H. CERTIFICATION

The undersigned does hereby certify that except as other-wise noted in this appraisal report:

1. The Consultant's compensation is not contingent upon the reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value estimate, the attainment of a stipulated result, or the occurrence of a subsequent event.

2. The Consultant has no present or prospective interest in the property that is the subject of this report, and no personal interest or bias with respect to the parties involved. The "Estimate of Market Value" in the appraisal report is not based in whole or in part upon the race, color, or national origin of the prospective owners or occupants of the properties in the vicinity of the property appraised.

3. The Consultant has personally inspected the property, and is a signatory of this Certification.

4. To the best of the Consultants' knowledge and belief, all statements of fact and information in this report are true and correct, and the Consultant(s) have not knowingly withheld any significant information.

5. No other person provided significant professional assistance to the person(s) signing this report.

6. The reported analyses, opinions and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal unbiased professional analyses, opinions and conclusions.

7. All analyses, opinions and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Appraisal Practice.

8. This counseling report is subject to and in conformance with the Code of Professional Ethics and Standards of Professional Conduct of the Appraisal Institute. The analyses, opinions and conclusions of this counseling report have been made in conformity with, and subject to, the requirements of Title XI of the Federal Financial Institutions Reform, Recovery, and Enforcement Act of 1989.

9. This counseling report is to be used only in its entirety and no part is to be used without the whole report. All conclusions and opinions concerning the real estate are set forth in the counseling report were prepared by the Consultant(s) whose signature(s) appears on the counseling report. No change of any item in the counseling report shall be made by anyone other than the Consultant, and the Consultant shall have no responsibility for any such unauthorized change.

10. The Appraisal Institute, of which this Consultant is a member, has a legal right to review this report.

11. The qualifications of this Consultant, including completed educational requirements of his/her candidacy are located in the Addendum to this report. Any member signing the report has completed the requirements of the Appraisal Institute's continuing education program.

ACM Consultants, Inc.

Glenn K. Kunihisa, MAI, CRE
Certified General Appraiser,
State of Hawaii, CGA-039
Expiration: December 31, 2009

Shane M. Fukuda
Certified General Appraiser,
State of Hawaii, CGA-810
Expiration: December 31, 2009

I. LIMITING AND CONTINGENT CONDITIONS

1) This is a Counseling Report which is intended to comply with the reporting requirements set forth under Standards Rule 5 of the Uniform Standards of Professional Appraisal Practice for a Counseling Report. The information contained in this report is specific to the needs of the client and for the intended use stated in this report. The Consultant is not responsible for unauthorized use of this report.

This report has not been prepared for federally-related mortgage financing purposes, and has not been prepared in compliance with the requirements of Title XI of the Federal Financial Institutions Reform, Recovery, and Enforcement Act of 1989.

2) No responsibility is assumed for legal or title considerations. Title to the property is assumed to be good and marketable unless otherwise stated in this report.

3) The property analyzed is free and clear of any or all lines and encumbrances unless otherwise stated in this report.

4) Responsible ownership and competent property management are assumed unless otherwise stated in this report.

5) The information furnished by others is believed to be reliable. However, no warranty is given for its accuracy.

6) All engineering is assumed to be correct. Any plot plans and illustrative material in this report are included only to assist the reader in visualizing the property.

7) It is assumed that there are no hidden or unapparent conditions of the property, subsoil, or structures that render it more or less valuable. No responsibility is assumed for such conditions or for arranging for engineering studies that may be required to discover them.

8) It is assumed that there is full compliance with all applicable federal, state, and local environmental regulations and laws unless otherwise stated in this report.

9) It is assumed that all applicable zoning and use regulations and restrictions have been complied with, unless a nonconformity has been stated, defined, and considered in this counseling report.

10) It is assumed that all required licenses, certificates of occupancy or other legislative or administrative authority from any local, state, or national governmental or private entity or organization

have been or can be obtained or renewed for any use on which the value estimates contained in this report are based.

11) Any sketch in this report may show approximate dimensions and is included to assist the reader in visualizing the property. Maps and exhibits found in this report are provided for reader reference purposes only. No guarantee as to accuracy is expressed or implied unless otherwise stated in this report. No survey has been made for the purpose of this report.

12) It is assumed that the utilization of the land and improvements is within the boundaries or property lines of the property described and that there is no encroachment or trespass unless otherwise stated in this report.

13) The Consultant is not qualified to detect hazardous waste and/or toxic materials. Any comment by the Consultant that might suggest the possibility of the presence of such substances should not be taken as confirmation of the presence of hazardous waste and/or toxic materials. Such determination would require investigation by a qualified expert in the field of environmental assessment. The presence of substances such as asbestos, urea-formaldehyde foam insulation or other potentially hazardous materials may affect the value of the property. The Consultant's value estimate is predicated on the assumption that there is no such material on or in the property that would cause a loss in value unless otherwise stated in this report. No responsibility is assumed for any environmental conditions, or for any expertise or engineering knowledge required to discover them. The Consultant's descriptions and resulting comments are the result of the routine observations made during the analysis process.

14) Unless otherwise stated in this report, the subject property is evaluated without a specific compliance survey having been conducted to determine if the property is or is not in conformance with the requirements of the Americans with Disabilities Act. The presence of architectural and communications barriers that are structural in nature that would restrict access by disabled individuals may adversely affect the property's value, marketability, or utility.

15) Any proposed improvements are assumed to be completed in a good workmanlike manner in accordance with the submitted plans and specification.

16) The distribution, if any, of the total valuation in this report between land and improvements applies only under the stated program of utilization. The separate allocations for land and buildings must not be used in conjunction with any other appraisal and are invalid if so used.

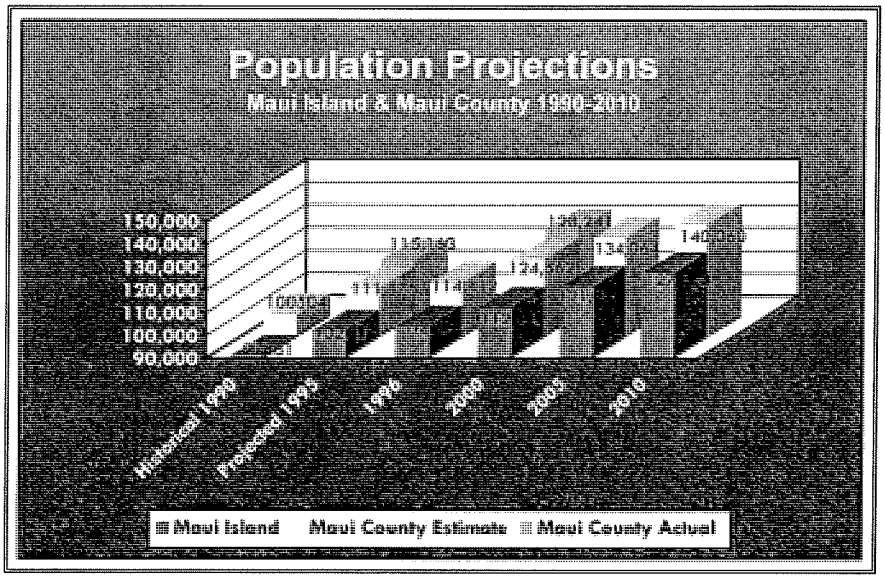
17) Possession of this report, or a copy thereof, does not carry with it the right of publication. It may not be used for any purpose by any person other than the party to whom it is addressed without the written consent of the consultant, and in any event, only with property written qualification and only in its entirety.

18) Neither all nor any part of the contents of this report (especially any conclusions as to value, the identity of the Consultant, or the firm with which the Consultant is connected) shall be disseminated to the public through advertising, public relations, news sales, or other media without prior written consent and approval of the Consultant.

PART II – FACTUAL DATA

A. REGIONAL DATA - MAUI COUNTY

Maui County is the third most populous of the four counties of Hawaii, with a total resident population of 128,241 (2000 Census) and a change of 27.6 percent since 1990. Maui County consists of the islands of Maui, Molokai, Lana'i, and Kahoolawe. Ninety percent (90%) of County residents live on Maui; the 2000 U.S. Census of Population reported 7,404 residents on Molokai and 3,193 on Lana'i. The Island of Maui consists of a total of 734.5 square miles, or 470,080 acres. Population Projections for Maui County and the Island Maui are illustrated on the table below.



Like all the Hawaiian Islands, Maui, Molokai and Lana'i are blessed by warm air temperatures year-round, and ocean waters that range from 72-77°F in winter to 77-81°F in summer. The islands' distance from other continents, the moderating effects of the surrounding water and the tropical location combine to create this pleasant climate. Hawaii's topography, particularly the mountains and valleys and location of each island, contributes to the great variety of microclimates within very small areas.

