposed development. The drainage channel along the original alignment of 'Āhuimanu Stream, located along the southern edge of Lot 4-7-25:026, is not a jurisdictional feature (neither stream nor wetland), and the former sediment basin is not a wetland. Therefore, no jurisdictional issues arise from the proposed project unless grading work is contemplated for the drainage ditch at the base of the Kahekili Highway right-of-way embankment. In that event, both State DOT and the ACOE should be contacted for a clarification of jurisdictional issues and what modifications of existing conditions might be allowed.

Glossary

Alien - Introduced to Hawai‘i by humans
Anoxic – An absence of oxygen (in this case as a definition of soil type)
Chroma – Intensity of color (in this case used to class soils)
Clay loam – A soil with roughly equal parts of loam and clay
Endangered – Listed and protected under the ESA as an endangered species
Endemic – Native and unique to the Hawaiian Islands
Incidental observation – A species not counted during station counts, but seen within the. project area.
Indigenous – Native to the Hawaiian Islands, but also found elsewhere naturally
Ruderal – Disturbed, rocky, rubbishy areas, such as old agricultural fields and rock piles
Threatened - Listed and protected under the ESA as a threatened species

ACOE – Army Corps of Engineers
DLNR – Hawaii State Department of Land & Natural Resources
ESA – Endangered species act of 1973, as amended
FAC – Facultative plant species
FACW – Facultative wetland plant species
TMK – Tax Map Key
USFWS – U.S. Fish & Wildlife Service

Literature Cited

American Ornithologist's Union. 1998. *Check-list of North American Birds*. 7th edition. American Ornithologist's Union. Washington D.C. 829pp.

_____. 2000. Forty-second supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 117:847-858

Banks, R. C., C. Cicero, J. L. Dunn, A. W. Kratter, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, and D. F. Stotz. 2002. Forty-third supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 119:897-906.

_____. 2003 Forty-fourth supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 120:923-931.

_____. 2004 Forty-fifth supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 121:985-995.

_____. 2005 Forty-sixth supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 122:1031-1031.

_____. 2006 Forty-seventh supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 123:926-936.

Department of Land and Natural Resources (DLNR). 1998. Indigenous Wildlife, Endangered And Threatened Wildlife And Plants, And Introduced Wild Birds. Department of Land and Natural Resources. State of Hawaii. Administrative Rule §13-134-1 through §13-134-10, dated March 02, 1998.

Palmer, D. D. 2003. *Hawai‘i’ Ferns and Fern Allies.* University of Hawaii Press, Honolulu. 324 pp.

Pukui , M. K., S. H. Elbert, and E. T. Mookini 1976. *Place Names of Hawaii*. University of Hawaii Press. Honolulu, Hawai‘i. 289 pp.

Puttock, C. F., and C. Imada. 2004. Wetland status list for Hawaiian plants. Final report for U.S. Fish and Wildlife Service, Honolulu.

Reed, P. B. J. 1988. National list of plant species that occur in wetlands: Hawaii (Region H). Biological Report 88(26.13): 88 pp.

Staples, G. W., and D. R. Herbst 2005. *A Tropical Garden Flora: Plants Cultivated in the Hawaiian Islands and Other Tropical Places*. Bishop Museum Press.

Tomich, P.Q. 1986. *Mammals in Hawaii*. Bishop Museum Press. Honolulu, Hawaii. 375 pp.

U.S. Army Corps of Engineers (ACOE). 1987. *Corps of Engineers Wetlands Delineation Manual*. Vol. Tech. Rept. Y-87-1. Environmental Laboratory, Dept. of the Army, Waterways Experiment Station, Corps of Engineers.

U.S. Fish & Wildlife Service (USFWS) 2005. Endangered and Threatened Wildlife and Plants. 50CFR 17:11 and 17:12 (Tuesday, November 1, 2005).

_____. 2007. USFWS Threatened and Endangered Species System (TESS), online at http://ecos.fws.gov/tess_public/StartTESS.do

_____. 2007. National Wetlands Inventory (NWI) maps online at: http://wetlandusfws.er.usgs.gov

Wagner, W.L., D.R Herbst, S.H. Sohmer 1990. *Manual of the Flowering Plants of Hawai'i*. University of Hawaii Press, Honolulu, Hawaii 1854 pp.

Wagner, W.L. and D.R. Herbst. 1999. *Supplement to the Manual of the flowering plants of Hawai'i*, pp. 1855-1918. *In:* Wagner, W.L., D.R. Herbst, and S.H. Sohmer, Manual of the flowering plants of Hawai'i. Revised edition. 2 vols. University of Hawaii Press and Bishop Museum Press, Honolulu.

Appendix C
Archaeological Assessment

ARCHAEOLOGICAL ASSESSMENT OF THE REDEVELOPMENT/EXPANSION OF THE FIRST ASSEMBLY OF GOD CHURCH AND PRESCHOOL KAHALUU *AHUPUA'A*, KOOLAUPOKO DISTRICT ISLAND OF OAHU TMK 4-7-025:008, 026

for
Group 70 International, Inc.
925 Bethel St.
Honolulu, Hawaii 96813

by
Jeffrey Pantaleo, M.A.

August 2007

JEFFREY PANTALEO CONSULTANTS, LLC
3075 Ala Poha Place #1206
Honolulu, HI 96818

MANAGEMENT SUMMARY

Jeffrey Pantaleo Consultants, LLC, of Honolulu, conducted an archaeological assessment (inventory survey with negative results) of a 3.957-acre parcel of land proposed for the Redevelopment/Expansion of the First Assembly of God Church and Preschool in Kahaluu *ahupua'a*, Koolaupoko District, O'ahu Island. The current investigation was conducted to determine presence/absence, nature, and extent of surface archaeological resources and the potential for subsurface cultural remains in the project area and evaluate their significance.

Historical and archaeological background researches were conducted to enhance site predictability and interpretation. A surface survey of the parcel revealed an absence of cultural remains or isolated artifacts and extensive previous disturbances from road and urban development, and filling during dredging of the flood control drainage channel. Due to the absence of surface cultural remains, subsurface testing by backhoe was conducted in selected areas throughout the parcel that were assessable by backhoe. A total of three backhoe trenches were excavated. No cultural remains or deposits were encountered in any of the trenches. Three stratigraphic layers were encountered during trenching. Layer I consisted of silt with various grasses and weeds. Layer II consisted of silt. Layer III was fill material consisting of mottled silty clay with abundant modern debris. Excavation was terminated in Layer III.

Due to the negative results of backhoe testing, together with previous disturbances from road and urban development and filling from dredging of the flood control drainage channel, no further archaeological work is recommended. In the event subsurface cultural remains are encountered during construction, all work in the immediate vicinity shall be halted and the State Historic Preservation Division (SHPD) will be notified.

TABLE OF CONTENTS

	Page
MANAGEMENT SUMMARY	ii
TABLE OF CONTENTS	iii
LIST OF FIGURES	iii
LIST OF TABLES	iii
INTRODUCTION	1
PROJECT LOCATION	1
ENVIRONMENT	1
HISTORY	6
PREVIOUS ARCHAEOLOGY	7
SETTLEMENT PATTERN	9
SITE EXPECTABILITY	9
METHODS	9
RESULTS OF SURVEY	11
DISCUSSION	17
RECOMMENDATIONS	17
REFERENCES	18

LIST OF FIGURES

	Page
Figure 1. Location of Project Area on U.S.G.S. Kaneohe Quadrangle	2
Figure 2. Project Area on TMK Map	3
Figure 3. Top: Overview of Project Area, View to Southwest. Bottom: Project Area Showing First Assembly of God Church, View to West	4
Figure 4. Top: Hollow-Tile Wall in Central Portion of Parcel, View to South. Bottom: Central Portion of Parcel Showing Abandoned Vehicle, View to East	5
Figure 5. Project Area Showing Location of Trenches 1-3	12
Figure 6. Representative Stratigraphic Columns for T1-3	13
Figure 7. Overview of T1, View to Northwest	14
Figure 8. Overview of T2, View to Northwest	15
Figure 9. Overview of T3, View to Northwest	16

LIST OF TABLES

	Page
Table 1. Dimension and Stratigraphic Information for T1-3	11

INTRODUCTION

At the request of Group 70 International, Inc., Jeffrey Pantaleo Consultants, LLC, of Honolulu, conducted an archaeological assessment of the proposed redevelopment/expansion of the First Assembly of God church and preschool in Kahalu'u *ahupua'a*, Koolaupoko District, Oahu Island. According to Hawaii Administration Rules (HAR), Title 13, DLNR, Subtitle 13, State Historic Preservation Rules (DLNR 1998), Chapter 13-284-5, (5) (a)…An archaeological assessment shall include the information on the property and the survey methodology as set forth in Subsections 13-276-5 (a) and (c). The current plans include redevelopment/expansion of the existing church, and construction of a preschool, parking lot, a retreat center, and a covered play court. The current investigation was conducted to determine presence/absence, nature, and extent of cultural resources in the subject project area.

PROJECT LOCATION

The 3.957-acre triangular parcel (TMK 4-7-025: 008, 026) is situated on the windward side of the island of O'ahu, at 'Ahuimanu, Kahalu'u *ahupua'a*, Koolaupoko District (Figure 1). It is bounded by the existing First Assembly of God church and Ahuimanu Road to the south, a concrete lined flood control drainage channel to the west, and Kahekili Highway to the north and east (Figure 2).

ENVIRONMENT

Topography of the project area is characterized by artificially level landscaped terrain. The current landscape is the result of the construction of the First Assembly of God church on the smaller southern portion of the property, and the clearing and filling on the larger northern portion that was related to the construction of Kahekili Highway and the adjacent drainage channel (Figure 3). Major portions of the parcel consist of secondary vegetation that exhibit a marked absence of surface stones and attest to the land clearing and filling activities that took place in conjunction with construction activities (Figure 3). A hollow-tile retaining wall extends east-west through the central portion of the project area (Figure 4). An abandoned vehicle, concrete pipes, and other modern debris cover the central portion of the parcel, and a parking lot and structures associated with the First Assembly church cover the southern end of the parcel (Figure 4). Elevation ranges from 20 to 35 feet above mean sea level. Rainfall averages 60 to 80 inches per year with increased precipitation during the winter months between November and March (Armstrong et al. 1973). Vegetation includes coconut trees *(Cocos nucifera)*, banyon (*Ficus benghalensis*), mango (*Mangifera indica*), guava (*Psidium guajava*), ornamental plants and shrubs, and various grasses and weeds.

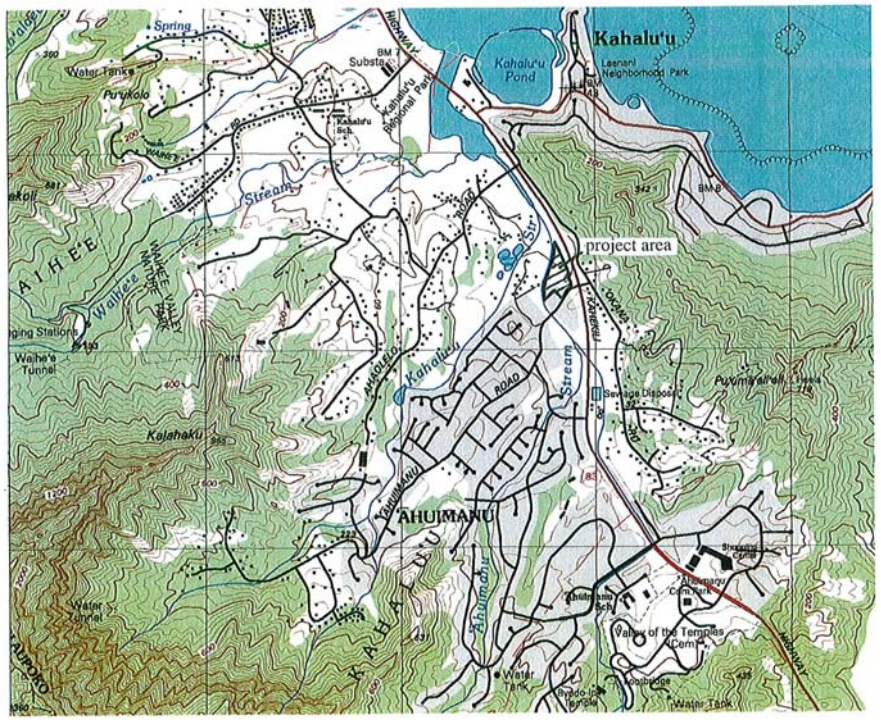


Figure 1. Location of Project Area on U.S.G.S. Kaneohe Quadrangle

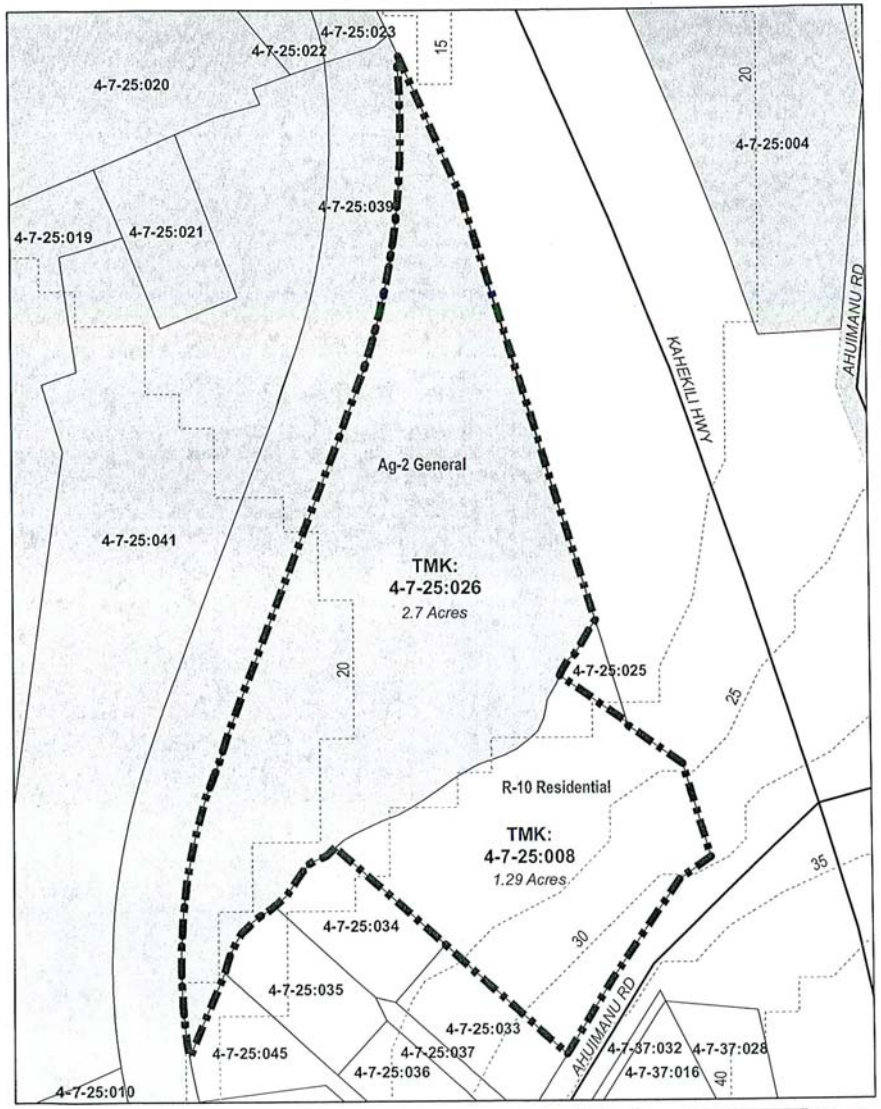


Figure 2. Project Area on TMK Map

Figure 3. Top: Overview of Project Area, View to Southwest.
Bottom: Project Area Showing First Assembly of God Church, View to West

Figure 4. Top: Hollow-Tile Wall in Central Portion of Parcel, View to South.
Bottom: Central Portion of Parcel Showing Abandoned Vehicle, View to East

Soil in the project area includes Hanalei silty clay, 0-2% slopes, which occur on Oahu in small areas of very deep, well-drained alluvial soils and small areas of very poorly drained clay soils that are strongly mottled and underlain by peat, muck, or massive marine clay (Foote et al. 1972:38). The surface layer is dark gray and very dark gray silty clay that has dark-brown and reddish mottles. The subsurface layer is very dark gray and dark-gray silty clay, and the subsoil is mottled, dark gray and dark grayish-brown silty clay. Permeability is moderate, runoff is very slow, and the erosion hazard is no more than slight. This soil is used for taro, pasture, and sugarcane.

HISTORY

Historical background of Kahalu'u and the Koolaupoko region are presented in detail elsewhere (Carson 2003, Perzinski et al. 2001, Lee, pending). For the purposes of the current report, a brief synopsis of Kahalu'u *ahupua`a* and Koolaupoko District is presented here.

Kahalu'u, literally meaning "diving place", is associated with the Ua-po'ai-hale, house-encircling rain, perhaps named by fishermen who used to dive here for fish (Pukui et al. 1974:62). A series of wet taro terraces here are said to be the largest on Oahu.

Ahuimanu literally means "bird cluster". According to Sterling et al. (1978:194-195):

> The name of the area may be roughly translated from the Hawaiian, Ahuimanu, to be referred to as "bunches of birds". It has been said that during the bird season, birds were hunted at Ahuimanu. The hunters, after finding and finally catching the birds, tied them by their legs, and put them in bunches that were hung from the waist of the hunter so he would have his hands free for climbing on the pali. As a result, the area became known as Ahuimanu.

During the Mahele of 1848, the entire *ahupua'a* of Kahalu'u was awarded to Kamakee. In 1850, a total of 75 claims for land were made, of which only 52 were awarded. The current project area includes a portion of L.C.A. 2250 (R.P. 3630). This L.C.A., measuring 4.07 acres, was awarded to Nawaaholo. Land use indicated in the claim included 7 *lo'i*.

In 1848, a Royal Grant from Kamehameha III gave 216 acres in 'Ahuimanu Valley to the French Catholic Church to establish a mission under the directorship of Father Dositheeus Desvault. Only 90 of the acres were usable, while the remainder was too steep for use. The mission remained in 'Ahuimanu until 1880, when it moved to Honolulu and renamed the College of Saint Louis.

Kahalu'u was utilized for fishing, taro cultivation, sweet potato, cattle ranching, sugarcane, rice, and pineapple during historic times. Henry McFarlane set up a dairy farm on the hill above 'Ahuimanu Stream. McFarlane raised cattle at this location until 1896. By 1865, sugarcane was being cultivated in Kaneohe (Devaney et al. 1982). The Kaneohe Sugar Plantation existed between 1865 and 1885 and run by Charles Coffin Harris, Queen Kalama's partner and manager of the plantation. A sugar mill was built from the stones of the Kalaoa Heiau. By 1885, the mill was no longer in use. Sugarcane cultivation continued until around 1880 when Sing Chong Company acquired Kaalaea Plantation and started large scale rice production in Kahalu'u (Perzinski et al. 2001:17). Construction of irrigation ditches turned unusable land into productive agricultural land (Devaney et al. 1982). A rice mill was constructed between 1892 and 1893. However, rice production was short-lived due to contributing factors such as insect infestation and outside competition, and adoption of the Chinese Exclusion Act in 1898, which ended cheap labor.

Following the decline of rice production, pineapple became the dominant crop. Pineapple was produced in Kahalu'u between 1909 and 1926 (Devaney et al. 1982). In 1910, the Hawaiian Cannery Company, later known as Libby, McNeill, and Libby Company, built a cannery in 'Ahuimanu Ranch in Kahalu'u. The cannery was constructed where Haluakaiamoana Heiau previously stood. The location is now occupied by St. John's by the Sea Church.

By 1926, pineapple cultivation ended and was replaced by diversified agriculture including cabbage, radishes, onions, turnips, beans, and lotus root. The remaining rice and taro patches were converted to pastureland and later by residential development.

PREVIOUS ARCHAEOLOGY

No archaeological work was previously conducted in the subject project area. A dearth of archaeological investigations exists for Kahalu'u *ahupua'a*. For detailed information regarding work in Kahalu'u, the reader is referred to Carson (2003) and Perzinski et al. (2001). Only those studies pertinent to the current project area will be included here.

Pertinent work conducted in the vicinity of the project area included Carson (2003), Elmore et al. (2002), Guerriero et al. (2006), Perzinski et al. (2001), Silva (1973), and Tuggle (1974).

Carson (2003) conducted an archaeological inventory survey of the proposed garden of valor expansion parcel of the Valley of the Temples Memorial Park. No significant archaeological or historical sites were identified in the parcel, and no further work was recommended.

Elmore et al. (2002) conducted archaeological inventory surveys for properties located at TMK 4-7-07:28, 29, and 30. No significant archaeological sites were identified in all of the parcels, and no further work was recommended.

Guerriero and Kennedy (2006) conducted an archaeological inventory survey at TMK 4-7-05:60, at Ahuimanu, Kahalu'u *ahupua'a*, Koolaupoko District. Sites 50-80-10-6709 and 6710 were recorded. Site 6709 consisted of a *lo'i* terrace and an *'auwai*, and Site 6710 consisted of a *lo'i*. Results of subsurface testing at Site 6709 revealed a buried pond field. Artifacts recovered from the surface included three modified basalt choppers and two historic glass bottle fragments. Sites 6709 and 6710 were assessed significant under Criterion D, and monitored during construction activities.

Perzinski, Perzinski, and Hammatt (2001) conducted an archaeological inventory survey for proposed beach park improvements at Kahalu'u Beach Park, Kahalu'u and Waihe'e *ahupua'a*, Koolaupoko District. Seven backhoe trenches were excavated within the 0.662-acre portion of the park slated for improvements. Results of testing revealed Site 50-80-8-5880, remnants of two historic structures. Feature A was a remnant concrete foundation associated with the "Flying A Service Station", which existed in the area from 1935 until it was demolished in 1974 or 1975. Feature B was a remnant of an oil crushed coral foundation associated with Miyashiro's Store, which existed in the area during the early 1900s until it was demolished in 1974 or 1975. Feature C was an intact cesspool constructed between 1930 and 1940, probably associated with the Takuban or Horie family house site. Due to lack of integrity, Site 5880 was not considered significant, and no further work was recommended.

Silva (1973) identified the Ahuimanu Terrace Complex Site 50-80-10-1165, "...an extensive system of irrigated agricultural terraces along the valley floor around the Ahuimanu Stream, with scattered small residential and other features (1973:7-21). Tuggle (1974) subsequently conducted excavations, revealing "...evidence of agricultural soils associated with the [terrace] feature construction located on top of natural alluvial deposits" (1974:2).

SETTLEMENT PATTERN

The marked paucity of pertinent data makes drawing conclusions about the prehistoric demography of Kahalu'u *ahupua'a* difficult. A tentative settlement pattern for Kahalu'u *ahupua'a* can be inferred from the information gleaned from the historical and archaeological summaries, as well as the results of work done neighboring areas.

Initial settlement in Kahalu'u probably occurred between A.D. 900 to 1100 along the coastal plains and coastal areas in the vicinity of *heiau*, fishponds, koa, and fresh water sources with dispersed habitation among agricultural systems in the inland areas. Due to population and political pressures, permanent habitation expanded in the inland valleys to intensify agricultural production. By the late pre-Contact period, the agricultural field systems, including the 'Ahuimanu Terrace Complex", extended from the base of the Ko'olau mountains to the sea. Based on the number of *heiau* and evidence of extensive agricultural production, Kahalu'u *ahupua'a* probably supported a large population.

SITE EXPECTABILITY

Based on the results of previous archaeological work and historical research in Kahalu'u *ahupua'a*, features associated with temporary habitation and agriculture may be expected in low densities. Types of features would include irrigated and dryland agricultural terraces, *'auwai*, and temporary and permanent habitation. Remains of walls, fences, corrals, and other features associated with historic period ranching activities may also be present. However, the wide-ranging effects of compounded previous impacts from road and commercial development, together with dredging of the adjacent canal, are also anticipated. Thus, remnant structural features, in areas not previously impacted, as well as subsurface cultural remains may be the most likely findings.

METHODS

Archaeological and historical literature and documents researches were undertaken to enhance the predictability of the nature and extent of potential cultural resources in the subject area. These researches were conducted at the State Historic Preservation Division (SHPD) library of the Department of Land and Natural Resources (DLNR) in Kapolei, and the Bureau of Conveyances and Land Management Branch of DLNR.

The surface survey was conducted by walking systematic transects spaced at 1-5 meter intervals throughout the project area. Results of the surface survey revealed no surface cultural manifestations. The ensuing subsurface testing employed a wheeled backhoe with a 24" bucket. Three backhoe trenches were placed in selected localities to allow representative sampling of the project area. The location of each trench was plotted onto the project area map using tape and compass. A stratigraphic profile of a representative column on a trench sidewall was recorded for each trench. A color photographic record on APS format was obtained for each trench and soil colors were described in reference to Munsell color designations. Project area overviews were also photographically recorded. Mr. Jeffrey Pantaleo, M.A., conducted the fieldwork on July 11, 2007.

All procedures followed generally accepted archaeological methods and standards. All field notes, maps, and photographs generated in connection with the current project will be curated at Jeffrey Pantaleo Consultants, LLC, in Honolulu.

RESULTS OF SURVEY

No cultural remains were encountered during the surface survey. The parcel exhibited extensive previous disturbances from road and urban development and filling during dredging of the drainage channel. A total of 3 backhoe trenches were excavated for the purpose of sampling the subsurface conditions of the parcel (Figure 5). Location of the trenches was limited to areas accessible by backhoe. No cultural remains, either prehistoric or historic, were encountered in any of the trenches.

Table 1 presents the dimensions and stratigraphic information for each of the 3 trenches. Representative stratigraphic columns for T1 through T3 are depicted on Figure 6. Figures 7-9 present photographic overviews of selected trenches.

Three stratigraphic layers were encountered during trenching. Layer I consisted of loose, crumbly silt with various grasses and weeds. Layer II consisted of slightly compact silt. Layer III consisted of fill material consisting of mottled silty clay loam with abundant modern debris. Excavation was terminated in Layer III.

Table 1. Dimension and Stratigraphic Information for T1-3

T-	Length	Width	Depth	Orient.	Layer I	Layer II	Layer III	Cultural
1	6.0m	0.7m	2.0m	130/310	silt	silt	fill	none
2	6.0m	0.7m	2.0m	125/305	silt	silt	fill	none
3	6.0m	0.7m	2.0m	125/305	silt	silt	fill	none

The stratigraphic components of T1-3 were:

Layer I was brown to very dark brown to dark reddish-brown (10YR 4/3 – 2.5YR 2.5/3 – 5YR 3/3), loose, crumbly, fine, dry, non-plastic, non-sticky, silt with abundant roots/rootlets and minimal rocks.

Layer II was dark yellowish-brown to yellowish-brown (10YR 3/6 – 5/4 – 5/6), loose, fine, dry, slightly compact, non-sticky, silt with minimal rootlets and rocks.

Layer III was fill material consisting of very dark grayish-brown to dark brown to red (10YR 3/2 – 3/3; 2.5YR 4/6), moist, slightly sticky, non-plastic, fine, compact, mottled, silty clay loam with minimal rootlets and rocks and abundant modern debitage including glass bottle sherds, metal, plastic, ceramics (red-on-white, blue-on-white, green-on-white, white; floral, landscape and geometric designs), a marble, red tiles, wire, pvc pipes, perfume bottles, and cosmetic bottles and jars.