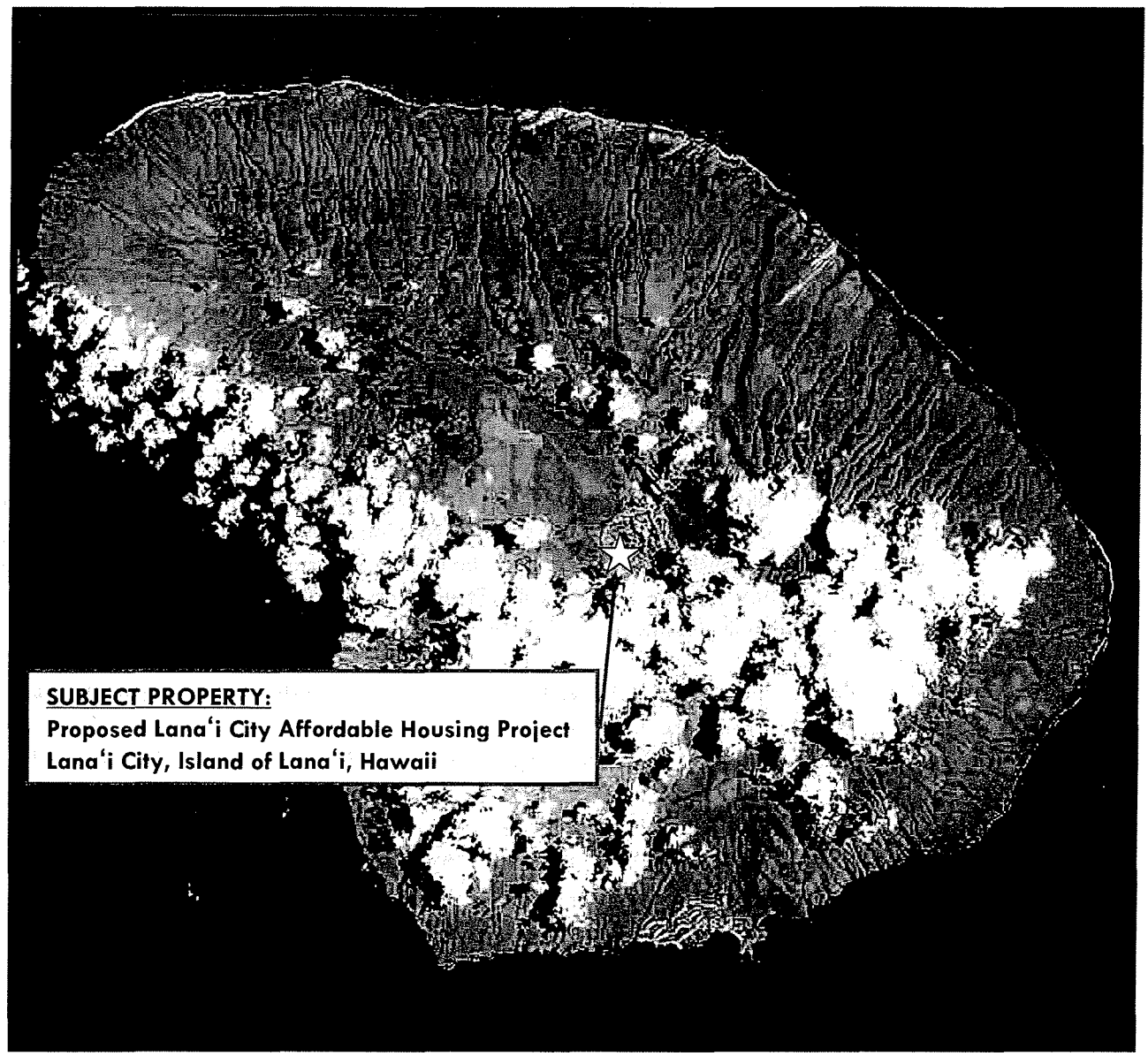
Maui County has clearly dominated the tourism competition between the neighbor islands (excluding Oahu), drawing more tourists than the other Neighbor Islands of Hawaii and Kauai combined, and has consistently had the highest occupancy rates of all island (Oahu included).

Overall, Maui County's performance has exceeded other counties during the state's ongoing string of job losses that began in late 1992. A falling Maui County unemployment rate corroborates the tightening labor market; since the mid 1990's, Maui County's unemployment rate has steadily declined and is currently one of the lowest in the state.

Maui County has an elected Mayor and County Council, and the Board of Water Supply and Liquor Control Commission are semi-autonomous with appointed directors. Although all courts are conducted by the State, the County is responsible for prosecution and the Mayor appoints the prosecutor. The council has nine members, each residing in one of nine districts; however, voters cast ballots for all nine seats.

Unlike other states, Hawaii has only two layers of government: State and County. The State is responsible for many functions that elsewhere come under the jurisdiction of municipalities, such as schools, hospitals, airports. Also, unlike other states, Hawaii has statewide zoning carried out by the State Land Use Commission. The County has zoning authority within the boundaries established by the commission.

The County of Maui is encountering a lack of affordable housing. Maui is one of the most expensive counties for single-family home buyers, with an average monthly median sales price of $627,137 in 2007; and a record high median price of $780,000 in July 2006 for a single-family home. According to the latest State of Hawaii Data Book, 8 percent of the houses are overcrowded on Maui and 41.4 percent of the households pay more than the recommended limit of 30 percent of their income on housing. In fact, 27.1 percent pay more than 40 percent on housing. The County administration has made the creation of affordable housing its priority and several new projects are either underway or in-process.



Not to Scale!

ISLAND OF LANA'I

B. NEIGHBORHOOD DESCRIPTION

Since real estate is fixed in location, its marketability and rentability are strongly influenced by economic and social trends in its immediate environment. The continuing attractiveness of this neighborhood environment to potential users and tenants, and its competitive relation to those of substitute properties, must therefore be evaluated and forecast by the consultant. In particular, perceived neighborhood trends affect both the quality and quantity of the revenues the subject property can reasonably be expected to generate. A neighborhood of income-producing properties is a geographic area characterized by similarity of uses and/or users, within which any change has a direct and immediate effect on the subject property and its value.

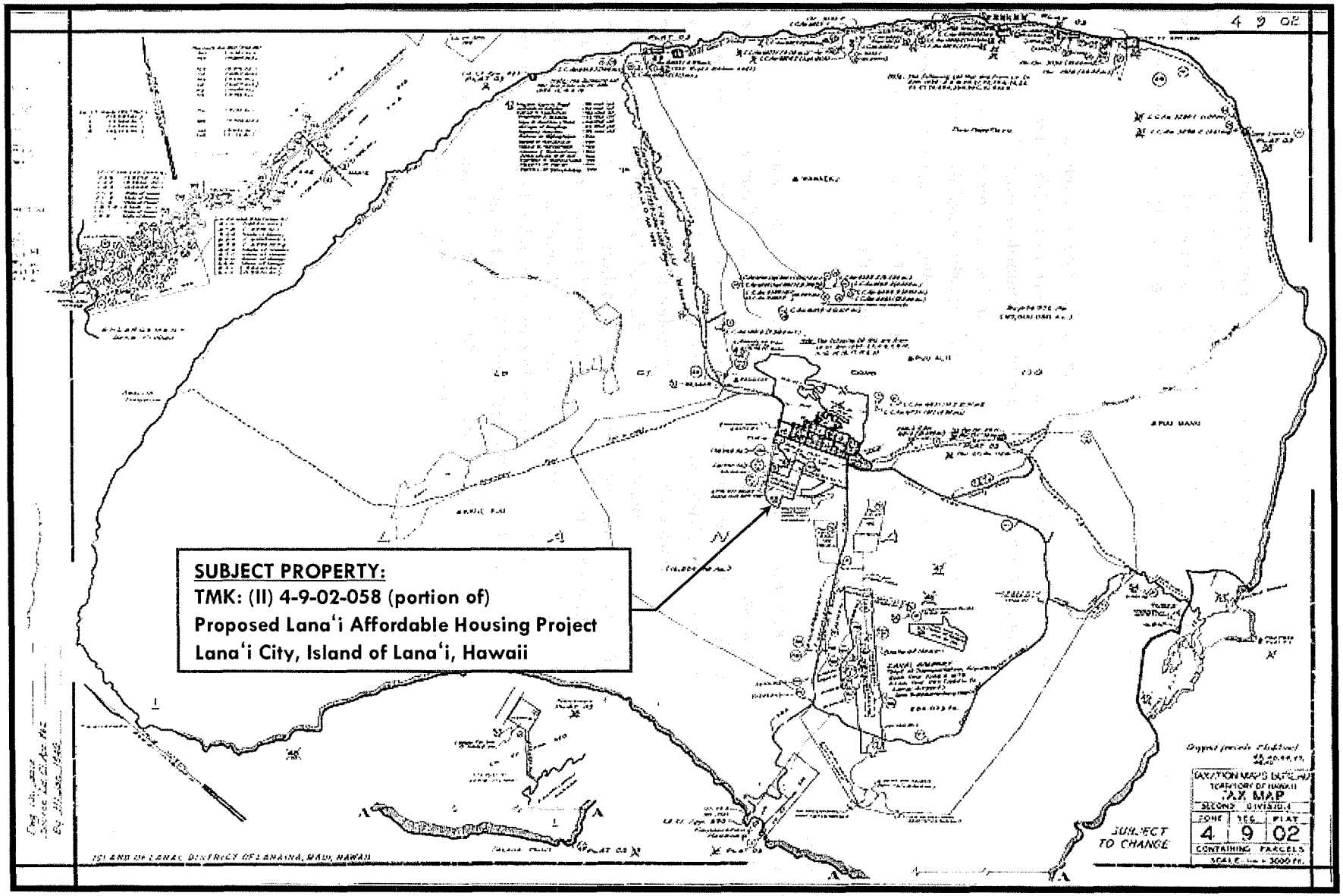
Lana'i, together with the islands of Maui and Molokai, make up Maui County; and, this small island is viewed as a single neighborhood. The island of Lana'i, formed by a single volcano, covers a land area of about 90,000 acres. Almost all of the island's residents live in Lana'i City, which is situated on the central plateau just below Lana'ihale, the volcanic peak. The location of this plantation community was based on the need to make the settlement area accessible to the pineapple fields that formerly extended through the central plateau. Kaumalapau Harbor is the only commercial harbor on the island and handles the shipment of the majority of the goods and products that support the island's population.

Resort development is concentrated in two areas: at Koele, above Lana'i City, and at Manele/Hulopoe on the coast. In 2007, Conde Nast Traveler magazine's reader poll listed the Four Seasons Lodge at Koele and the Four Seasons Lana'i at Manele Bay as 3rd and 4th best, respectively, in the "Top 20 Hawaii Resorts" category. The Manele/Hulopoe Bay area is also host to a small boat harbor and major beach park. Manele and Hulopoe Bays are designated Marine Life Conservation Districts. On the eastern shore there are a few homes on small *kuleana* and other land holdings. Approximately 98 percent of the island is owned by the major landowner, Castle and Cooke, Inc.

Lana'i City is home to the island's shopping retailers, financial institutions, schools and other civic and governmental agencies. The Lana'i Airport is located to the southwest of Lana'i City, with daily scheduled service from all of the neighbor islands.

No public transportation exists on Lana'i and there are numerous unpaved roadways stretching to its outskirts. However, Lana'i City, where most residents live, is easily accessible from both Kaumalapau Harbor and Lana'i Airport. The resort areas of Koele and

Manele/Hulopoe have similar ease of access. Based on the desirability of this area and forecasted demand here, property values on Lana'i are expected to appreciate over the long-term future.