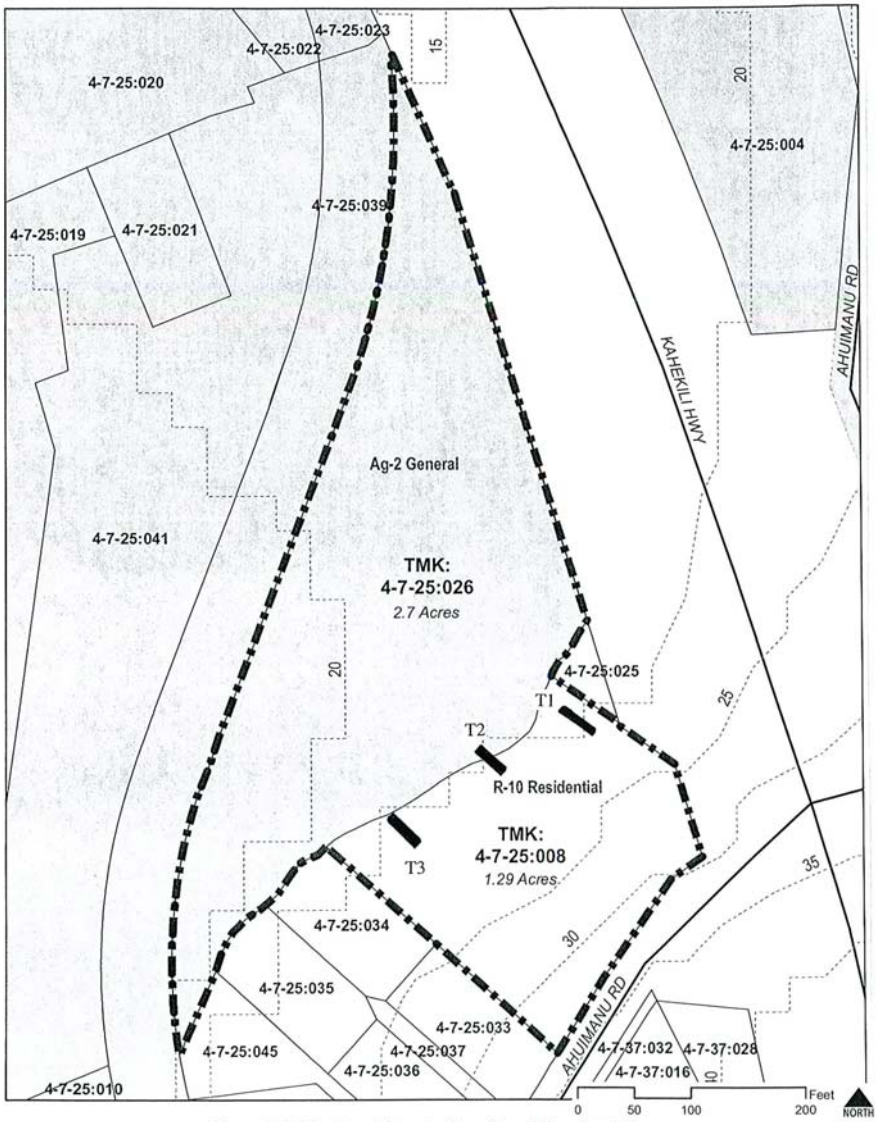


Figure 5. Project Area Showing Location of Trenches 1-3

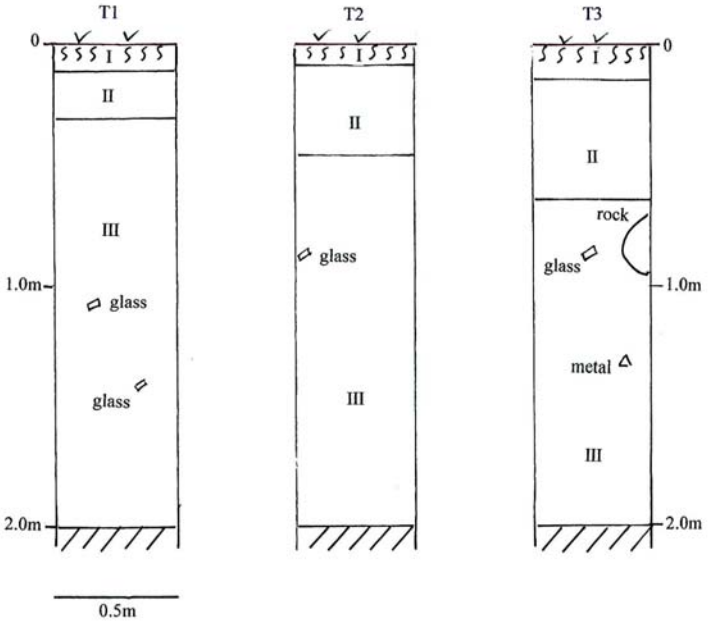


Figure 6. Representative Stratigraphic Columns for T1-3

Figure 7. Overview of T1, View to Northwest

Figure 8. Overview of T2, View to Northwest

Figure 9. Overview of T3, View to Northwest

DISCUSSION

The results of the current archaeological assessment were negative for surface cultural remains. However, the adverse effects of construction of the First Assembly of God church on the smaller southern portion of the property, and of extensive regrading and filling of the larger northern portion from construction of Kahekili Highway and the drainage channel, may have effectively impacted and destroyed any surface manifestations that once existed. Subsurface testing was also negative for buried intact cultural remains. However, due to inaccessibility in the northern portion of the parcel and development including the First Assembly church and a parking lot in the southern end of the parcel, testing was limited to the central portion of the parcel.

Three stratigraphic layers were encountered during trenching. Layer I consisted of silt with various grasses and weeds. Layer II consisted of silt. Layer III was a modern fill layer consisting of mottled silty clay loam with abundant modern debris including glass, plastic, metal, and ceramics. This fill layer is probably associated with construction of Kahekili Highway and dredging of the drainage channel during the late 1960s and early 1970s, and construction of the First Assembly of God church. During the early 1970s, the canal was dredged to reduce flooding (Perzinski et al. 2001:29). The dredging material was probably deposited in the current project area, raising the land surface. These events had a major impact on the depositional history of the project area, destroying or burying any evidence of previous land use.

RECOMMENDATIONS

Due to the negative results of the current investigation, together with extensive previous disturbances from road and commercial development and filling from dredging the canal, no further archaeological work is recommended. The entire parcel was previously filled during dredging of the canal and construction of the First Assembly of God church; thus, any remains that may have existing in the parcel are either buried under fill or were destroyed.

REFERENCES

Armstrong, R. Warwick (editor)
1973 *Atlas of Hawaii*. Department of Geography, University of Hawaii. University Press of Hawaii, Honolulu

Carson, M.
2003 *Archaeological Inventory Survey of the Proposed Garden of Valor Expansion Parcel, Valley of the Temples Memorial Park, He'eia Ahupua'a, Island of Oahu, State of Hawaii (TMK 4-7-07:001)*. International Archaeological research Institute, Inc., Honolulu

DLNR (Department of Land and Natural Resources)
1998 Hawaii Administrative Rules, Title 13, Department of Land and Natural Resources, Subtitle 13, State Historic Preservation Rules

Devaney, D., M. Kelly, P.J. Lee, and L. Motteler
1982 *Kaneohe, A History of Change*. The Bess Press, Honolulu

Elmore, M., J. Moore, J. Kennedy
2002 *An Archaeological Inventory Survey Report for a Property Located at TMK 4-7-07:28 in Ka'alaea Ahupua'a, Ko'olaupoko District, Island of Oahu.* Archaeological Consultants of the Pacific, Haleiwa

2002 *An Archaeological Inventory Survey Report for a Property Located at TMK 4-7-07:29 in Ka'alaea Ahupua'a, Ko'olaupoko District, Island of Oahu.* Archaeological Consultants of the Pacific, Haleiwa

2002 *An Archaeological Inventory Survey Report for a Property Located at TMK 4-7-07:30 in Ka'alaea Ahupua'a, Ko'olaupoko District, Island of Oahu.* Archaeological Consultants of the Pacific, Haleiwa

Foote, Donald et al.
1972 *Soil Survey of Islands of Kauai, Oahu, Molokai, and Lanai, State of Hawaii.* U.S. Department of Agriculture, Soil Conservation Service. U.S. Government Printing Office, Washington D.C.

Guerriero, D., and J. Kennedy
2006 *An Archaeological Inventory Survey Report for a Property Located at TMK 4-7-05:60, at 'Ahuimanu in Kahalu'u Ahupua'a, Koolaupoko District, Island of Oahu.* Archaeological Consultants of the Pacific, Inc.

Handy, E.S.C.
1940 *The Hawaiian Planter*. Volume 1, Bishop Museum Bulletin No. 161. Bishop Museum Press, Honolulu

Handy, E.S.C., and E.G. Handy
1972 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*. Bernice P. Bishop Museum Bulletin No. 233. Bishop Museum Press, Honolulu

Kennedy, J.
1989 *Limited Subsurface Testing and Monitoring: Portion of Ahuimanu Taro Complex/Kahaluu Taro Complex*. Archaeological Consultants of the Pacific, Haleiwa

Perzinski, M., D. Perzinski, and H. Hammatt
2001 *Archaeological Inventory Survey Report for Proposed Beach Park Improvements at Kahalu'u Beach Park, Kahalu'u, Ahupua'a of Kahalu'u and Waihe'e, District of Koolaupoko, Island of Oahu (TMK 4-7-12:13)*. Cultural Surveys Hawaii, Inc.

Pukui, M.K., S.H. Elbert, and E.T. Mookini
1974 *Place Names of Hawaii*. University of Hawaii Press, Honolulu

Shun, K.
1992 *Archaeological Monitoring Wastewater Pumping Station, Laenani Beach Park, Kahaluu, Koolaupoko, Island of Oahu (TMK 4-7-10-17)*. Archaeological Associates Oceania, Kaneohe

Silva, T.E.
1973 *Ahuimanu: An Ancient Hawaiian Agricultural System. A Preliminary Site Report.* Manuscript on File at the Hawaii State Historic Preservation Division, Kapolei

Sterling, E., and C.C. Summers
1978 *Sites of Oahu*. B.P. Bishop Museum, Department of Anthropology, Honolulu

Tuggle, H.D.
1974 *Preliminary Report on Archaeological Excavations of the Ahuimanu Terrace Complex*. Manuscript on File at the Hawaii State Historic Preservation Division, Kapolei

Appendix D
Cultural Impact Assessment

Cultural Impact Assessment for the First Assembly of God Windward and Church Redevelopment/Expansion

for
Group 70 International, Inc.
925 Bethel St.
Honolulu, Hawaii 96813

by
Moana Lee

August 2007

JEFFREY PANTALEO CONSULTANTS, LLC
3075 Ala Poha Place #1206
Honolulu, HI 96818

Introduction

The First Assembly of God is proposing to completely replace its existing buildings and facilities at its Windward O`ahu Church in Kahalu`u. All new facilities would be built on the existing nearly 4-acre site that is owned by the church.

The project site is located along Kamehameha Highway a short distance to the south of the confluence of Kahalu`u and `Ahuimanu Streams, about one-half mile south of Kahalu`u Fishpond. At the intersection of `Ahuimanu Road and Kahekili Highway, the address is 47-323 `Ahuimanu Road.

Cultural and Historical Background

Mo`olelo and Traditional Land Use

In *Place Names of Hawaii,* Puku`i defines *Kahalu`u* as, "the diving place". Perhaps it is best illustrated by the two stories of how the islands of Ahu a Laka and Kapapa became included in the Kahalu`u fishery (Fig. 1).

In one story, the gods of Kualoa and Kailua do battle over fishing rights. The men of Kualoa were fishing in Kailua Bay thus leaving the people to die for lack of food. The god of Kailua calls the god of Kualoa to battle and wins. The island Ahu a Laka is placed in the bay where men could see it when they round the point. When the sand appears above the waves it is time to turn around.

In another story, the *ahupua`a* belongs to Mauiakalana. Kahalu`u, a land of many sources of food, was in dispute, especially the islands of Ahua and Kapapa where octopus and uhu were caught.

Waiahole and Waikane are taken as the boundaries for the high priest and the judges' helper. The judges have a rule against defilement. Should any of them be smeared by excretia, he would cease to handle sacred objects or participate in their work. Mauiakalana built a mound and made 7 ridges in it and hid some excretia in the mound. He met up with the judges' helpers and told them that he had hid a great treasure in the mound. The first to dig it up quickly will be the one to get the treasure.

They went to dig for the treasure, carelessly, they became dirty. Ashamed, the helpers left their sacred offices. It is in this way that Ahua a Laka and Kapapa became the property of Kahalu`u.

There are few records that remain on the locations of *heiau* in Kahaluu. Although none of the *heiau* remain today, Sterling and Summer in *Site of Oahu*, name 4 *heiau* in Kahaluu. They are as follows:

> *Halukaiamoana Heiau*
> *The canning factory was built on the heiau, of which nothing now remains. The failure of the cannery is credited to the desecration of this old temple.*
>
> *Kalaeaalakihi Heiau*
> *This heiau is on a small point of land on the side of the government road, Kahaluu. This was probably a small fisherman's temple because of its proximity to the sea. It was destroyed during the building of the road.*

Kailikahi Heiau
Princess Kailikahi named for her beautiful skin and hair. She was buried alive as a sacrifice on the heiau. She was stolen from some chief.

Heiau
Rocks that formed a terrace facing the sea are still to be seen. They now form a facing 50 feet long with a 20 foot slope 8 feet high. A small portion is rather evenly faced to a height of 2 feet. Rough angular stones were used, averaging 3 to 4 inches in size. Though there are some larger ones, the terrace was probably not more that 25 feet wide...

At one time Kahalu`u was cultivated in taro having extensive *lo`i* along the three streams that ran through the wetlands. At the time of the *mahele* there were 7 land commission awards in the immediate area of the project. All claimants claimed a number of *lo`i* and a house lot. The specific area of the project was LCA 2250, R.P. 3630, and the claimant was Nawaaholo (Fig. 2). He/She claimed 4.07 acres of this land and testified the following:

"4 patches, is bounded on Kaneohe side by Nahelehela, mauka by Kukae's land, Waiahole side and makai by a stream." He/She claims a total of 7 lo`i in Kahaluu.

Another claimant next to Nawaaholo is Kukae. He claims (LCA 2245):

"3 lo`i and 1 house lot and the mauka farm patches adjoined by those of Kai and Kanekoa. 2 lo`i adjoin Kahuawaa in the `ili of Kapia."

Kupau, next to Nawaaholo and Kukae claims (LCA 2230):

"4 lo`i are in the `ili of Kanekoa, adjoining the lo`is of Nawaaholo and Punahoa. They are next to the stream, Kahaluu, Island of Oahu, There are 6 lo`i in my own land. Paahakili is the name of this `ili; also there is a pond at the shore. It is adjacent to the seashore area of Pakole, --on the east is the point of Kaihuaha, on the southeast is the pali, on the west is a kula. There is also an upland place called Olohana, on the east is Mahani, on the south is the upland Olohana, on the northeast is the upland of Poonahohoa, on the west is the pali of Kalahiku. There is also a kula adjoining that of Houna and the kula of Kapia. Some of my lo`is are in the `ili of Pukiki. They are next to the stream and our houses and some weed grown lo`is which I believe are mine."

By the 1920's, most of the *lo`i* of Kahaluu were either neglected or cultivated by Orientals. In 1923, Handy writes:

"Kahaluu Stream after which the ahupua`a is named, is joined a quarter of a mile from the sea by a small stream named Kalohaka; about three quarters of a mile from the sea it is joined by Ahulumanu, which in its turn, is amplified three quarters of a mile farther inland by Waiola Stream. It was from all these streams that the water was taken to irrigate the lower flats of Kahaluu which are continuous with those of Waihee. Kahaluu Stream extends back to the Koolau Range through a broad valley. There must have been terraces throughout the broad part of the valley for several miles inland. Some of those in the lower portion of the valley are cultivated now; most of them are neglected.

Dry taro, now flourishing on the kula land between Kahaluu and Ahuimanu Stream's is all planted by Orientals. There was no planting of this sort here in the old days."

Other types of agriculture also came to Kahaluu. In 1911, Libby, McNeill & Libby established a cannery in Kahaluu in the area that is now known as Pineapple Hut. Pineapple grows best in temperate climate so the uplands and the gentle slopes of Kahaluu, Waihee and Ahuimanu were thought to be perfect for the planting of pineapple. However, the lower portion of the valley, including the project area, was never planted in pineapple.

Community Interviews
On June 21st I went to meet some to the neighbors in the area to seek out those that might have knowledge of any cultural uses or activities that could be affected by the project. I did not get to meet all of the neighbors on either of the two visits that I took to the immediate community adjacent to the church. However, that Thursday I did meet with several of the neighbors and was able to talk to a few of them quite candidly. I had wanted to make an appointment to come back to see them; most of them declined but were amenable to talking to me at that time. One of the neighbors, the Kupau family did allow me to return to talk story with them on the following Sunday, June 24th.

Debbie and Harold (last name withheld) live in the apartment complex directly across `Ahuimanu Road from the church. They have not been living there very long but thought that the expansion of the church would not impact their lives in any negative way. One of the concerns that they did have was if the basketball court was going to be opened at night. Their concern was that "there were too many chronics in the area" and they might use it as a hangout. They said that right now there were no lights in the church at night and that there were people using the parking lot as a hangout. Some of them were known to be "chronics". They do not know of any cultural or community activities that might be impacted by the project.

Carrie Asing has lived on `Ahuimanu Road for only 3 years and she has no knowledge of any cultural use or cultural activities in the area. She did mention that there is a Hawaiian Sovereignty group that lives across the highway.

The Kupau family was kind enough to invite me back on the following Sunday so we could have more time to talk about the project. The head of the family, Lloyd and his two sons, Buddy and John were very candid about their thoughts of the project and had a lot of knowledge of the area. They have been living in Kahalu`u for 25 years. They had moved here before the canal was built. They said before the canal was built, every year the area flooded. The stream used to run in front of the church, but after the canal was built, it was built behind the houses and it cut the Awah's land in half. This means that the stream was re-routed. The land that the church now owns used be owned by the Awah family Some years ago Mr. Awah used to keep his horse on the lot. Lloyd said that the land is all backfill from the canal and it is like clay back there. The land there is all marshy, it is like a sponge every time it rains. It doesn't drain well. Buddy and John reminisced about jumping their bikes off of a ramp and landing in the mud. Even when it isn't raining, it is wet.

There are several very large trees there and Lloyd likes having them there. There are fruit trees that he would like to have stay there. He mentioned jackfruit, common mango and kukui. He also mentioned that at one time or another, there have been some people harvesting the fruit. He also said that the trees protect the houses from big winds. He said "without the trees, the roof would have flown off in the last big winds. Lloyd's motto is, "Do not kill trees to park cars."

They do see an eventual problem with the traffic during the day from the preschool. He suggests that they do not allow parents to pick up on the road. This would cause a traffic jam on both sides.

The Pauole family only expressed concern for safety issues. They want to make sure that there is appropriate fencing and gates. They would prefer to have entrances blocked at night because they are concerned that the parking lot will turn into a hangout for undesirable people. They do not want an open play court at night. They were not aware of any cultural uses or activities that might be impacted by the project.

Deborah Bohol lives next to the Kupau, Asing and Pauole families. She and her family have lived in Kahalu`u for 18 years. She does not know of any cultural uses or activities that might be impacted by the project.

The only two negative comments about the project came from the neighbors that are the most affected by the project. Both Polly Yamamoto and Filomena Parubrub have serious concerns that the road to the parking lot is being built next to their house. They are very concerned with the drainage problem and how a hard surface is going to impact the lack of adequate drainage. Without adequate drainage, much of the water will flow into their yards. They did not know of any cultural uses or activities that might be impacted by the project.

Conclusion

Although Kahalu`u had been known for the extensive wetland taro cultivation, by the 1920's much of the *lo`i* lay neglected. What taro cultivation was being cultivated was by the Orientals. This particular piece of land was once known as LCA 2250, claimed by Nawaaholo. When he made his claim in 1847 much of Kahalu`u was planted in taro.

The immediate neighbors and those in the vicinity of the project area are unaware of any cultural uses or activities associated with the project. Perhaps the largest impact taro cultivation had in the area was the building of the canals. During the time of the mahele, claimants described their land bounded by a stream on at least one side. Access to the stream is an important feature of *lo`i* as it is the major water source for wetland cultivation. `Auwai or irrigation ditches usually draws directly off of a stream. The destruction and rerouting of the stream stopped the possibility of remaking any taro *loi*.

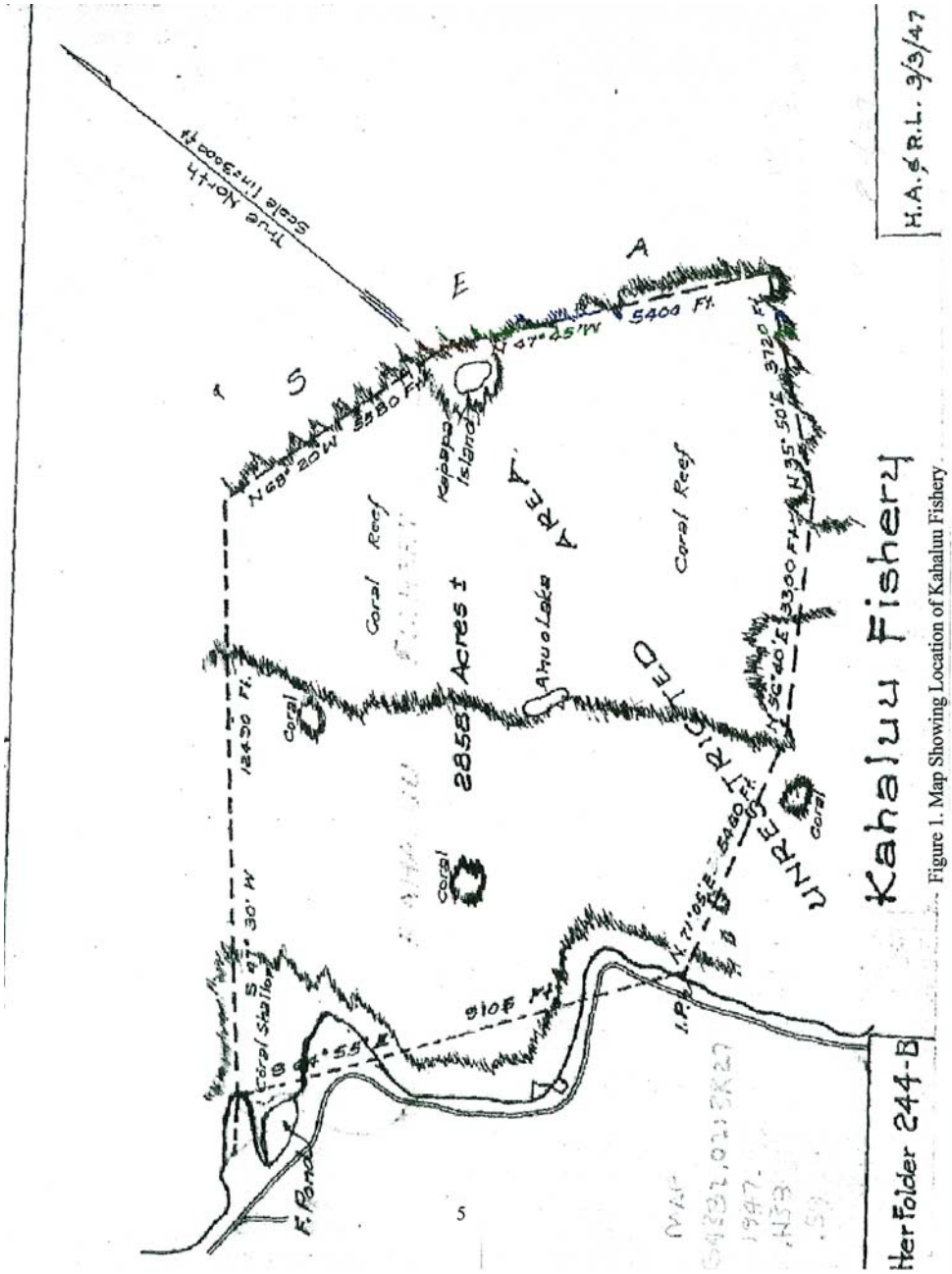


Figure 1. Map Showing Location of Kahaluu Fishery

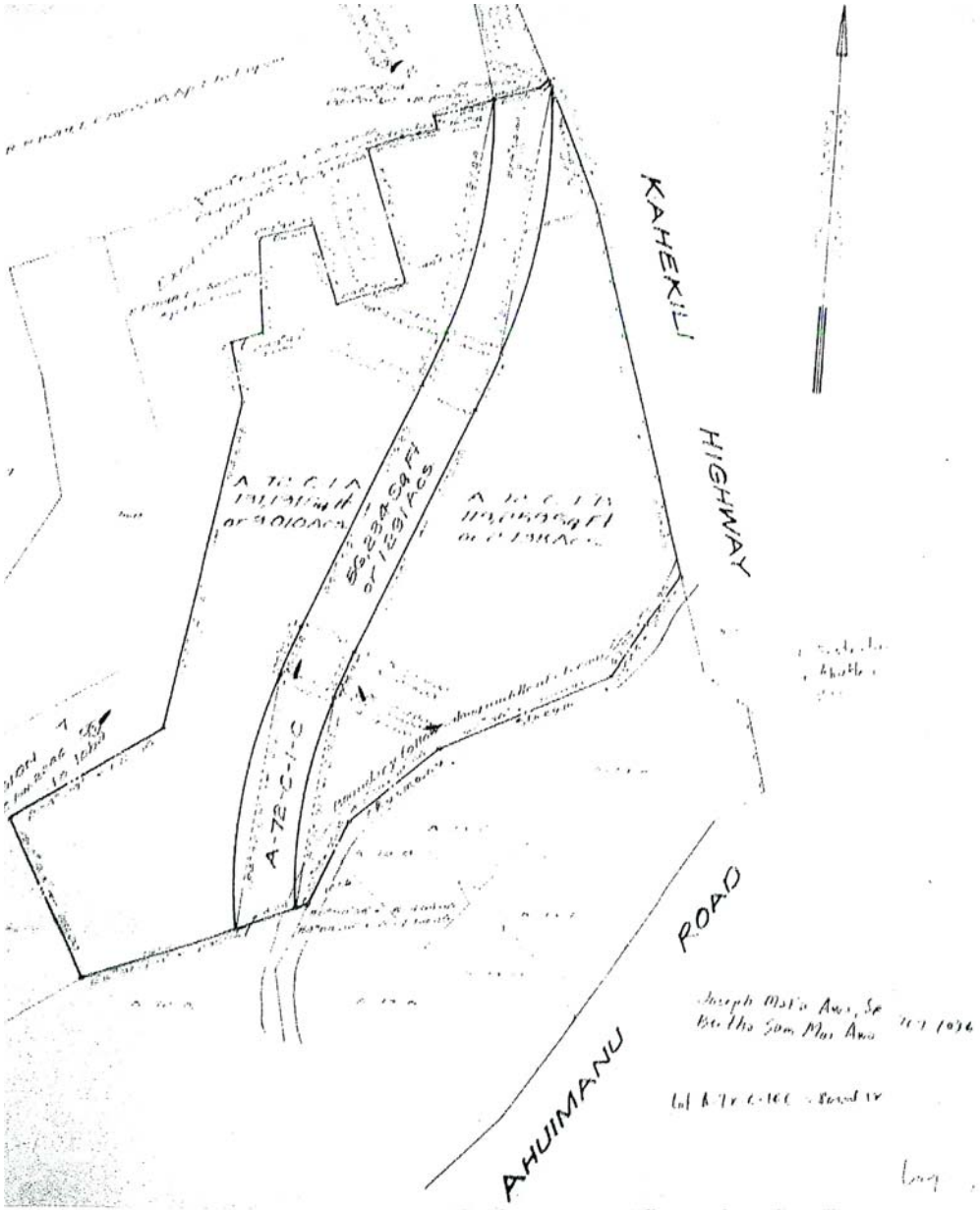


Figure 2. TMK Showing Project Area

Appendix E

First Assembly of God Windward Church

Current Community Outreach

MEMORANDUM

TO: Ralph Portmore
FROM: Pastor Janet Kusuhara
DATE: August 7, 2007
RE: **First Assembly of God Windward – Current Community Outreach**

The First Assembly of God (FAOG) Windward Church was established in October 1999 when FAOG was asked by the Hawaii District of the Assemblies of God if we would adopt Mt. Zion Assembly of God because their pastor had passed away. We began with 25 adults and 15 children. Currently we have grown to 151 attendees.

Our vision for First Assembly of God is "A Passion for the Lord and a Vision to Reach the Lost." Our goal is to reach out and impact our community in general, without consideration of church membership.

In touching the poor and needy of our community, our target groups are as follows:

(1) Homeless in the Kahalu'u and Surrounding Areas

a. Our "Food for Friends" is a program, in cooperation with the Hawaii Food Bank, providing canned foods, fresh produce as available, household items, personal items and children's items for those who are in need. But we go a step further. Once a month, on the fourth Saturday, we not only provide these items, we also feed our friends with a wholesome, hot meal. This is conducted in the parking area across the stream from Liven Hawaii. Also, we box up items and take them, along with the hot lunch, to those that are homeless in Kualoa Beach Park as well as the Waiahole area. Not only is this done once a month, but also for special seasonal outreaches such as Thanksgiving and Christmas where families within our church have donated turkeys, hams and complete meals for those that are struggling to feed their families. In our last outing on Saturday, July 28, our feeding program has grown to over 80 meals being served and relationships are being established.

b. We have been chosen by the Hawaii Food Bank to be a distribution center on the Windward side.

(2) Disadvantaged Families

a. We have also partnered with the Waiahole Waikane Community Assoc. to help distribute boxes of food and personal items to 37 disadvantaged families and have targeted single mothers to assist them, delivering various children's and baby needs including diapers, wipes, baby formula, etc.

b. When the Waiahole area suffered a major water main break, the church distributed cases of bottled water to those families who were affected.

c. After a major windstorm, again we partnered with WWAC to clear the roads of fallen debris in order to open the roads.

d. In years past, we have worked together as a church to purchase school items for those children whose families are not able to purchase these items. This year we will be helping Kahalu'u Elementary School.

(3) Community Projects

a. Last year we adopted Hookipa Housing as a special outreach for the entire year. During that time we painted the outside of a building; striped the parking lot; demolished one kitchen for renovation; painted the inside interior of two apartments; replaced the basketball rims and power-washed the court; power-washed the steps and sidewalks; cleaned out one apartment of household items; cleaned out large items, tore them apart and took to the dumpster.

b. We assisted with a movie night for the youth and plan to do more.

c. We are making plans to build a deck for a family with two handicapped children.

d. We are a part of the quarterly Adopt-a-Highway program cleaning two miles of highway in front of the church.

e. For the last two years we have conducted an Easter Egg Hunt at the Ahuimanu Community Park where we were able to meet over 400 families. This year we also conducted an Easter Egg Hunt at Waiahole Beach Park where over 500 were in attendance. In that outreach, we had games, a petting zoo, gave out 20 bicycles, foods of different kinds, shave ice, ice cream, bouncers for children. We even had a "Dog the Bounty Hunter" look-alike to speak to the kids about making right choices. Our goal was to get to know more of the community and let them get to know us. Because of their desire to touch people, these outreaches were accomplished by the members of FAOG Windward family.

f. For three years during the Christmas season, we have produced a Christmas luau where over 500 have been fed.

Appendix F
Traffic Impact Analysis Report

TRAFFIC IMPACT ANALYSIS REPORT FOR THE PROPOSED

FIRST ASSEMBLY OF GOD – WINDWARD OAHU REDEVELOPMENT AND EXPANSION

KANEOHE, OAHU, HAWAII

TAX MAP KEY: 4-7-25: 12 & 37

PREPARED FOR

GROUP 70 INTERNATIONAL, INC.