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NEIGHBORHOOD MAP

C. PROJECT DATA

Environs

The subject will be located on a westerly extension of Fifth Street, Island of Lana'i, County of Maui. Fifth Street is a secondary roadway, that runs in a general east-west direction, perpendicular to Lana'i Avenue and Fraser Avenue, the primary thoroughfares of Lana'i City.

To the north, south and west of the subject are agricultural lands, while Lana'i High and Elementary Schools, the Lana'i Softball Field and the Olopua Woods subdivision are to the immediate east. Further east is Lana'i City, where the majority of the island's retail, financial, and civic institutions are located. Other nearby establishments include: Launderette Lana'i, The Local Gentry, Blue Ginger Café, Canoes Restaurant, Mike Carroll Gallery, Lana'i Playhouse, First Hawaiian Bank and the Lana'i Cultural Heritage Center.

Description of the Proposed Project

The proposed Lana'i Affordable Housing Project will be located on the western side of Lana'i City, Island of Lana'i, County of Maui. The subject consists of approximately 73 acres of land and is currently zoned Interim District by the County of Maui, while the State Land Use District designation is currently Agricultural. The project, which is still in its preliminary planning stage, will consist of 412 residential units and will possess mountain views. The Consultant was provided with a Preliminary Site plan and has gleaned information from this plan for information regarding the subject project district. According to the plan, there will be 239 house lots of approximately 5,000 square feet (R-1 Residential District) and 173 multi-family units on 14.46 acres. Early indications also include 4.19 acres of park space, 4.94 acres of public/quasi-public land, and a 4-acre detention pond.

PART III – ANALYSIS AND CONCLUSION

A. MARKET ANALYSIS

For the purpose of estimating the market response to this project, a market study was conducted to determine how current supply and demand for residential homes and multi-family units might be affected by the development of the subject's units. The extent of our survey encompassed new, ongoing and proposed residential developments on Lana'i to give the reader the best perspective of the overall market.

OVERVIEW

One of the more difficult factors in determining the success of a proposed project is estimating future absorption rates. There are two components to this: First, is the design and pricing of the proposed project. This, of course, is well within the developer's control but has not yet been determined for the subject. The second aspect is the overall market environment at the time of pre-sale and project completion. This is, obviously, more difficult to define because it involves forecasting such variables as interest rates, overall market conditions, and general and specific sector real estate market conditions.

The added complication with most projects is the time frames and time lags involved. Since most subdivisions or condominium projects take several years between conception and completion, market and interest rate conditions can change significantly. Thus, a project may commence in a favorable environment and be completed in an unfavorable one (or vice versa). Furthermore, real estate is a cyclical industry and sales activity tends to move in spurts. It is not unusual for a new project to sell half its units in the first year of marketing and require 2 to 3 years (or longer) to sell the remaining half. Of course, these time periods could expand or contract depending upon market conditions. Thus, the notion of a linear sales rate may be deemed unrealistic for practical purposes, but is a useful and convenient tool for planning.

RESIDENTIAL SUPPLY CHARACTERISTICS

The Lana'i Affordable Housing Project will extend the western boundary of Lana'i City. Although Lana'i is a portion of Maui County, it is considered to have its own real estate market, of which there are two distinct housing segments, workforce and resort. Since the subject will offer affordable housing units, the primary focus of this market study was the workforce housing segment.

Maui County Residential Workforce Housing Policy

In November 2006, the Maui County Council enacted the Residential Workforce Housing Ordinance. The purpose of the ordinance is to enhance the public welfare by ensuring that the housing needs of the County are addressed. The intent of the policy is to encourage the provision and maintenance of residential workforce housing units, for both purchase and rental, to meet the needs of income-qualified households for the workforce, students, and special housing target groups.

Essentially, all applicable residential development after the passage of this ordinance, including the subdivision of land and/or the construction of single-family dwelling units; two-family dwelling units; multifamily dwelling units; or hotels; shall be subject to the policy upon final subdivision or building permit approval. Applicable residential development includes, in part: five or more dwelling units, excluding farm labor dwellings or a second farm dwelling, not part of a condominium property regime; five or more new lots; a combination of dwelling units and new lots totaling five or more.

Prior to final subdivision approval or issuance of a building permit for a development, the developer is to enter into a residential workforce housing agreement that requires forty percent of the total number of units and/or lots shall be sold or rented to residents within established income-qualified groups, when more than fifty percent of the dwelling units and/or new lots in the development are offered for sale for less than $600,000. When fifty percent or more of the dwelling units and/or new lots in the development are offered for sale for $600,000 or more, fifty percent of the total number of units and/or lots shall be sold or rented to residents within established income-qualified groups.

Landowners who had already received entitlements, or were at least in the approval or permitting process, were granted an exemption from these requirements; and clearly have an advantage over those who began their entitlement process post passage. One of the primary concerns to developers is the reduction in sales revenue. Coupled with unprecedented increases in construction costs, potential projects could become financially unfeasible.

It should be noted that preliminary plans for the Lana'i Affordable Housing Project indicate that all of the housing units will be in the affordable category.

Available Residential Supply In New Lana'i Projects

A discussion with a representative of the County of Maui Planning Department's Long Range Planning Division revealed that there are no acknowledged potential single-family housing projects for Lana'i at present time. Research of short term projects for Lana'i revealed that a multi-family residential project was being discussed for a 30-acre site to the northeast of the subject. Another project was said to involve 25 to 30 units for Hawaiian Homelands. Both projects were in the early discussion stages and details were not available. For the purposes of this report, the primary supply and demand factors for the proposed project are considered to be from the Lana'i region.

Lana'i Residential Active Listings

Besides the properties available in the projects, the number of resale listings on Maui is a good indication of real estate market conditions. This market evidence is generally viewed as a "counter-cyclical" indicator, which means that it is typically lower in strong markets and higher in weak ones.

The Consultant researched listings of residential house lots, condominium and single-family homes on Lana'i and found that there are currently 36 active listings (See **Exhibit B** at the end of this report). The investigation of the Multiple Listing Service revealed the following:

Single-Family

There were a total of 15 listings of residential properties in the Multiple Listing Service, of which, three were for luxury properties. The remaining 12 non-resort single-family listings ranged from $295,000 for a 721 square foot two-bedroom/one-bath home built circa 1935 on a 2,901 square foot lot to $910,000 for a 1,459 square foot four-bedroom/three-bath home built circa 1930 on a 20,601 square foot lot. The 12 non-resort single-family listings had an average marketing time of 216 days. There were seven listings with price reductions of between 5 and 26 percent, while the remaining five listings had not been decreased.

According to the 2008 Affordable Sales Price Guidelines published by the County of Maui Department of Housing and Human Concerns, the high end of the range for an affordable single-family home on Lana'i would be $439,400, which is based on 160 percent of the 2008 median income, as determined by HUD. The scenario assumed a three-bedroom home at a 6.125 percent interest rate. According to

this listing survey, there are five (5) single family properties that are listed for sale at or below this price level.

Vacant House Lots

A survey of vacant house lots on the market on Lana'i revealed that there are eight (8) listings, with all but one lot found in resort areas. The remaining 8,052 square foot lot was found on Kualua Street; however, the $498,000 list price included the partially built home on the site. A listing photo depicted the lot had been improved with split block exterior walls on a concrete foundation. This house lot had been on the market for 107 days.

Condominiums

The majority of the condominiums available on Lana'i are found in the resort areas of Koele and Manele. Research of the Multiple Listing Service confirmed this, as all of the 13 available condominium units available for sale were found in the Villas at Koele, Terraces Manele Bay or Palms at Manele.

RESIDENTIAL DEMAND CHARACTERISTICS

Demand is analyzed from two perspectives: The first is "demographic" demand, the number of units needed for a given market or employment base. Second is "effective" demand, the financial demand equation which involves looking at the number of buyers who would be qualified and interested in purchasing residential real estate.

Population

The population of Lana'i grew drastically during the 1990s. Between the 1990 and 2000 censuses the population increased by 31.8 percent. In comparison, the County of Maui, as a whole, grew 28.5 percent, making it the fastest growing County in the State of Hawaii. According to Claritas Market Comparison Report (See **Exhibit A** at the end of this report), Lana'i outpaced the Central Maui region of Kahului and Wailuku, which registered growth of 26.0 percent, as well as the West Maui region, at 23.3 percent over the same 10-year period.

The growth trend has continued since the end of 2000, albeit at a more subdued pace. The 2008 population estimates have indicated a growth rate for Lana'i of approximately 13 percent over the population indicated in the 2000 census, while the 2008 to 2013 forecasted growth was almost 7 percent.

Household Characteristics

The growth in the number of households paralleled the population pattern. Household numbers grew by 37 percent between 1990 and 2000, estimated at 15 percent from 2000 to 2008, and forecasted to jump 8 percent between 2008 and 2013. The 2008 household estimate for Lana'i was 1,322, with just over 50 percent being owner-occupied and slightly less than 50 percent being rented. The 2013 forecast showed 1,430 households, up 108 households from 2008.

Employment and Household Income

The unemployment rate on Lana'i had been on a general decline since 1993, when unemployment was at 9.1 percent. There was a temporary spike in 2002 to 4.2 percent, before dropping to an all-time low of 1.4 percent in 2005. Since then, there have been annual increases, caused in part by the downturn in the economy and recent financial crisis. In 2008, the unemployment rate for Lana'i was 4.8 percent (Source: State of Hawaii Department of Labor and Industrial Relations- Hawaii Workforce Informer).

Household income figures have also been increasing. The estimated median annual household income on Lana'i is 2008 is $56,102 (Source: Claritas), a rise of approximately 29 percent over the 1999 median household income of $43,271 (Source: US Census 2000) and

a 34 percent increase over the 1989 figure of $32,137 (Source: US Census 1990). During the 10 year period from 1999 to 2008, this represented an average increase of over 2 percent per year.