JUNE 20, 2007

PREPARED BY

THE TRAFFIC MANAGEMENT CONSULTANT
RANDALL S. OKANEKU, P.E., P.T.O.E., PRINCIPAL • 1188 BISHOP ST., # 1907 • HONOLULU, HI 96813

Table of Contents

Page

I. Introduction 1
- A. Project Description 1
- B. Purpose and Scope of the Study 3
- C. Methodologies 3
  - 1. Capacity Analysis Methodology 3
  - 2. Trip Generation Methodology 5

II. Existing Conditions 5
- A. Roadways 5
- B. Existing Peak Hour Traffic Volumes and Operating Conditions 6
  - 1. Field Investigation and Data Collection 6
  - 2. Existing Weekday AM Peak Hour Traffic 6
  - 3. Existing Weekday PM Peak Hour Traffic 6
  - 4. Existing Sunday Peak Hour Traffic 6

III. Future Traffic Conditions Without Project 8
- A. External Traffic 8
- B. Weekday AM Peak Hour Traffic Analysis Without Project 8
- C. Weekday PM Peak Hour Traffic Analysis Without Project 8
- D. Sunday Peak Hour Traffic Analysis Without Project 8

IV. Traffic Impact Analysis With Project 8
- A. Site-Generated Traffic 8
  - 1. Trip Generation Characteristics 8
  - 2. Site Trip Distribution 11
- B. Weekday AM Peak Hour Traffic Impact Analysis With Project 11

Table of Contents (Cont'd.)

Page

C. Weekday PM Peak Hour Traffic Impact Analysis With Project 11

D. Sunday Peak Hour Traffic Analysis With Project 11

V. Recommendations and Conclusions 11

A. Conclusions 11

B. Recommendations 14

List of Figures

Page

Figure 1. Location and Vicinity Map 2

Figure 2. Site Master Plan 4

Figure 3. Existing Peak Hour Traffic 7

Figure 4. Peak Hour Traffic Without Project 9

Figure 5. Peak Hour Site-Traffic Assignments 12

Figure 6. Peak Hour Traffic With Project 13

TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED

FIRST ASSEMBLY OF GOD – WINDWARD OAHU REDEVELOPMENT AND EXPANSION

KANEOHE, OAHU, HAWAII

TAX MAP KEY 4-7-25: 008 & 026

I. Introduction

A. Project Description

First Assembly of God – Windward Oahu is located at 47-323 Ahuimanu Road in Kaneohe, Oahu, Hawaii. The site is located on the northwest corner of the intersection of Kahekili Highway and Ahuimanu Road. The 3.99-acre property is identified as Tax Map Key 4-7-25: 008 & 026. Existing site access is located on Ahuimanu Road. The proposed site plan would relocate the access driveway further mauka, to the west boundary of the property. Figure 1 depicts the vicinity map. The site redevelopment plan is depicted on Figure 2.

The proposed development plan includes: the demolition of the existing sanctuary building and the construction of a new sanctuary building, which will accommodate up to 550 seats with a total of about 10,992 square feet of gross floor area (SFGFA): a 3,760 SFGFA pre-school; five adult classrooms totaling 3,000 SFGFA; a retreat center consisting of 14 cabins, which could accommodate up to a total of 100 persons; and a 6,960 square foot covered basketball court and a 3,600 SFGFA multi-purpose building. The planned redevelopment and expansion are expected to be completed by the Year 2013.

The development plan also includes a parking lot with approximately 80 stalls. The playcourt and playfield can be made available for overflow parking on Sundays and during special events.

Sunday services currently begin at 10:15 AM and end at 11:30 AM with an attendance of about 110 persons. Future plans include an additional 8:00 AM to 9:45 AM service and a 10:15 AM to 12 Noon service, with anticipated attendances of 300 persons at each service. Sunday School also will be held at the same time as the worship services for an average attendance of 100 people and a maximum of 150 people.

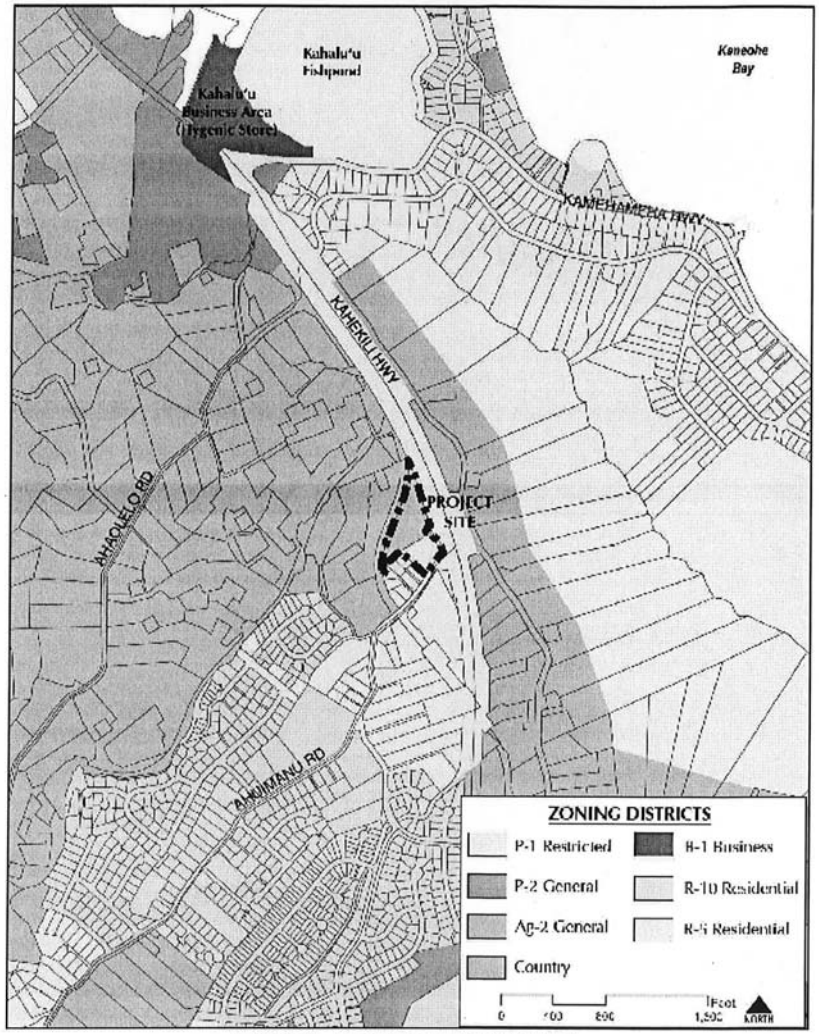


Figure 1. Location and Vicinity Map

The proposed preschool would accommodate up to 60 children, and operate between 6:00 AM and 6:00 PM, with classes beginning at 8:00 AM and ending at 4:30 PM. A preschool staff of up to eight persons is anticipated.

During the weekdays, adult classes/meetings will be held for an average of about 60 persons. The classes/meetings would occur at approximately 7:00 PM, or well after the PM peak hour of traffic. The types of meetings may include Bible study, Scout meetings, support groups, and community groups.

The covered play court will be open to the community, when not being used by the Church or the preschool.

The retreat center will accommodate up to 100 people. Retreats will generally run from one day to five days, with attendees and staff staying overnight in the cabins for multi-day retreats. Most sessions will start at around 9:00 AM and finish in the evening around 8:00 PM.

B. Purpose and Scope of the Study

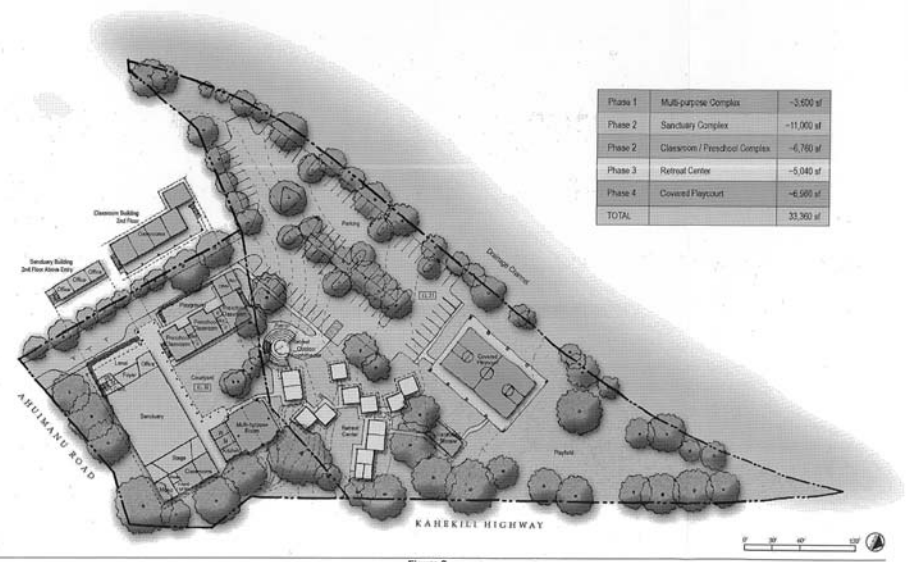
The purpose of this study is to analyze the traffic impacts resulting from the proposed redevelopment and expansion of the First Assembly of God – Windward Oahu. This report presents the findings and recommendations of the study. The scope of this study includes:

1. Evaluation of existing roadways and traffic conditions.
2. Development of the trip generation characteristics of the proposed project.
3. Analysis of the 2013 traffic conditions without the proposed project.
4. Identification and analysis of traffic impacts resulting from the development of the full build-out of the proposed project.
5. Recommendation of measures, as necessary, that would mitigate the traffic impacts identified in this study.

C. Methodologies

1. Capacity Analysis Methodology

The highway capacity analysis, performed for this study, is based upon procedures presented in the Highway Capacity Manual (HCM), published by the Transportation Research Board, 2000. HCM defines Level of Service (LOS) as "a quality measure describing operational conditions within a traffic stream". Several factors may be included in determining LOS, such as: speed, travel time, freedom to maneuver, traffic interruptions, driver comfort, and convenience. LOS's "A", "B", and "C" are considered satisfactory Levels of Service. LOS "D" is generally considered a "desirable minimum" operating level of service. LOS "E" is an undesirable condition, and LOS "F" is an unacceptable condition. Intersection LOS is primarily based upon delay. Table 1 summarizes the LOS criteria.



First Assembly of God Church
Windward Oahu, Hawai'i

Figure 2.
Site Development Plan

GROUP 70 INTERNATIONAL
June 2007

Table 1. Level of Service Criteria (HCM)		
	Signalized Intersections	**Unsignalized Intersections**
LOS	Control Delay (sec/veh)	Control Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 – 20	> 10 – 15
C	> 20 – 35	> 15 – 25
D	> 35 – 55	> 25 – 35
E	> 55 – 80	> 35 – 50
F	> 80	> 50

"Volume-to-capacity" (v/c) ratio is a measure indicating the relative traffic demand to the roadway's capacity. HCM defines capacity as "the maximum number of vehicles that can pass a given point during a specified period under prevailing roadway, traffic flow, and traffic control conditions." A v/c ratio of 0.50 indicates that the traffic demand is utilizing 50 percent of the roadway's capacity. A v/c ratio in excess of 1.00 indicates that the traffic demand exceeds the capacity of the highway facility. Worksheets for the capacity analysis, performed throughout this report, are compiled in the Appendix.

2. Trip Generation Methodology

The trip generation methodology is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in Trip Generation, 7th Edition. ITE trip rates are developed by correlating the total vehicle trip generation data with various activity/land use characteristics, such as the vehicle trips per hour (vph) per student.

The trip generation characteristics for the proposed project are based upon ITE trip rates for a church, recreational community center, campground, and day-care center (pre-school). The ITE trip rates for the proposed pre-school were adjusted by observed trip generation rates developed from another study for the Windward Nazarene Academy.

II. Existing Conditions

A. Roadways

Kahekili Highway is a two-way, two-lane arterial highway between Kamehameha Highway in Kahaluu and Haiku Road in Kaneohe. Kahekili Highway is signalized at its intersection with Ahuimanu Road. Kahekili Highway provides separate left-turn and right-turn lanes in both directions at Ahuimanu Road.

Ahuimanu Road is a two-way, two-lane collector roadway. Ahuimanu Road does not have paved sidewalks, curbs, or gutters on either side of the roadway.

B. Existing Peak Hour Traffic Volumes and Operating Conditions

1. Field Investigation and Data Collection

Manual traffic count surveys were conducted at the intersection of Kahekili Highway and Ahuimanu Road in March, 2007, during the peak periods of weekday traffic – from 6:00 AM to 8:00 AM and from 4:15 PM to 6:15 PM. Manual traffic count surveys also were conducted during the Sunday peak period of traffic – from 9:30 AM to 12:30 PM. The peak period traffic data are presented in the Appendix.

2. Existing Weekday AM Peak Hour Traffic

The existing AM peak hour of weekday traffic occurred from 7:00 AM to 8:00 AM. Kahekili Highway carried about 1,000 vehicles per hour (vph), total for both directions. The AM peak direction of traffic was evenly split in the north-south directions.

The intersection of Kahekili Highway and Ahuimanu Road operated at LOS "A" with a v/c ratio of 0.44, during the existing AM peak hour of weekday traffic. The individual traffic movements at the intersection operated at Levels of Service "B" or better.

3. Existing Weekday PM Peak Hour Traffic

The existing PM peak hour of weekday traffic occurred between 4:15 PM and 5:15 PM. Kahekili Highway carried almost 1,400 vph, total for both directions. The PM peak direction of traffic was evenly split in the north-south directions.

During the existing PM peak hour of weekday traffic, the intersection of Kahekili Highway and Ahuimanu Road operated at LOS "B", with a v/c ratio of 0.67. The individual traffic movements at the intersection operated at satisfactory Levels of Service, i.e., LOS "C" or better.

4. Existing Sunday Peak Hour Traffic

Sunday services were held from 10:15 AM to 11:30 AM. The existing Sunday peak hour of traffic for the First Assembly of God occurred between 11:30 AM and 12:30 PM, when Kahekili Highway carried about 1,300 vph, total of both directions. Since a second Sunday service is planned from 8:00 AM to 9:15 AM, the Sunday peak hour of analysis selected for this study is 9:30 AM to 10:30 AM, during the period between the morning Sunday services.

The intersection of Kahekili Highway and Ahuimanu Road operated at LOS "A" with a v/c ratio of 0.43, during the existing Sunday peak hour of traffic. The individual traffic movements at the intersection operated at LOS "B" or better.

Figure 3 depicts the existing weekday AM and PM peak hour and the Sunday peak hour traffic volumes.

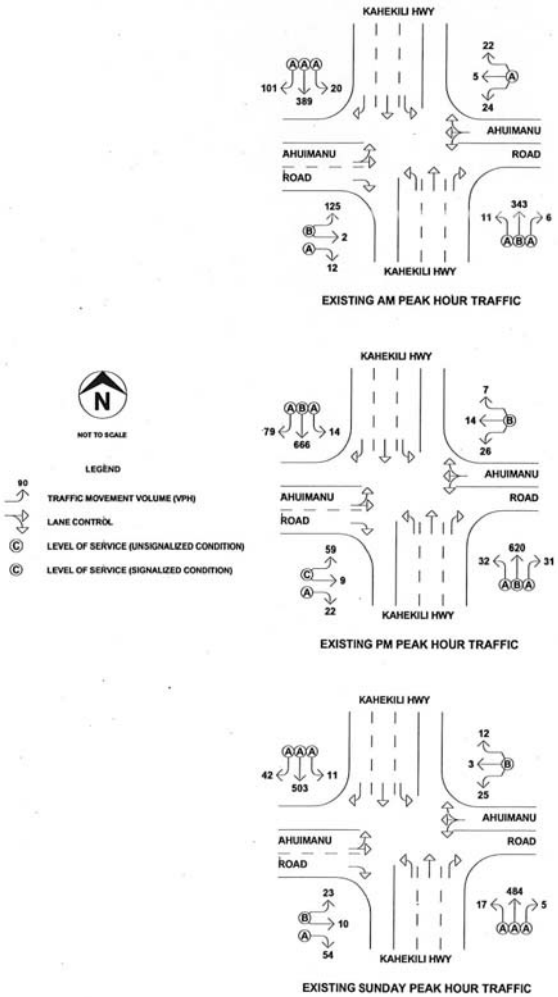


Figure 3. Existing Peak Hour Traffic

III. Future Traffic Conditions Without Project

A. External Traffic

Historical traffic count data on Kahekili Highway were obtained from the State of Hawaii Department of Transportation (DOT). Linear regression analysis of the DOT data indicated that the average annual growth in traffic on Kahekili Highway averaged about 1.0 percent per year. The background growth factor of 1.06 was applied to the existing traffic demands to estimate the Year 2013 peak hour traffic.

B. Weekday AM Peak Hour Traffic Analysis Without Project

During the Year 2013 AM peak hour of weekday traffic without the proposed project, the intersection of Kahekili Highway and Ahuimanu Road is expected to operate at LOS "A" with a v/c ratio of 0.46. The individual traffic movements are expected to operate at satisfactory Levels of Service.

C. Weekday PM Peak Hour Traffic Analysis Without Project

The intersection of Kahekili Highway and Ahuimanu Road is expected to operate at LOS "B", with a v/c ratio of 0.68, during the Year 2013 PM peak hour of weekday traffic without the proposed project. The individual traffic movements at the intersection of Kahekili Highway and Ahuimanu Road are expected to operate at satisfactory Levels of Service.

D. Sunday Peak Hour Traffic Analysis Without Project

The study intersection is expected to continue to operate at LOS "A" with a v/c ratio of 0.47, during the Year 2013 Sunday peak hour of traffic. The individual traffic movements are expected to operate at satisfactory Levels of Service, during the Sunday peak hour of traffic without the proposed project.

The weekday AM and PM peak hour and the Sunday peak hour traffic volumes without the proposed project are depicted on Figure 4.

IV. Traffic Impact Analysis With Project

A. Site-Generated Traffic

1. Trip Generation Characteristics

The trip generation characteristics were developed for the various components of the redevelopment and expansion plan. Table 2 summarizes the ITE land use classifications that were used to analyze the trip generation characteristics of the proposed redevelopment and expansion plan.

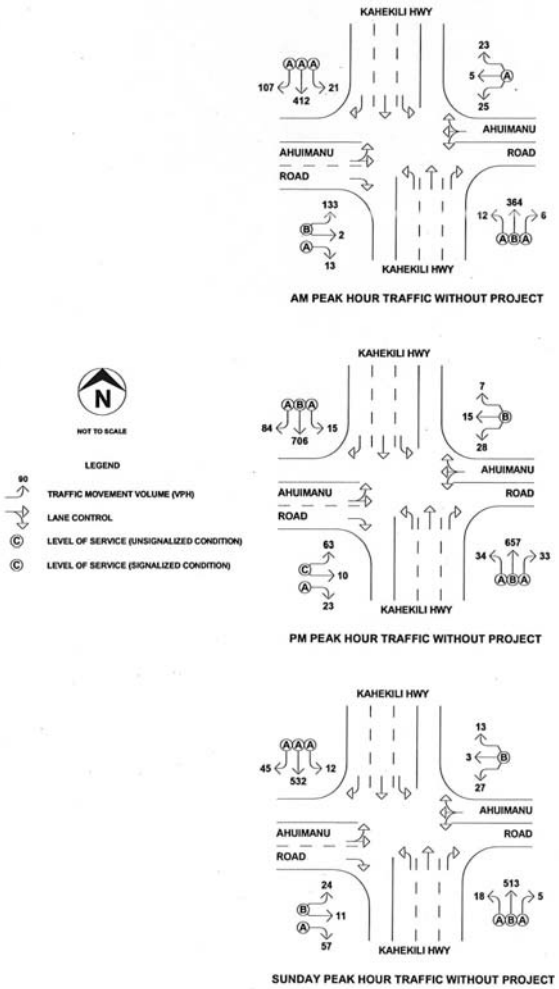


Figure 4. Peak Hour Traffic Without Project

Table 2. Summary of Proposed Plan and ITE Land Use Classification

Project Use	Land Use Intensity	ITE Land Use
Sanctuary	10,992 SFGFA, 550 Seats	Church
Preschool	60 Children	Daycare Center
Retreat Center	14 Units	Campground
Meeting/Classroom	3,500 SFGFA, 150 Seats	Church
Multi-Purpose Building	3,600 SFGFA	Recreational Community Center
Play Court	6,960 SFGFA	Recreational Community Center

The AM peak hour trip rates for the preschool were adjusted based upon a trip generation study conducted by The Traffic Management Consultant for the Windward Nazarene Academy. The trip generation study found that the ITE AM peak hour trip rates underestimated the observed trip generation by about 27 percent. The ITE AM peak hour trip rates for a daycare center were adjusted to reflect local conditions.

The trips that are expected to be generated by the completion of the First Assembly of God – Windward Oahu redevelopment and expansion plan in the Year 2013 are summarized in Table 3.

Table 3. Site Trip Generation Characteristics

Land Use (ITE Code)	AM Peak Hour			PM Peak Hour			Sunday Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Daycare Center/ Preschool (565)	36	32	68	23	26	49	0	0	0
Church (560)	7	6	13	6	6	12	180	167	347
Recreational Community Center (495)	10	6	16	5	12	17	8	7	15
Campground (416)	1	2	3	4	2	6	1	2	3
Totals	**54**	**46**	**100**	**38**	**46**	**84**	**189**	**176**	**365**

2. Site Trip Distribution

The trip distribution is based upon the existing traffic patterns in the study area. Figure 5 depicts the weekday AM and PM peak hour and Sunday peak hour site-generated traffic assignments for the proposed project.

B. Weekday AM Peak Hour Traffic Impact Analysis With Project

The weekday AM peak hour traffic operations at the intersection of Kahekili Highway and Ahuimanu Road are not expected to be significantly affected by traffic generated from the proposed project. The study intersection is expected to operate at LOS "B" with a v/c ratio of 0.50. The individual traffic movements at the Kahekili Highway intersection and at the site access driveway are expected to operate at LOS "B" or better, during the AM peak hour of traffic with the proposed project.

C. Weekday PM Peak Hour Traffic Impact Analysis With Project

During the PM peak hour of traffic, the intersection of Kahekili Highway and Ahuimanu Road is expected to operate at LOS "B" with a v/c ratio of 0.69. The individual traffic movements at the Kahekili Highway intersection and at the site access driveway are expected to operate at satisfactory Levels of Service (LOS "C" or better), during the PM peak hour of traffic with the proposed project.

D. Sunday Peak Hour Traffic Analysis With Project

The intersection of Kahekili Highway and Ahuimanu Road is expected to operate at LOS "B" with v/c ratio of 0.51, during the Sunday peak hour of traffic. The individual traffic movements at the Kahekili Highway intersection and at the site access driveway are expected to operate at LOS "B" or better, during the Sunday peak hour of traffic with the proposed project.

The weekday AM and PM peak hour and the Sunday peak hour of traffic volumes with the proposed project are depicted on Figure 6.

V. Conclusions and Recommendation

A. Conclusions

The intersection of Kahekili Highway and Ahuimanu Road is not expected to be affected by the development of the proposed First Assembly of God – Windward Oahu Master Plan, during the AM and PM peak hours of weekday traffic and during the Sunday peak hour of traffic. Table 4 summarizes the Level of Service analysis at the intersection of Kahekili Highway and Ahuimanu Road.

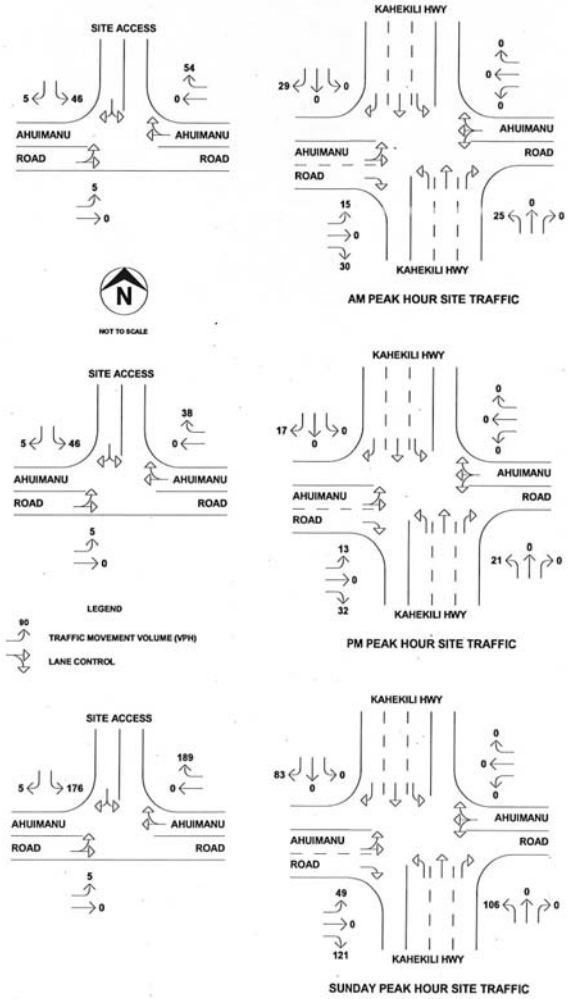


Figure 5. Peak Hour Site-Traffic Assignments

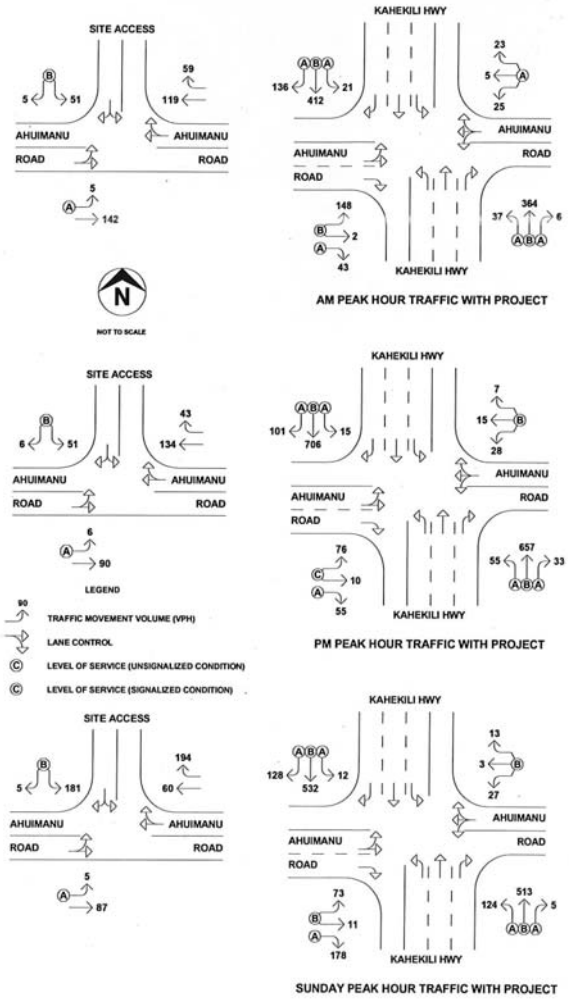


Figure 6. Peak Hour Traffic With Project

Table 4. Summary of Intersection Level of Service Analysis

Scenario	Peak Hour of Analysis					
	AM		PM		Sunday	
	LOS	v/c	LOS	v/c	LOS	v/c
Existing	A	0.44	B	0.67	A	0.43
Without Project	A	0.46	B	0.68	A	0.47
With Project	B	0.50	B	0.69	B	0.55

B. Recommendation

No traffic mitigation is required or recommended at this time.

TRAFFIC IMPACT ANALYSIS REPORT FOR THE PROPOSED

FIRST ASSEMBLY OF GOD – WINDWARD OAHU REDEVELOPMENT AND EXPANSION

KANEOHE, OAHU, HAWAII

TAX MAP KEY: 4-7-25: 12 & 37

APPENDIX A

TRAFFIC COUNT DATA

TRAFFIC COUNT DATA **FILE NAME: Ahuimanu Kahekili** Sec 3

PROJECT: First Assembly of God Kahaluu
LOCATION: Kanoehe, Hawaii
E-W STREET Ahuimanu Road
N-S STREET: Kahekili Highway

PERIOD: AM Peak
NORTH:
TECHNICIAN: Video KO
DATE: 3/9/07

		Ahuimanu Road						Kahekili Highway						
TIME		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	TOTAL
6:00	6:15	14	0	5	3	0	1	0	45	0	1	132	8	209
6:15	6:30	19	0	6	7	1	1	0	60	2	2	87	12	197
6:30	6:45	25	1	3	8	1	3	1	68	4	0	83	10	207
6:45	7:00	39	1	7	5	1	4	0	55	1	0	88	13	214
7:00	7:15	40	1	4	5	1	3	1	78	4	2	92	17	248
7:15	7:30	36	0	2	3	1	6	2	84	5	3	103	32	277
7:30	7:45	31	0	4	4	1	10	4	85	1	9	97	35	**281**
7:45	8:00	18	1	2	12	2	3	4	96	6	6	97	17	264
AM PEAK HOUR														
7:00	**8:00**	**125**	**2**	**12**	**24**	**5**	**22**	**11**	**343**	**16**	**20**	**389**	**101**	**1070**
PHF		**1.01**	**#####**	**0.75**	**1.50**	**1.25**	**0.55**	**0.69**	**1.01**	**4.00**	**0.56**	**1.00**	**0.72**	

TRAFFIC COUNT DATA **FILE NAME: Ahuimanu Kahekili** Sec 3

PROJECT: First Assembly of God Kahaluu
LOCATION: Kanoehe, Hawaii
E-W STREET Ahuimanu Road
N-S STREET Kahekili Highway

PERIOD: PM Peak
NORTH:
TECHNICIAN: Video KO
DATE: 3/8/07

		Ahuimanu Road						Kahekili Highway						
TIME		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	TOTAL
16:15	16:30	20	6	5	3	3	0	6	191	5	8	138	20	405
16:30	16:45	14	2	4	7	3	2	11	139	9	2	168	18	379
16:45	17:00	16	1	11	10	5	3	9	145	5	1	119	24	349
17:00	17:15	9	0	2	6	3	2	6	145	12	3	130	17	335
17:15	17:30	12	0	5	1	0	3	12	146	7	1	102	13	302
17:30	17:45	14	1	4	3	3	6	6	140	11	5	126	13	332
17:45	18:00	12	1	2	3	2	6	7	117	7	4	114	27	302
18:00	18:15	5	3	6	12	5	1	5	130	8	1	142	13	331
PM PEAK HOUR														
16:15	**17:15**	**59**	**9**	**22**	**26**	**14**	**7**	**32**	**620**	**31**	**14**	**555**	**79**	**1468**
PHF		**0.74**	**0.38**	**1.10**	**2.17**	**1.17**	**#####**	**1.33**	**0.81**	**1.55**	**0.44**	**1.01**	**0.99**	