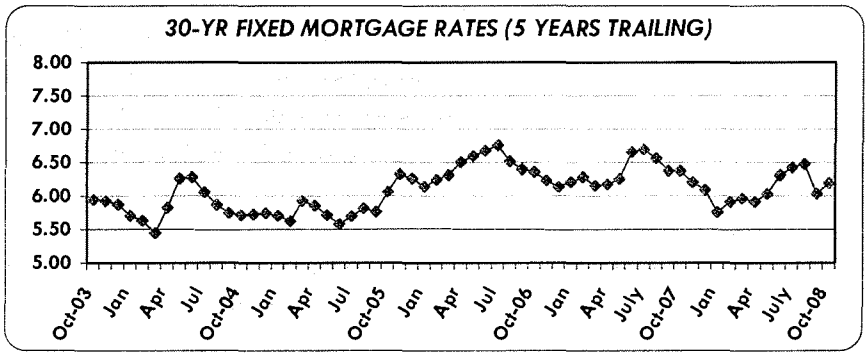
In comparison, the average median sales price for a single-family home on Lana'i went from $132,500 in 1999 up to $425,000 in 2007. This represented an increase of 221 percent over a nine year period, or an average of over 24 percent per year. With home prices increasing at a faster rate than household incomes, many potential buyers were quickly priced out of the market.

Mortgage Interest Rates

Mortgage rates steadily declined during the past six years and momentarily dipped to around 5.00 percent in 2003. As of October 2008, the average interest rate on 30-year, fixed-rate mortgages was at 6.20 percent according to a survey by FreddieMac. Rates averaged 6.41 percent in 2006 and 6.34 percent in 2007; and are currently averaging 6.24 percent for 2008-to date.

The recent rise in mortgage rates was spurred by rising yields in the long term Treasury bond market (See **Table 1**, below). In addition, short term interest rates have been rising due to concerns of inflation by the Federal Reserve Board. A constraint on oil production in the Middle East has led to a rise in fuel prices as well as prices for consumer goods. This has a considerable effect on Hawaii due to the increased cost of shipping.

Table 1 – Historical Trend of 30 Year, Fixed Mortgage Rates



Source: Freddie Mac-Primary Mortgage Survey

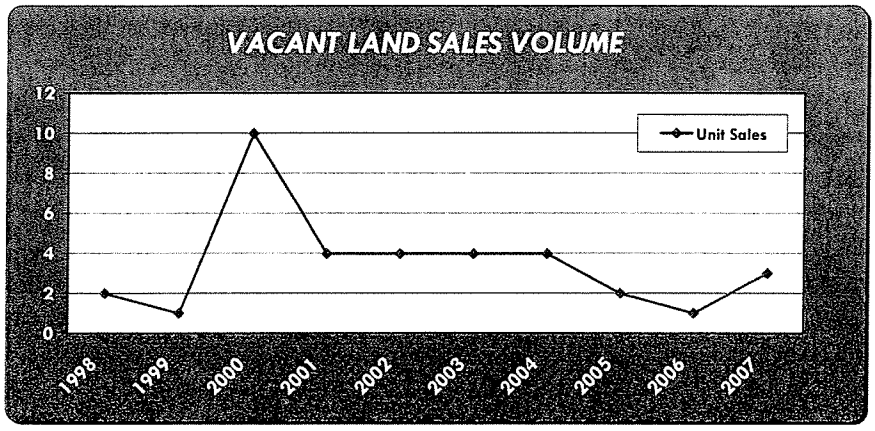
General Residential Sales Activity Island of Lana'i

The number of units sold is the most basic indicator of market activity and is useful in helping estimate the number of new units which a specific market segment may be capable of absorbing. As evidenced in the following section, prices and number of sales increased while marketing times decreased from early to mid-2000's. The tables on

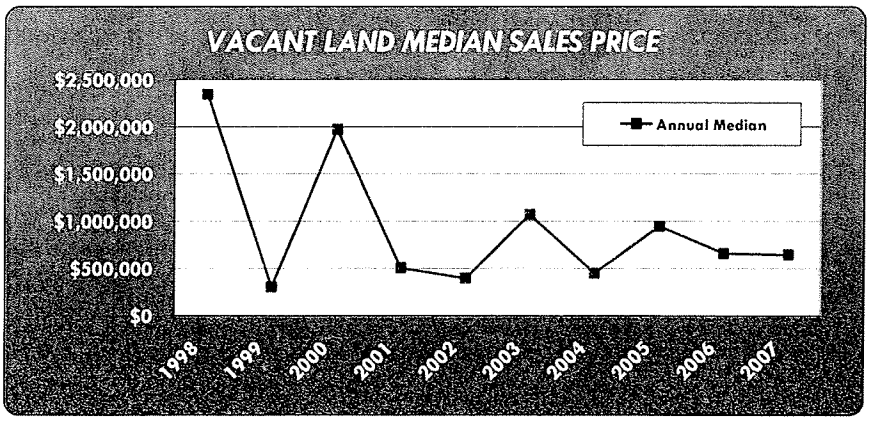
the following pages illustrate the general market trends over the past 10 years on Lana'i, as well as the year-to-date 2008 sales activity. It must be noted that the Island of Lana'i is a very small market, with little sales activity, regardless of market conditions. As such, annual median prices and average days on market can be easily affected by a single sale.

Vacant Land

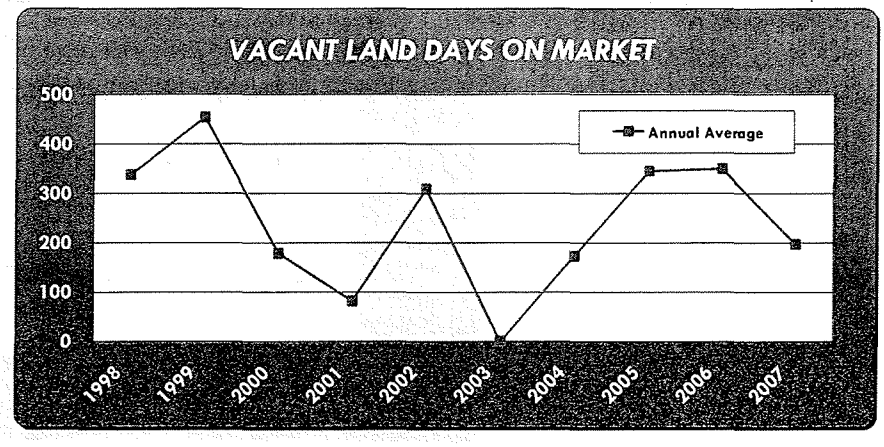
From 1998 to 2007, there was an average of approximately three (3) sales per year. The highest number of land sales occurred in 2000, with 10 units sold, while 1999 and 2006 only saw the conveyances of one vacant land parcel in each year.



Meanwhile, median prices varied greatly from 1998 to 2007. This is not unusual, when considering the diversity of the real estate on Lana'i. A house lot in Lana'i City, for example, would sell for way less than a similar sized home site in the resort areas of Manele or Koele. The lowest annual median price was $310,000 in 1999, while the high end of the range was in $2,347,500 in 1998.

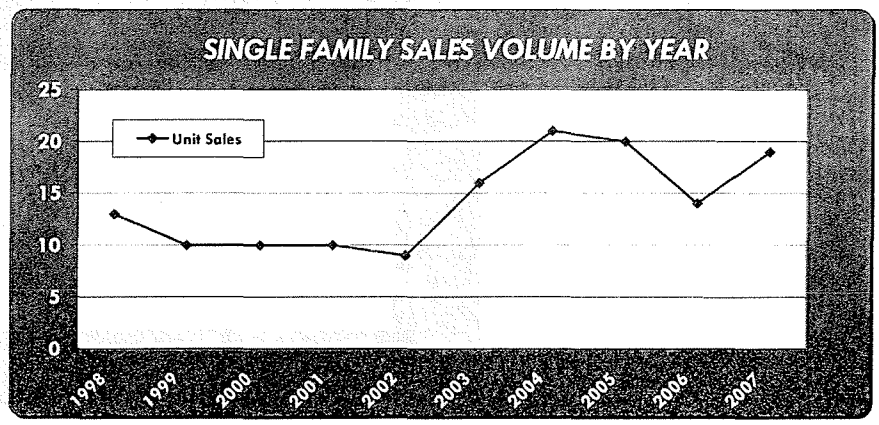


Annual average marketing time between 1998 and 2007 ranged from nil to 454 days. As previously discussed, sales on Lana'i are sporadic, and a single sale can greatly affect the annual average.

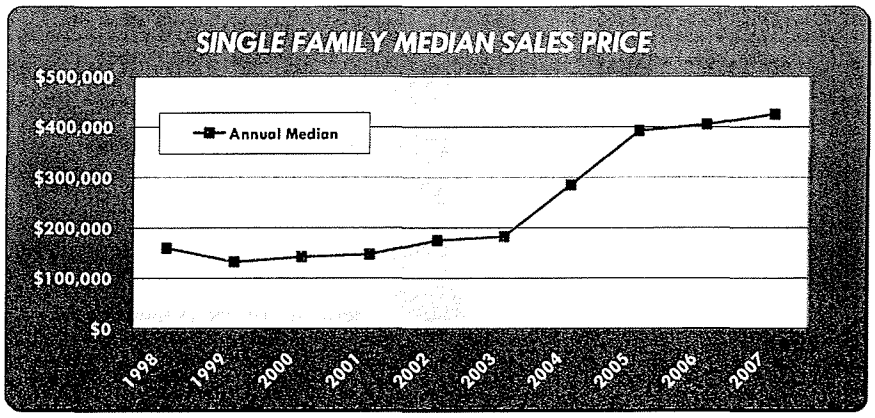


Single-Family

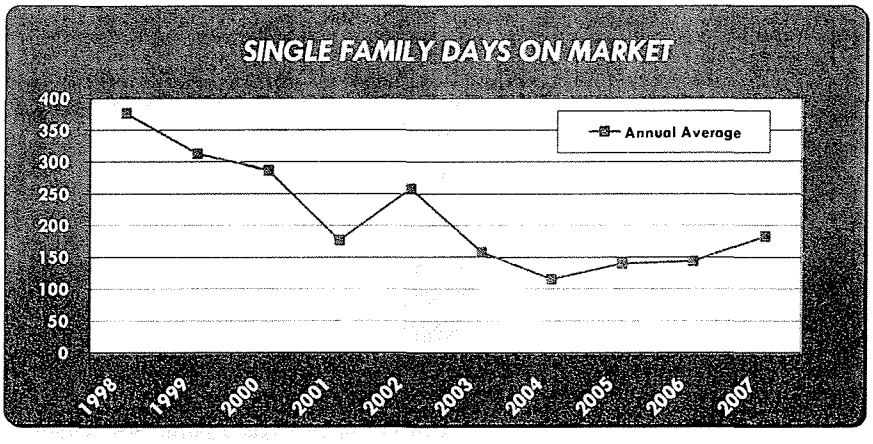
Sales of single-family properties were generally stable between 1998 and 2002, followed by sharp increases in 2003 and 2004. Unit sales stabilized in 2005, dipped in 2006, and recovered in 2007. The low end of the range occurred in 2002, with 9 sales, and the high end saw 21 sales of single-family residences in 2004.



Median prices for single-family units were generally consistent between 1998 and 2003, and then increased dramatically in 2004 and 2005, before stabilizing thereafter. The lowest annual median price occurred in 1996, at $75,000, as compared to a high of $425,000 in 2007.

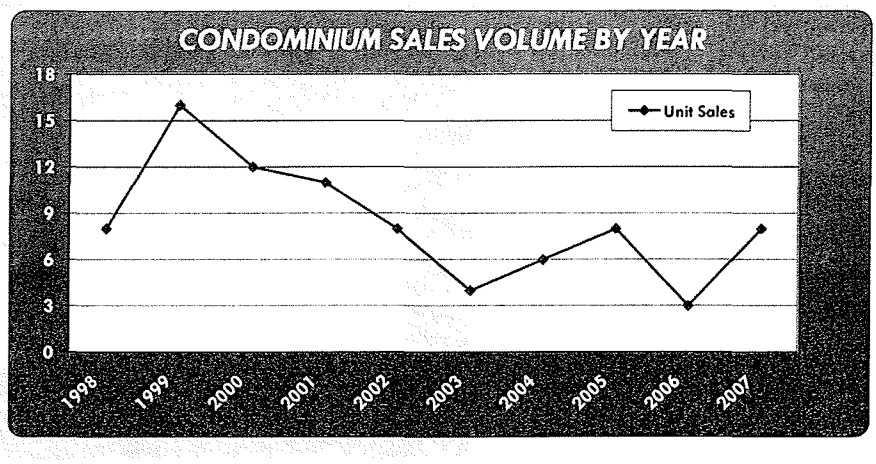


Annual average days-on-market figures showed a general decrease from 1998 to 2001. After an upward tick in 2002, marketing times had general stabilization in 2003 to 2007. During this 14 year period, the highest annual average marketing time was 574 days and the lowest was 94 days.

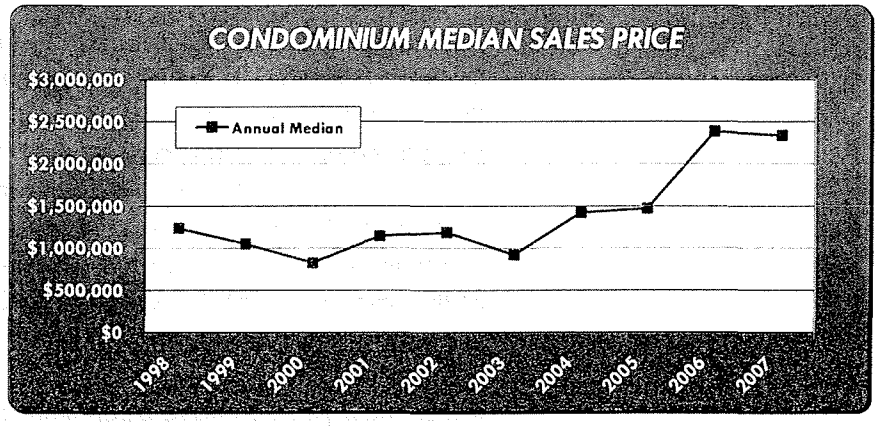


Condominiums

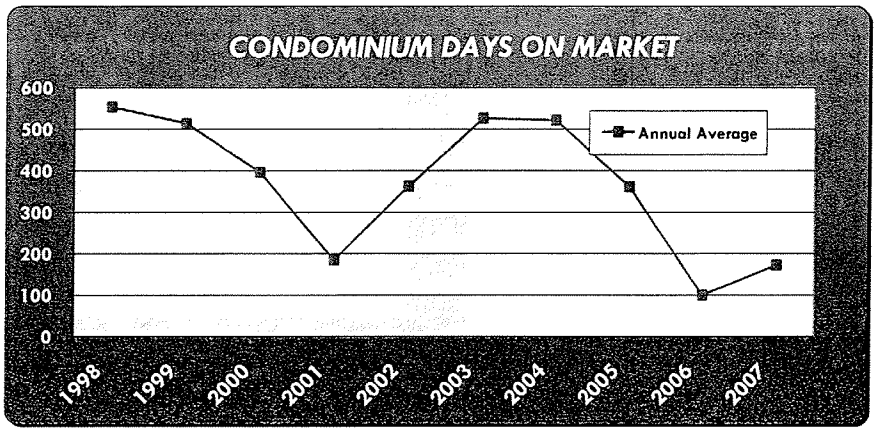
In 1998 there were eight (8) sales, followed by a high of 16 transactions in 1999. Unit sales saw downward movement up until 2003, after which there was a rebound in 2004 and 2005. A sharp drop off to three (3) sales occurred in 2006, followed by an increase in 2007.



Condominium annual median prices from 1998 to 2005 were within a range of $823,202 to $1,474,500, before sharply increasing to $2,384,800 in 2006. A slight dip was seen in 2007, as the annual median price was $2,337,331. It should be noted that all of the condominiums sold during this time period were in the resort areas of Manele and Koele. There were no sales of residential condominium units in Lana'i Town, as this type of property is uncommon for the area.



Average annual days-on-market figures decreased steadily from 553 days in 1998 to 185 days in 2001, but had climbed back to 526 days by 2003. Another downward trend was seen to 2006, with a low of 99 days, followed by and increase to 172 days in 2007.



Sales statistics for 2008, as compared to 2007, would have a decrease in unit sales for all property types; increase in annual median price for vacant land and single-family properties, while condominiums would indicate a decrease; and a decrease in marketing time for vacant while, but an increase for single-family and condominium properties. It should be noted that these projections are based solely on year-to-date sales for 2008 and are not a forecast of the real estate market.

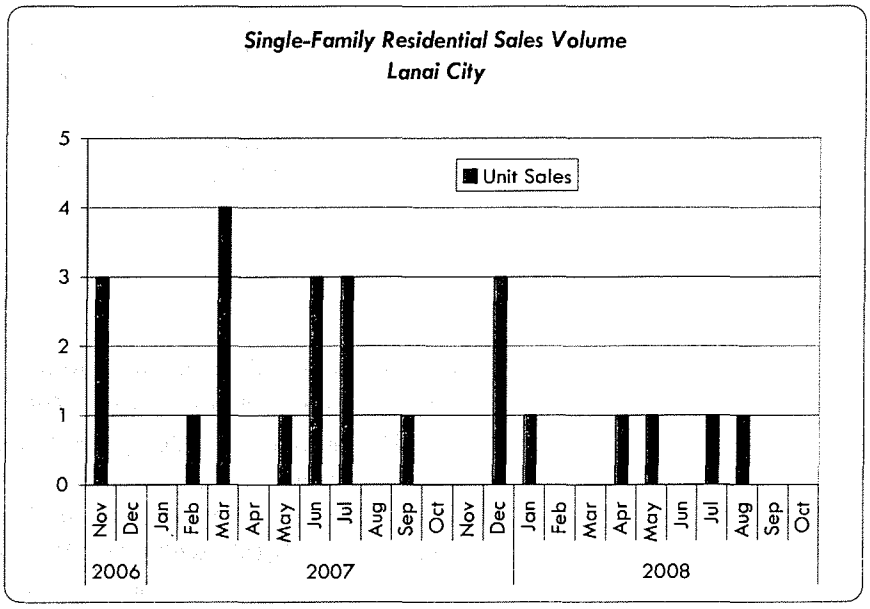
As discussed earlier, the real estate market on the Island of Lana'i is limited. Even during the peak of the market, there were never more than 21 sales of any property type in a given year. This makes year-to-year comparison difficult, as even slight difference in sales would result in a large percentage of change. For example, should there continue to be only two vacant land sales on Lana'i for 2008, this would indicate a 33 percent decrease from 2007's three sales; while at the same time, 2008 would be a 100 percent increase over 2006, which had a single vacant land sale.

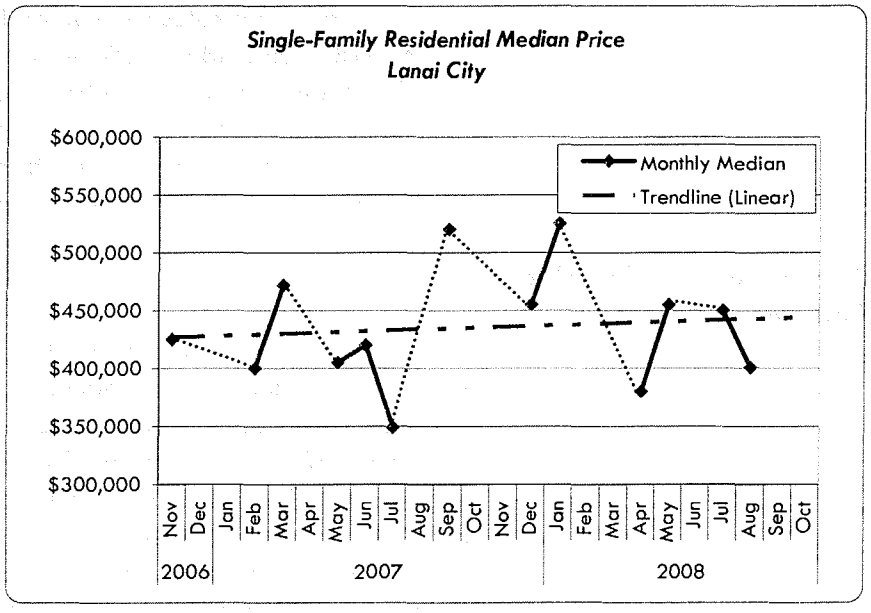
Recent new projects have been limited to resort developments, which are considered to be in a different market segment from the subject. As such, extracting absorption rates from these developments would not be appropriate. Instead, analysis was conducted for single-family residential activity in Lana'i City. In the Consultant's opinion, this would provide a better example of demand for the subject's proposed affordable housing units. Multi-family sales were also researched; however, there were no reported sales in Lana'i City within the past 24 months.