TRAFFIC COUNT DATA **FILE NAME: Ahuimanu Kahekili** Sec 3

PROJECT: First Assembly of God Kahaluu
LOCATION: Kanoehe, Hawaii
E-W STREET Ahuimanu Road
N-S STREET Kahekili Highway

PERIOD: Sunday
NORTH:
TECHNICIAN: Video KO
DATE: 3/4/07

		0						Kahekili Highway						
TIME		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	TOTAL
9:30	9:45	7	1	11	3	0	0	6	91	0	0	120	8	247
9:45	10:00	1	2	12	7	1	4	2	125	0	3	130	10	297
10:00	10:15	7	0	14	7	0	2	6	124	0	2	116	14	292
10:15	10:30	6	4	15	6	1	2	6	112	0	3	146	10	311
10:30	10:45	9	4	13	5	1	4	3	123	0	3	111	8	284
10:45	11:00	2	0	5	6	2	2	8	118	0	5	135	13	296
11:00	11:15	9	2	13	9	0	1	5	132	2	0	107	13	293
11:15	11:30	8	2	10	11	0	5	2	137	7	0	126	10	318
11:30	**11:45**	6	0	12	7	2	1	5	190	11	2	139	8	**383**
11:45	12:00	6	0	21	9	2	4	7	162	3	1	123	10	348
12:00	12:15	12	0	12	5	1	4	3	147	6	0	145	14	349
12:15	12:30	11	0	8	2	1	3	5	138	10	0	147	5	330
9:45	**10:45**	**23**	**10**	**54**	**25**	**3**	**12**	**17**	**484**	**0**	**11**	**503**	**42**	**1184**
PHF		**5.75**	**1.25**	**1.13**	**0.89**	**0.75**	**0.75**	**2.13**	**0.97**	**#####**	**0.92**	**0.97**	**1.05**	

TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED

FIRST ASSEMBLY OF GOD – WINDWARD OAHU REDEVELOPMENT AND EXPANSION

KANEOHE, OAHU, HAWAII

TAX MAP KEY: 4-7-25: 12 & 37

APPENDIX B

CAPACITY ANALYSIS WORKSHEETS

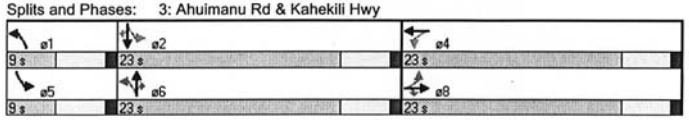
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	250		90	170		120
Storage Lanes	0		1	0		0	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1775	1583	0	1688	0	1770	1792	1583	1770	1827	1583
Flt Permitted		0.695			0.898		0.366			0.424		
Satd. Flow (perm)	0	1295	1583	0	1542	0	682	1792	1583	790	1827	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			16		40				6			140
Link Speed (mph)		25			30			30			35	
Link Distance (ft)		2000			2000			2000			2000	
Travel Time (s)		54.5			45.5			45.5			39.0	
Volume (vph)	125	2	12	24	5	22	11	343	6	20	389	101
Peak Hour Factor	1.00	0.92	0.75	1.00	1.00	0.55	0.69	1.00	1.00	0.56	1.00	0.72
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	4%	2%
Lane Group Flow (vph)	0	127	16	0	69	0	16	343	6	36	389	140
Turn Type	Perm		Perm	Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Detector Phases	8	8	8	4	4		1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0	0.0	9.0	23.0	23.0	9.0	23.0	23.0
Total Split (%)	41.8%	41.8%	41.8%	41.8%	41.8%	0.0%	16.4%	41.8%	41.8%	16.4%	41.8%	41.8%
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		4.0	18.0	18.0	4.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	5	5	5	5	5			5	5		5	5
Act Effct Green (s)		14.2	14.2		14.1		36.9	35.3	35.3	38.0	37.6	37.6
Actuated g/C Ratio		0.22	0.22		0.22		0.54	0.58	0.58	0.57	0.61	0.61
v/c Ratio		0.44	0.04		0.18		0.03	0.33	0.01	0.07	0.35	0.14
Control Delay		18.1	7.1		8.3		7.5	10.3	7.3	6.7	9.0	2.7
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		18.1	7.1		8.3		7.5	10.3	7.3	6.7	9.0	2.7
LOS		B	A		A		A	B	A	A	A	A
Approach Delay		16.9			8.3			10.1			7.3	
Approach LOS		B			A			B			A	
Queue Length 50th (ft)		21	0		4		1	35	0	3	41	0
Queue Length 95th (ft)		64	8		28		7	157	6	10	180	16

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		1920			1920			1920			1920	
Turn Bay Length (ft)			50				250		90	170		120
Base Capacity (vph)		408	510		514		458	1034	916	536	1121	1026
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.31	0.03		0.13		0.03	0.33	0.01	0.07	0.35	0.14

Intersection Summary

Area Type: Other
Cycle Length: 55
Actuated Cycle Length: 61.2
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 9.5 — Intersection LOS: A
Intersection Capacity Utilization 40.1% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Ahuimanu Rd & Kahekili Hwy



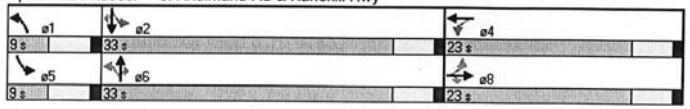
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	250		90	170		120
Storage Lanes	0		1	0		0	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1794	1583	0	1774	0	1770	1827	1583	1770	1827	1583
Flt Permitted		0.772			0.852		0.168			0.138		
Satd. Flow (perm)	0	1438	1583	0	1552	0	313	1827	1583	257	1827	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			22		8				19			70
Link Speed (mph)		25			30			30			35	
Link Distance (ft)		2000			2000			2000			2000	
Travel Time (s)		54.5			45.5			45.5			39.0	
Volume (vph)	59	9	22	26	14	7	32	620	31	14	666	79
Peak Hour Factor	0.74	0.38	1.00	1.00	1.00	0.92	1.00	0.81	1.00	0.44	1.00	0.99
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	4%	2%	2%	4%	2%
Lane Group Flow (vph)	0	104	22	0	48	0	32	765	31	32	666	80
Turn Type	Perm		Perm	Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Detector Phases	8	8	8	4	4		1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0	0.0	9.0	33.0	33.0	9.0	33.0	33.0
Total Split (%)	35.4%	35.4%	35.4%	35.4%	35.4%	0.0%	13.8%	50.8%	50.8%	13.8%	50.8%	50.8%
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		4.0	28.0	28.0	4.0	28.0	28.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	5	5	5	5	5			5	5		5	5
Act Effct Green (s)		12.8	12.8		12.8		45.5	43.5	43.5	45.5	43.5	43.5
Actuated g/C Ratio		0.18	0.18		0.18		0.61	0.63	0.63	0.61	0.63	0.63
v/c Ratio		0.39	0.07		0.16		0.11	0.67	0.03	0.12	0.58	0.08
Control Delay		22.3	8.7		16.4		6.1	15.3	5.5	6.3	12.8	3.5
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		22.3	8.7		16.4		6.1	15.3	5.5	6.3	12.8	3.5
LOS		C	A		B		A	B	A	A	B	A
Approach Delay		20.0			16.4			14.5			11.6	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		24	0		9		3	106	1	3	84	1
Queue Length 95th (ft)		26	14		33		14	#412	15	7	#404	22

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		1920			1920			1920			1920	
Turn Bay Length (ft)			50				250		90	170		120
Base Capacity (vph)		388	443		424		298	1148	1002	268	1148	1021
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.27	0.05		0.11		0.11	0.67	0.03	0.12	0.58	0.08

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 69.2
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 13.7 Intersection LOS: B
Intersection Capacity Utilization 51.7% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Ahuimanu Rd & Kahekili Hwy



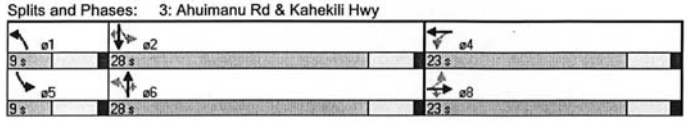
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	250		90	170		120
Storage Lanes	0		1	0		0	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1801	1583	0	1740	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.857			0.855		0.280			0.206		
Satd. Flow (perm)	0	1596	1583	0	1537	0	522	1863	1583	384	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			54		12				6			42
Link Speed (mph)		25			30			30			35	
Link Distance (ft)		2000			2000			2000			2000	
Travel Time (s)		54.5			45.5			45.5			39.0	
Volume (vph)	23	10	54	25	3	12	17	484	5	11	503	42
Peak Hour Factor	1.00	0.92	1.00	0.82	0.75	1.00	1.00	0.84	0.68	0.38	1.00	1.00
Lane Group Flow (vph)	0	34	54	0	46	0	17	576	7	29	503	42
Turn Type	Perm		Perm	Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Detector Phases	8	8	8	4	4		1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0	0.0	9.0	28.0	28.0	9.0	28.0	28.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%	0.0%	15.0%	46.7%	46.7%	15.0%	46.7%	46.7%
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		4.0	23.0	23.0	4.0	23.0	23.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	5	5	5	5	5			5	5		5	5
Act Effct Green (s)		11.6	11.6		11.5		46.0	46.9	46.9	46.0	46.9	46.9
Actuated g/C Ratio		0.17	0.17		0.17		0.64	0.73	0.73	0.64	0.73	0.73
v/c Ratio		0.13	0.17		0.17		0.04	0.43	0.01	0.08	0.37	0.04
Control Delay		15.0	6.3		12.9		6.5	8.9	5.8	6.6	7.6	3.5
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		15.0	6.3		12.9		6.5	8.9	5.8	6.6	7.6	3.5
LOS		B	A		B		A	A	A	A	A	A
Approach Delay		9.7			12.9			8.8			7.3	
Approach LOS		A			B			A			A	
Queue Length 50th (ft)		7	0		7		1	54	0	2	45	0
Queue Length 95th (ft)		25	20		22		10	257	5	6	239	16
Internal Link Dist (ft)		1920			1920			1920			1920	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)			50				250		90	170		120
Base Capacity (vph)		449	484		441		433	1351	1150	355	1351	1159
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.08	0.11		0.10		0.04	0.43	0.01	0.08	0.37	0.04

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 64.6
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 8.3 — Intersection LOS: A
Intersection Capacity Utilization 43.2% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Ahuimanu Rd & Kahekili Hwy



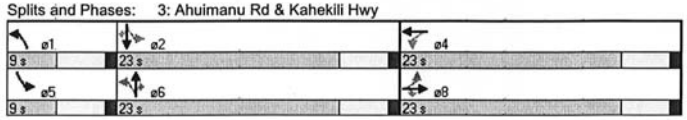
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	250		90	170		120
Storage Lanes	0		1	0		0	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1775	1583	0	1686	0	1770	1792	1583	1770	1827	1583
Flt Permitted		0.688			0.895		0.337			0.397		
Satd. Flow (perm)	0	1282	1583	0	1535	0	628	1792	1583	740	1827	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			17		42				6			149
Link Speed (mph)		25			30			30			35	
Link Distance (ft)		2000			2000			2000			2000	
Travel Time (s)		54.5			45.5			45.5			39.0	
Volume (vph)	133	2	13	25	5	23	12	364	6	21	412	107
Peak Hour Factor	1.00	0.92	0.75	1.00	1.00	0.55	0.69	1.00	1.00	0.56	1.00	0.72
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	4%	2%
Lane Group Flow (vph)	0	135	17	0	72	0	17	364	6	38	412	149
Turn Type	Perm		Perm	Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Detector Phases	8	8	8	4	4		1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0	0.0	9.0	23.0	23.0	9.0	23.0	23.0
Total Split (%)	41.8%	41.8%	41.8%	41.8%	41.8%	0.0%	16.4%	41.8%	41.8%	16.4%	41.8%	41.8%
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		4.0	18.0	18.0	4.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	5	5	5	5	5			5	5		5	5
Act Effct Green (s)		14.5	14.5		14.3		36.5	34.9	34.9	37.6	37.1	37.1
Actuated g/C Ratio		0.23	0.23		0.23		0.54	0.57	0.57	0.57	0.61	0.61
v/c Ratio		0.46	0.05		0.19		0.04	0.35	0.01	0.07	0.37	0.15
Control Delay		18.6	7.1		8.2		7.7	10.7	7.5	6.9	9.4	2.7
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		18.6	7.1		8.2		7.7	10.7	7.5	6.9	9.4	2.7
LOS		B	A		A		A	B	A	A	A	A
Approach Delay		17.3			8.2			10.5			7.6	
Approach LOS		B			A			B			A	
Queue Length 50th (ft)		22	0		4		1	38	0	3	44	0
Queue Length 95th (ft)		68	8		28		8	168	6	10	193	16

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		1920			1920			1920			1920	
Turn Bay Length (ft)			50				250		90	170		120
Base Capacity (vph)		407	515		516		431	1026	909	508	1112	1022
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.33	0.03		0.14		0.04	0.35	0.01	0.07	0.37	0.15

Intersection Summary

Area Type: Other
Cycle Length: 55
Actuated Cycle Length: 61
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 9.8 Intersection LOS: A
Intersection Capacity Utilization 42.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Ahuimanu Rd & Kahekili Hwy



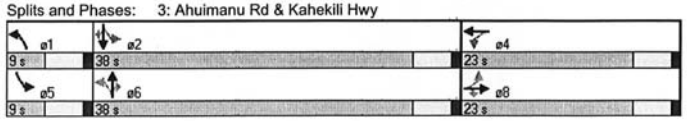
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	250		90	170		120
Storage Lanes	0		1	0		0	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1794	1583	0	1774	0	1770	1827	1583	1770	1827	1583
Flt Permitted		0.763			0.842		0.172			0.118		
Satd. Flow (perm)	0	1421	1583	0	1535	0	320	1827	1583	220	1827	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			23		8				19			70
Link Speed (mph)		25			30			30			35	
Link Distance (ft)		2000			2000			2000			2000	
Travel Time (s)		54.5			45.5			45.5			39.0	
Volume (vph)	63	10	23	28	15	7	34	657	33	15	706	84
Peak Hour Factor	0.74	0.38	1.00	1.00	1.00	0.92	1.00	0.81	1.00	0.44	1.00	0.99
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	4%	2%	2%	4%	2%
Lane Group Flow (vph)	0	111	23	0	51	0	34	811	33	34	706	85
Turn Type	Perm		Perm	Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Detector Phases	8	8	8	4	4		1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0	0.0	9.0	38.0	38.0	9.0	38.0	38.0
Total Split (%)	32.9%	32.9%	32.9%	32.9%	32.9%	0.0%	12.9%	54.3%	54.3%	12.9%	54.3%	54.3%
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		4.0	33.0	33.0	4.0	33.0	33.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	5	5	5	5	5			5	5		5	5
Act Effct Green (s)		13.0	13.0		13.0		49.2	47.2	47.2	49.2	47.2	47.2
Actuated g/C Ratio		0.18	0.18		0.18		0.63	0.65	0.65	0.63	0.65	0.65
v/c Ratio		0.44	0.08		0.18		0.11	0.68	0.03	0.14	0.60	0.08
Control Delay		26.0	9.5		18.8		5.9	15.1	5.2	6.3	12.4	3.3
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		26.0	9.5		18.8		5.9	15.1	5.2	6.3	12.4	3.3
LOS		C	A		B		A	B	A	A	B	A
Approach Delay		23.2			18.8			14.3			11.2	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)		30	0		11		3	125	1	3	99	1
Queue Length 95th (ft)		30	16		39		14	#445	16	7	#434	24