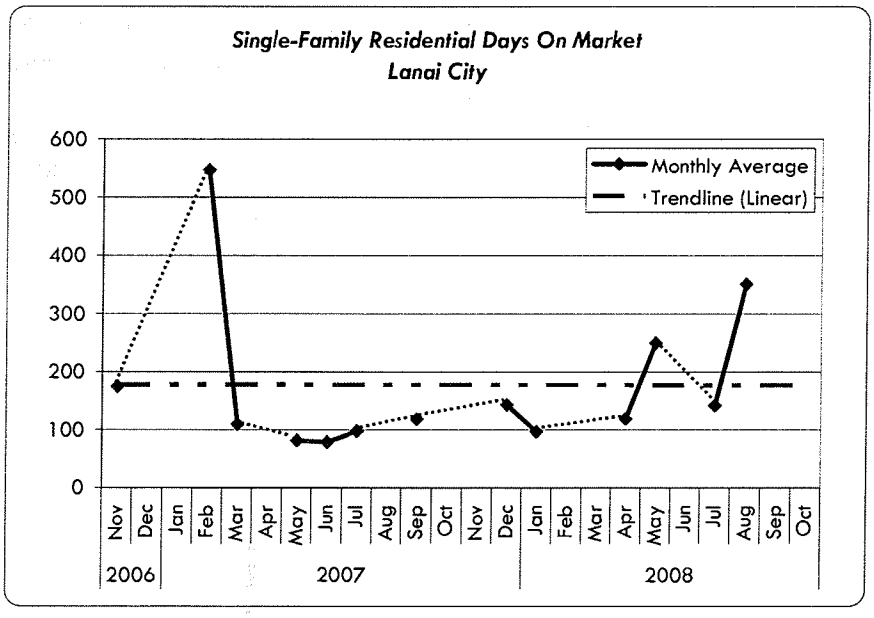
Historical Single-Family Sales Activity, Lana'i City (Past 24 Months)

Over the past 24 months, there were a total of 24 single-family residential sales in Lana'i City, which calculated to an average of one

sale per month. There were 13 months with sales of between one (1) and four (4) units, with the remaining 11 months having no sales activity. The monthly average marketing time for the 13 months having sales ranged from 79 to 547 days, while the monthly median was between $349,000 and $525,000. The average price decrease for the 24 sales was 9 percent, with 21 sales showing price reductions of between 1 percent and 35 percent. The remaining three sales were not decreased.







The 24 Lana'i City sales ranged from $300,000 for a three-bedroom/two-bath home with 1,084 square feet of living area, built in 1935 (renovated 2005), on Olapa Street, to $525,000 for a three-bedroom/two-bath home with 1,092 square feet of living area, built in 1996, on Thirteenth Street. The Olapa Street conveyance was in November 2006, while the Thirteenth Street sale was in March 2007. The marketing times for these sales were 100 days and 8 days, respectively.

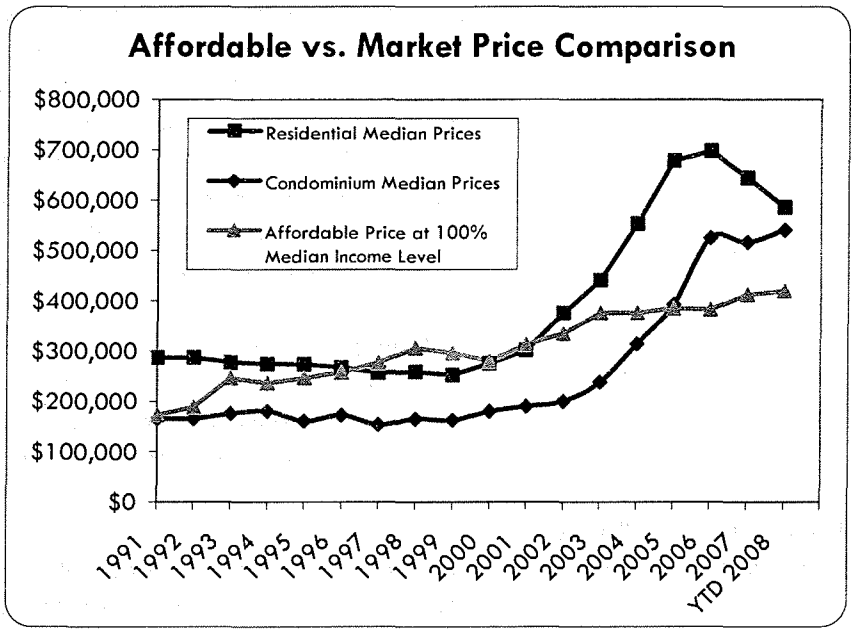
The two most recent sales transacted in August 2008 and July 2008, for $400,000 and $450,000 respectively. The August conveyance was of a three-bedroom/two-bath home with 1,092 square feet of living area, built in 1997, on Thirteenth Street. Meanwhile the July sale was of a three-bedroom/one-bath home with 1,594 square feet of living area, built in 1992 (renovated 2007), on Iliahi Street.

Comparison of Affordable And Market Prices

An analysis was done to compare the increase in affordable prices to the increase in the median prices for residential and condominium units. The affordable price is based on the median income level for the County of Maui and typical mortgage interest rates and loan requirements. This calculation assumed a typical 80 percent loan to value ratio and a 35 percent debt to income level. Since 1990, interest rates have dropped from an annual average of 10.13 percent to 5.83 percent in 2003, and for year-to-date 2008, is currently at 6.24 percent. In addition to the steady increase in the median income level, lower interest rates allow housing to be more affordable. As shown in **Table 2**, Page 22, the price which is

affordable to earners of the median household income was compared to the median prices of residential and condominium prices in the market.

Table 2 – Comparison of Affordable and Market Prices



As income levels rose from 1990 to 2000, residential properties became more affordable to those earning the County's median income level, although it wasn't until 1997 that the median price for a residential property was actually lower than the price that can be afforded by a household earning the County's median income. During this period, the only option was to purchase a condominium unit, which for larger families, can be less accommodating. In 2001, the nation's economy hit a recession, which was followed by the lowering of short term interest rates by the government. Consumer money flowed out of the stock market and into bonds and treasuries, which pushed long term interest rates lower. This, combined with other factors, caused a surge in demand for real estate, which sent prices skyrocketing within a few years.

By 2002, the soaring prices outpaced the County's median income level despite steadily falling interest rates. At the same time, condominium units were found to be a more feasible alternative and sales in this category started to pick up their pace.

From 2003 to mid-2006, sales prices for residential properties continued their climb to record levels, making it unaffordable for most of Maui County's residents. Condominium sales prices also began to rise during this period and by 2005 the median price for this type of

property also surpassed the level that would be affordable to those earning the County's median income.

Since mid-2006, the real estate market has seen a period of stabilization with a more recent downward trend. For 2007, the median prices for both condominium and single-family residential properties showed signs of retreat, which have continued into 2008. The softening market has been brought on by rising interest rates, evaporation of the secondary lending market, as well as a slowing economy and increased fuel costs. While the County's median income continues its upward crawl, there is still a large disparity between what is affordable and what is being offered in the market.

To help alleviate this situation, more affordable housing units should be brought to market. The added supply, in categories where Maui County's residents are being priced out of the housing market, has proven to be in great demand, even under current market conditions.

Hawaii Housing Policy Study Update 2006

This study provides evidence of the need for additional housing in Maui County. According to the report, nearly 45 percent of all Maui County households expressed a desire to move to a new home in the near future, of which, approximately 13 percent stated they wanted to move out of state. As such, effective demand was said to be 40 percent of all Maui County households, up from 36 percent from the previous 2003 survey.

Not surprisingly, the report indicated that almost 40 percent of those who expect to move outside of Hawaii made it known that one of their main reasons for leaving was the high price of housing, up from 14 percent in 2003. The 2006 study listed the average monthly mortgage payment for the County of Maui to be $1,820 and an average monthly rent of $1,080. Approximately 46 percent were said to be spending more than 30 percent of their income on housing. Although the study was done during a time of more robust market conditions, prices still appear to be out of reach for many Maui County residents.

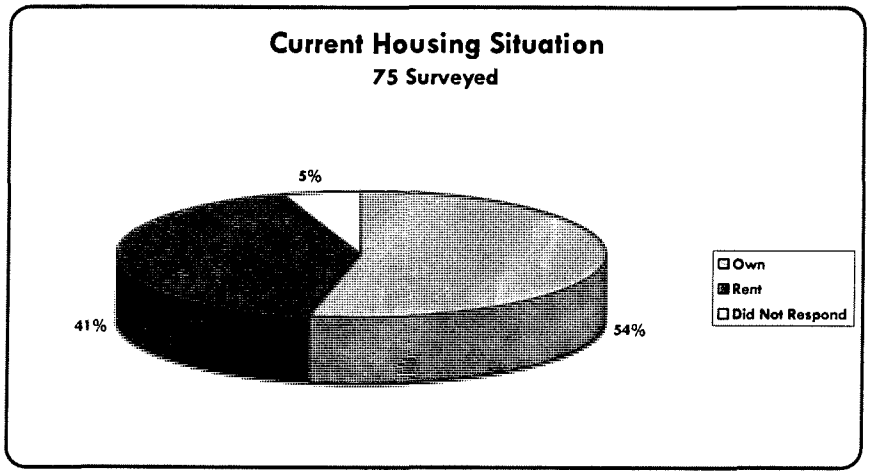
As indicated in the study, Maui County will need an additional 4,224 housing units between 2007 and 2011, with over 60 percent of the housing units needed for those households earning 80 percent or less than the HUD median income.

As previously indicated, Lana'i is considered to have its own real estate market, with two distinct segments, resort and workforce. Since the 2006 Hawaii Housing Policy Study Update dealt with Maui County as a whole, the Consultant conducted his own survey of Lana'i residents to provide a more focused view of the current state of

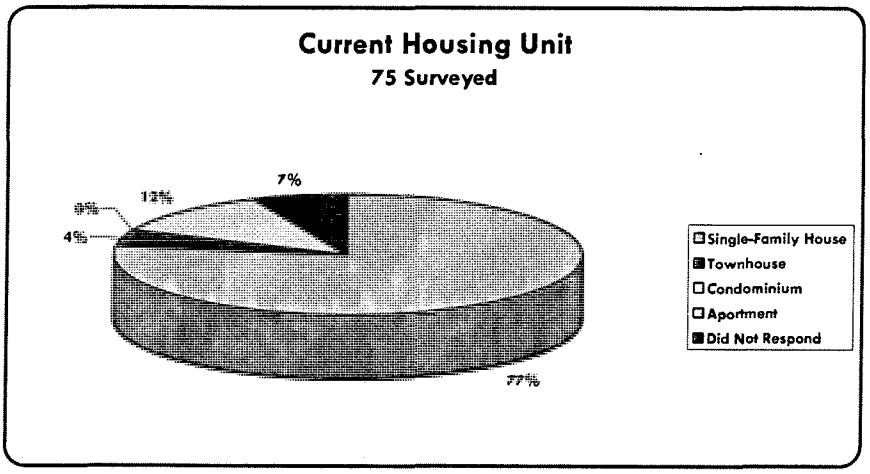
housing on the island, as well as the sentiment of it's working people. There were 75 surveys completed, which have been summarized in **Exhibit C.**

Lana'i Housing Survey

There were 54 percent who said they own their current housing unit and 41 percent who responded that they rent their current housing unit.

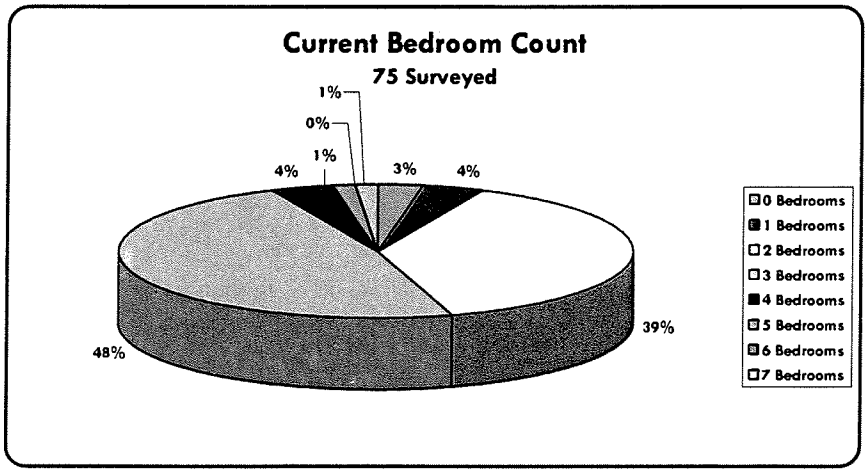


The study revealed 77 percent of the residents surveyed currently own or rent a single-family home, while 12 percent said they live in an apartment and 4 percent live in a townhouse unit.

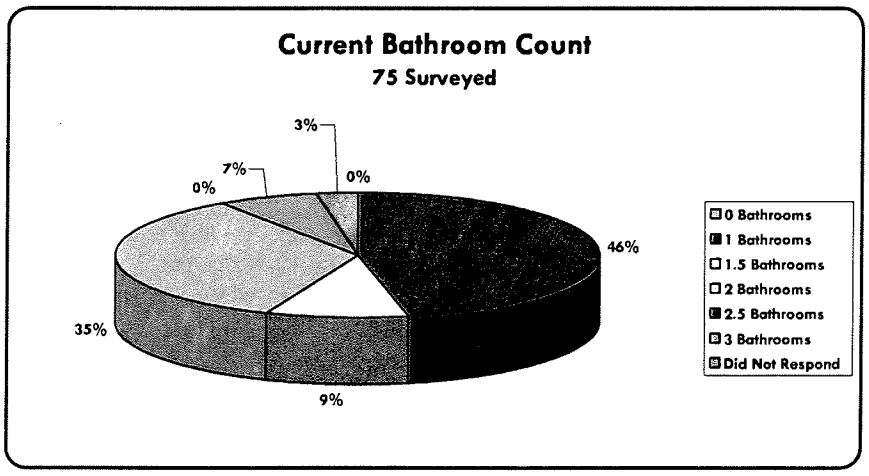


Many of the residents surveyed, approximately 48 percent, are currently living in a three-bedroom housing unit, with 39 percent residing in a two-bedroom unit. One-bedroom and four-bedroom housing units were each represented by 4 percent of the respondents and 3 percent lived in a studio unit. 1 percent of the households were

in a five-bedroom housing unit and an additional 1 percent in a seven-bedroom unit.

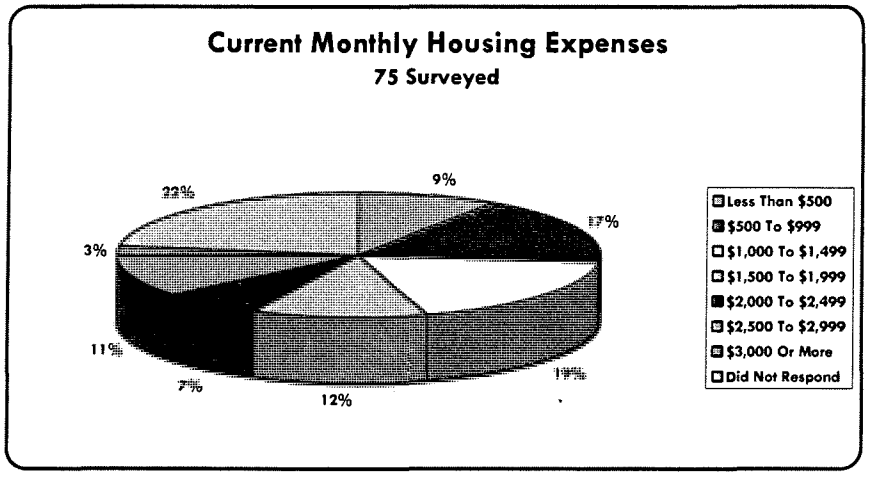


Of the surveyed housing units, 46 percent had one bathroom and 35 percent had two bathrooms. 9 percent of the housing units had one and one half-bathrooms. There were 7 percent of the households with three bathrooms.

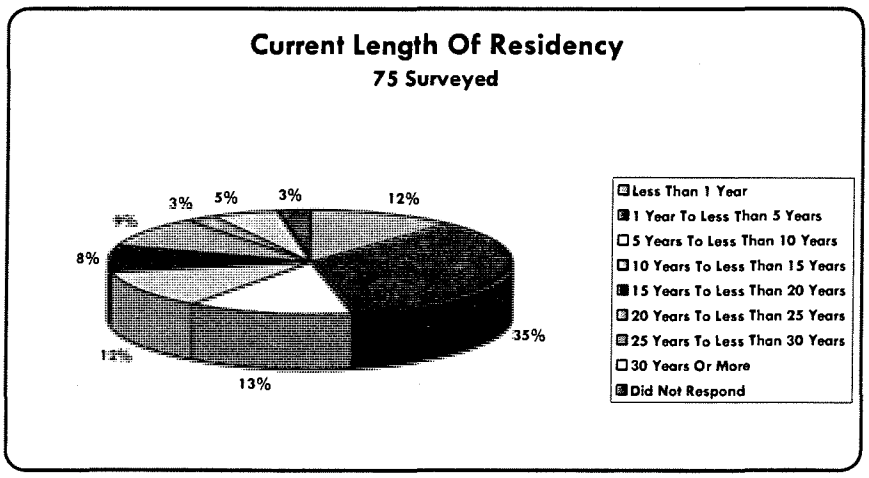


There was a wide range of monthly housing expenses being paid, which was attributed to some residents receiving rent subsidies. 19 percent are paying between $1,000 and $1,499 per month. 17 percent were paying from $500 to $999 per month. Residents paying between $1,500 and $1,999 monthly totaled 12 percent, while 11 percent said they had monthly housing expenses from $2,500 to $2,999. 9 percent of the respondents pay less than $500 per month and 7 percent pay between $2,000 and $2,499 monthly. There were 3 percent that reportedly pay $3,000 or more per month.

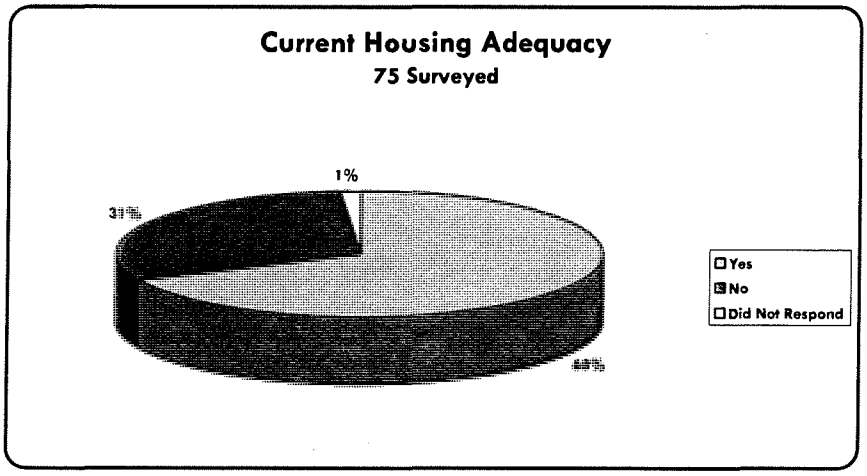
Residents were asked to include monthly utility payments and maintenance fees in their responses.