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		1920			1920			1920			1920	
Turn Bay Length (ft)			50				250		90	170		120
Base Capacity (vph)		362	420		397		301	1185	1034	244	1185	1052
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.31	0.05		0.13		0.11	0.68	0.03	0.14	0.60	0.08

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 72.8
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 13.7 Intersection LOS: B
Intersection Capacity Utilization 53.8% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Ahuimanu Rd & Kahekili Hwy



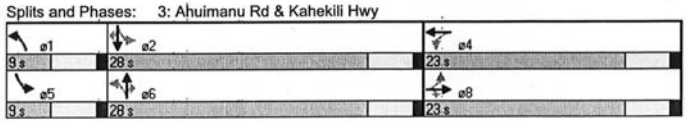
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	250		90	170		120
Storage Lanes	0		1	0		0	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1803	1583	0	1740	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.855			0.849		0.250			0.172		
Satd. Flow (perm)	0	1593	1583	0	1526	0	466	1863	1583	320	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			57		13				5			45
Link Speed (mph)		25			30			30			35	
Link Distance (ft)		2000			2000			2000			2000	
Travel Time (s)		54.5			45.5			45.5			39.0	
Volume (vph)	24	11	57	27	3	13	18	513	5	12	532	45
Peak Hour Factor	1.00	0.92	1.00	0.82	0.75	1.00	1.00	0.84	0.68	0.38	1.00	1.00
Lane Group Flow (vph)	0	36	57	0	50	0	18	611	7	32	532	45
Turn Type	Perm		Perm	Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Detector Phases	8	8	8	4	4		1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0	0.0	9.0	28.0	28.0	9.0	28.0	28.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%	0.0%	15.0%	46.7%	46.7%	15.0%	46.7%	46.7%
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		4.0	23.0	23.0	4.0	23.0	23.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	5	5	5	5	5			5	5		5	5
Act Effct Green (s)		11.5	11.5		11.5		46.5	46.0	46.0	47.8	48.4	48.4
Actuated g/C Ratio		0.16	0.16		0.16		0.64	0.70	0.70	0.67	0.74	0.74
v/c Ratio		0.14	0.19		0.19		0.05	0.47	0.01	0.10	0.39	0.04
Control Delay		16.4	6.7		14.1		6.3	10.9	6.8	5.7	7.8	3.4
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		16.4	6.7		14.1		6.3	10.9	6.8	5.7	7.8	3.4
LOS		B	A		B		A	B	A	A	A	A
Approach Delay		10.5			14.1			10.8			7.4	
Approach LOS		B			B			B			A	
Queue Length 50th (ft)		7	0		7		1	60	0	2	49	0
Queue Length 95th (ft)		26	21		24		10	#316	5	6	258	16
Internal Link Dist (ft)		1920			1920			1920			1920	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)			50				250		90	170		120
Base Capacity (vph)		435	474		426		397	1305	1110	331	1372	1178
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.08	0.12		0.12		0.05	0.47	0.01	0.10	0.39	0.04

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 65.7
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 9.4 Intersection LOS: A
Intersection Capacity Utilization 44.9% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Ahuimanu Rd & Kahekili Hwy



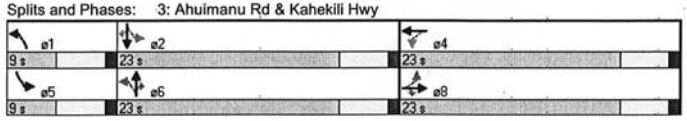
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	250		90	170		120
Storage Lanes	0		1	0		0	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1775	1583	0	1686	0	1770	1792	1583	1770	1827	1583
Flt Permitted		0.681			0.892		0.337			0.397		
Satd. Flow (perm)	0	1269	1583	0	1530	0	628	1792	1583	740	1827	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			57		42				6			189
Link Speed (mph)		25			30			30			35	
Link Distance (ft)		200			2000			2000			2000	
Travel Time (s)		5.5			45.5			45.5			39.0	
Volume (vph)	148	2	43	25	5	23	36	364	6	21	412	136
Peak Hour Factor	1.00	0.92	0.75	1.00	1.00	0.55	0.69	1.00	1.00	0.56	1.00	0.72
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	4%	2%
Lane Group Flow (vph)	0	150	57	0	72	0	52	364	6	38	412	189
Turn Type	Perm		Perm	Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Detector Phases	8	8	8	4	4		1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0	0.0	9.0	23.0	23.0	9.0	23.0	23.0
Total Split (%)	41.8%	41.8%	41.8%	41.8%	41.8%	0.0%	16.4%	41.8%	41.8%	16.4%	41.8%	41.8%
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		4.0	18.0	18.0	4.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	5	5	5	5	5			5	5		5	5
Act Effct Green (s)		14.6	14.6		14.5		34.5	33.0	33.0	34.5	33.0	33.0
Actuated g/C Ratio		0.24	0.24		0.24		0.54	0.56	0.56	0.54	0.56	0.56
v/c Ratio		0.50	0.14		0.18		0.12	0.36	0.01	0.08	0.40	0.20
Control Delay		19.3	5.3		8.1		7.4	11.0	7.5	7.1	11.4	3.0
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.3	5.3		8.1		7.4	11.0	7.5	7.1	11.4	3.0
LOS		B	A		A		A	B	A	A	B	A
Approach Delay		15.4			8.1			10.5			8.7	
Approach LOS		B			A			B			A	
Queue Length 50th (ft)		25	0		4		5	40	0	3	46	0
Queue Length 95th (ft)		76	13		28		16	168	6	10	193	17

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		120			1920			1920			1920	
Turn Bay Length (ft)			50				250		90	170		120
Base Capacity (vph)		414	555		528		438	1002	888	488	1022	969
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.36	0.10		0.14		0.12	0.36	0.01	0.08	0.40	0.20

Intersection Summary

Area Type: Other
Cycle Length: 55
Actuated Cycle Length: 59
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 10.2 Intersection LOS: B
Intersection Capacity Utilization 50.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Ahuimanu Rd & Kahekili Hwy



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	5	142	119	58	50	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	154	129	63	54	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			200			
pX, platoon unblocked						
vC, conflicting volume	192				326	161
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	192				326	161
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				92	99
cM capacity (veh/h)	1381				665	884

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	160	192	60
Volume Left	5	0	54
Volume Right	0	63	5
cSH	1381	1700	681
Volume to Capacity	0.00	0.11	0.09
Queue Length 95th (ft)	0	0	7
Control Delay (s)	0.3	0.0	10.8
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	10.8
Approach LOS			B

Intersection Summary

Average Delay 1.7
Intersection Capacity Utilization 21.5% ICU Level of Service A
Analysis Period (min) 15

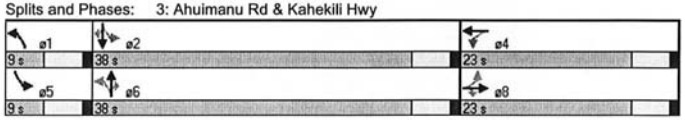
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	250		90	170		120
Storage Lanes	0		1	0		0	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1792	1583	0	1774	0	1770	1827	1583	1770	1827	1583
Flt Permitted		0.745			0.835		0.172			0.118		
Satd. Flow (perm)	0	1388	1583	0	1523	0	320	1827	1583	220	1827	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			55		8				19			84
Link Speed (mph)		25			30			30			35	
Link Distance (ft)		200			2000			2000			2000	
Travel Time (s)		5.5			45.5			45.5			39.0	
Volume (vph)	76	10	55	28	15	7	55	657	33	15	706	101
Peak Hour Factor	0.74	0.38	1.00	1.00	1.00	0.92	1.00	0.81	1.00	0.44	1.00	0.99
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	4%	2%	2%	4%	2%
Lane Group Flow (vph)	0	129	55	0	51	0	55	811	33	34	706	102
Turn Type	Perm		Perm	Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Detector Phases	8	8	8	4	4		1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0	0.0	9.0	38.0	38.0	9.0	38.0	38.0
Total Split (%)	32.9%	32.9%	32.9%	32.9%	32.9%	0.0%	12.9%	54.3%	54.3%	12.9%	54.3%	54.3%
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		4.0	33.0	33.0	4.0	33.0	33.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	5	5	5	5	5			5	5		5	5
Act Effct Green (s)		13.4	13.4		13.4		49.0	46.8	46.8	47.9	44.8	44.8
Actuated g/C Ratio		0.18	0.18		0.18		0.64	0.64	0.64	0.61	0.62	0.62
v/c Ratio		0.50	0.16		0.18		0.18	0.69	0.03	0.14	0.63	0.10
Control Delay		28.6	7.7		19.3		6.0	15.4	5.3	6.5	14.3	3.4
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		28.6	7.7		19.3		6.0	15.4	5.3	6.5	14.3	3.4
LOS		C	A		B		A	B	A	A	B	A
Approach Delay		22.3			19.3			14.5			12.6	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)		45	0		14		6	142	1	3	184	3
Queue Length 95th (ft)		34	24		39		20	#445	16	7	#434	26

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		120			1920			1920			1920	
Turn Bay Length (ft)			50				250		90	170		120
Base Capacity (vph)		352	442		391		307	1179	1028	240	1127	1008
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.37	0.12		0.13		0.18	0.69	0.03	0.14	0.63	0.10

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 72.6
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 14.5 — Intersection LOS: B
Intersection Capacity Utilization 59.9% — ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Ahuimanu Rd & Kahekili Hwy



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	5	90	127	43	51	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	98	138	47	55	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			200			
pX, platoon unblocked						
vC, conflicting volume	185				270	161
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	185				270	161
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				92	99
cM capacity (veh/h)	1390				716	884

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	103	185	62
Volume Left	5	0	55
Volume Right	0	47	7
cSH	1390	1700	731
Volume to Capacity	0.00	0.11	0.08
Queue Length 95th (ft)	0	0	7
Control Delay (s)	0.4	0.0	10.4
Lane LOS	A		B
Approach Delay (s)	0.4	0.0	10.4
Approach LOS			B

Intersection Summary			
Average Delay		2.0	
Intersection Capacity Utilization		19.3%	ICU Level of Service A
Analysis Period (min)		15	

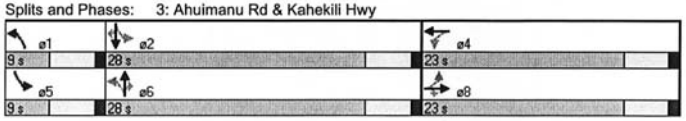
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	250		90	170		120
Storage Lanes	0		1	0		0	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	1785	1583	0	1740	0	1770	1863	1583	1770	1863	1583
Flt Permitted		0.749			0.824		0.250			0.172		
Satd. Flow (perm)	0	1395	1583	0	1481	0	466	1863	1583	320	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			208		13				5			150
Link Speed (mph)		25			30			30			35	
Link Distance (ft)		200			2000			2000			2000	
Travel Time (s)		5.5			45.5			45.5			39.0	
Volume (vph)	85	11	208	27	3	13	150	513	5	12	532	150
Peak Hour Factor	1.00	0.92	1.00	0.82	0.75	1.00	1.00	0.84	0.68	0.38	1.00	1.00
Lane Group Flow (vph)	0	97	208	0	50	0	150	611	7	32	532	150
Turn Type	Perm		Perm	Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4			6		6	2		2
Detector Phases	8	8	8	4	4		1	6	6	5	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0		9.0	23.0	23.0	9.0	23.0	23.0
Total Split (s)	23.0	23.0	23.0	23.0	23.0	0.0	9.0	28.0	28.0	9.0	28.0	28.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%	0.0%	15.0%	46.7%	46.7%	15.0%	46.7%	46.7%
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		4.0	23.0	23.0	4.0	23.0	23.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	5	5	5	5	5			5	5		5	5
Act Effct Green (s)		10.9	10.9		10.9		33.7	31.8	31.8	31.9	27.9	27.9
Actuated g/C Ratio		0.20	0.20		0.20		0.60	0.59	0.59	0.54	0.51	0.51
v/c Ratio		0.35	0.43		0.16		0.38	0.56	0.01	0.11	0.56	0.17
Control Delay		20.5	5.9		14.0		7.8	13.4	7.2	6.4	14.1	2.9
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		20.5	5.9		14.0		7.8	13.4	7.2	6.4	14.1	2.9
LOS		C	A		B		A	B	A	A	B	A
Approach Delay		10.6			14.0			12.2			11.4	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		25	0		9		14	75	0	3	108	0
Queue Length 95th (ft)		57	39		24		48	#316	5	6	258	28
Internal Link Dist (ft)		120			1920			1920			1920	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)			50				250		90	170		120
Base Capacity (vph)		428	629		463		399	1092	930	293	958	887
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.23	0.33		0.11		0.38	0.56	0.01	0.11	0.56	0.17

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 54.2
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 11.7 Intersection LOS: B
Intersection Capacity Utilization 55.4% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Ahuimanu Rd & Kahekili Hwy



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	5	87	60	242	225	5
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right				No		No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120					
Volume Combined (vph)	0	92	302	0	230	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.88	0.85	0.95	0.85
Saturated Flow (vph)	0	1895	1672	0	1801	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00	0.00		0.00	
Protected Option Allowed		No	No		No	
Reference Time (s)				0.0		0.0
Adj Reference Time (s)				0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1062	1672		120	
Reference Time A (s)	0.0	10.4	21.7		229.9	
Adj Saturation B (vph	NA	NA	1672		NA	
Reference Time B (s)	NA	NA	21.7		NA	
Reference Time (s)		10.4	21.7			
Adj Reference Time (s)		14.4	25.7			
Split Option						
Ref Time Combined (s)	0.0	5.8	21.7		15.3	
Ref Time Seperate (s)	0.3	5.5	4.3		15.0	
Reference Time (s)	5.8	5.8	21.7		15.3	
Adj Reference Time (s)	9.8	9.8	25.7		19.3	

Summary	EB WB	SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	25.7	Err	
Split Option (s)	35.5	19.3	
Minimum (s)	25.7	19.3	45.0

Right Turns

Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary

Intersection Capacity Utilization 37.5% ICU Level of Service A
Reference Times and Phasing Options do not represent an optimized timing plan.