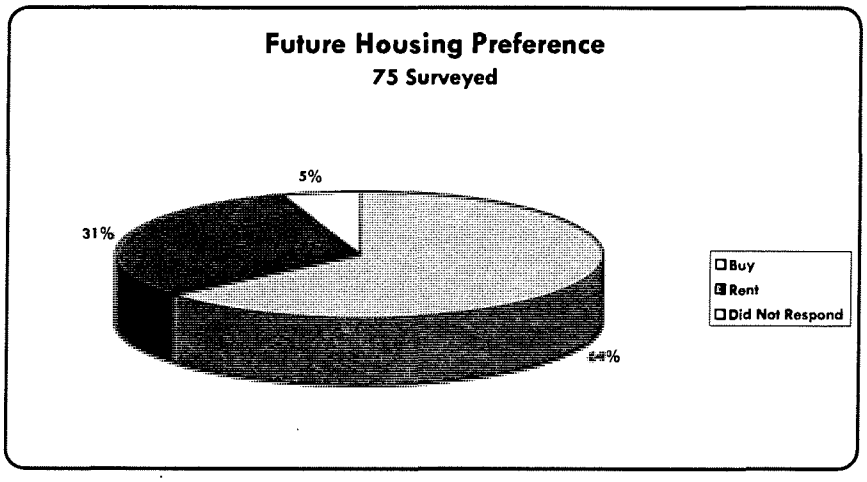
The largest group of residents surveyed indicated that they have lived in their current housing unit for 1 year to less than 5 years (35 percent). Those living in their current housing unit for 5 years to less than 10 years, 10 years to less than 15 years, and less than one year had about the same response, between 12 and 13 percent. 8 and 9 percent of those surveyed said they have lived in their current housing unit for 20 years to less than 25 years and 15 years to less than 20 years, respectively. Given the rural nature of Lana'i, it was not surprising to discover that 3 percent were in the same housing unit for 25 years to less than 30 years and 5 percent at 30 years or longer.



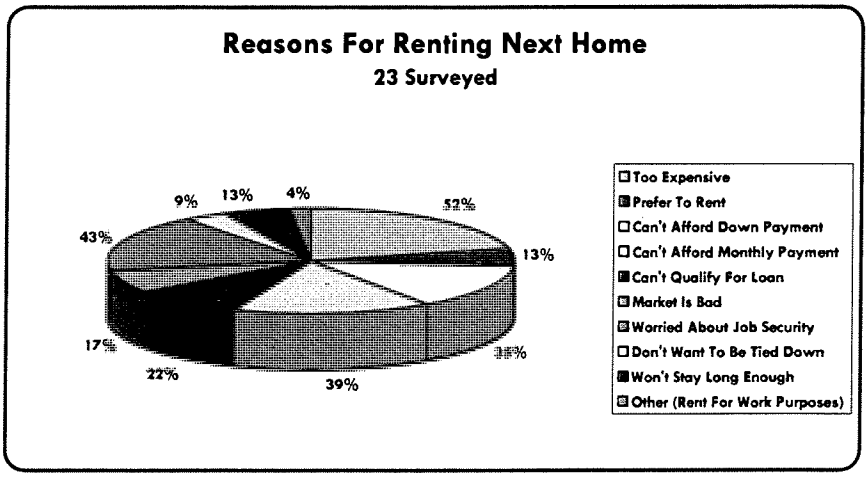
Approximately 68 percent of those polled felt that their current housing unit was large enough for the number of people living there. Meanwhile, 31 percent were of the opposite opinion.



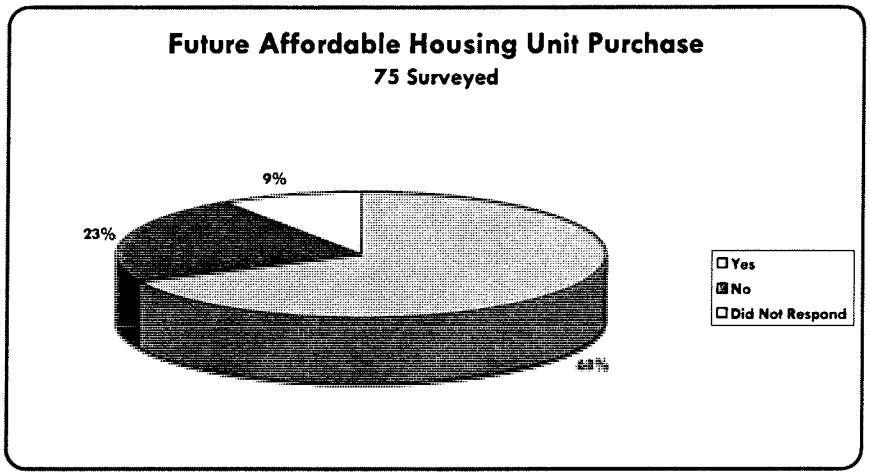
Regarding their next housing unit, 64 percent would prefer to buy, while 31 percent would rather rent.



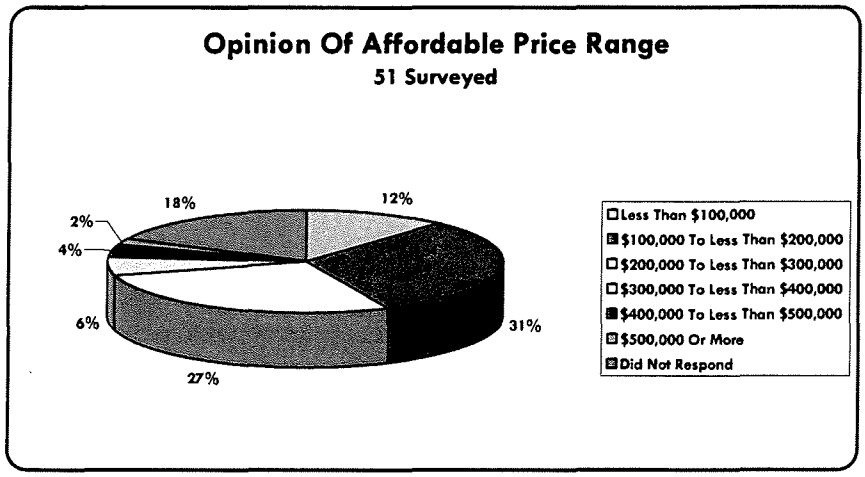
Of those who said they would prefer to rent their next housing unit, 52 percent considered buying a home too expensive, while 43 percent were too concerned about job security. 39 percent stated they felt they couldn't afford the monthly payments and 35 percent didn't think that they could come up with the down payment. There were 22 percent who said they wouldn't qualify for a loan, in addition to 17 percent that considered market conditions to be bad. 13 percent of those surveyed would prefer to rent and another 13 percent were not planning on being on the island long enough. 9 percent did not want to be tied down by a mortgage, while 4 percent needed to rent for work purposes. The 23 respondents of this question were allowed to list as many reasons as they considered applicable to their housing situation.



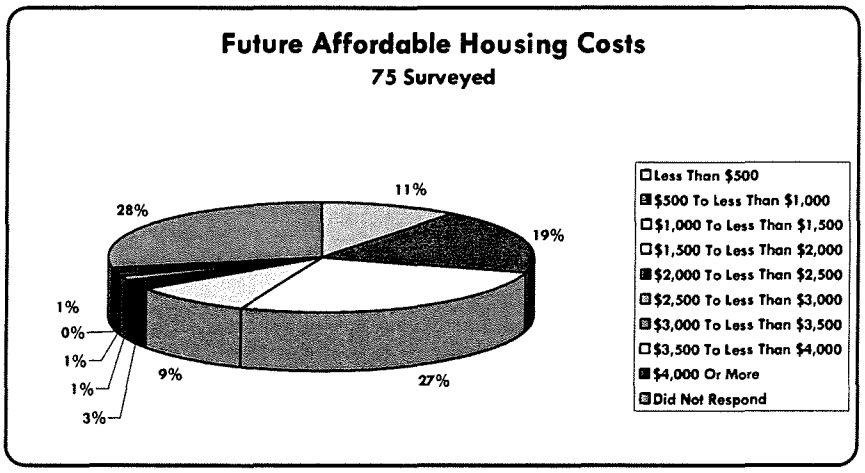
When asked if they would purchase a home that they could afford, if available, 68 percent responded positively. 23 percent opined that they still would not purchase such a home.



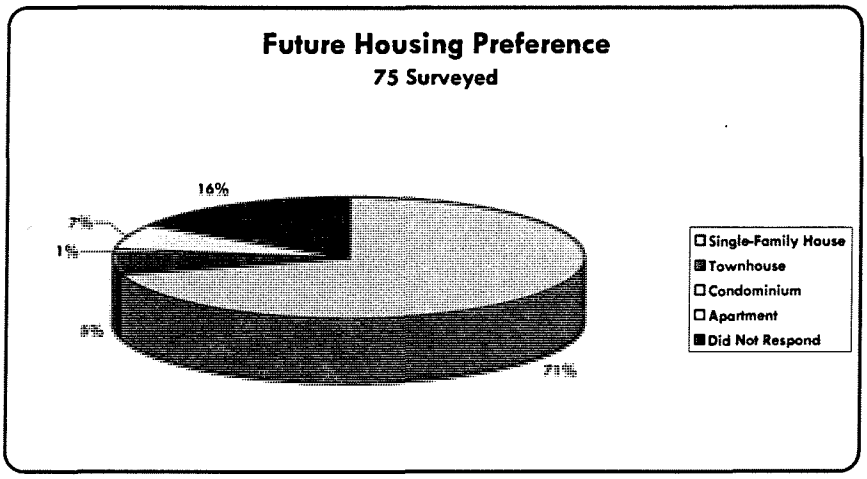
Those that stated they would purchase an affordable home, if it became available, had varied opinions as to what price range would be considered affordable. 31 percent felt that a range of $100,000 to less than $200,000 was appropriate, while 27 percent thought $200,000 to less than $300,000 was acceptable. Less than $100,000 was the choice of 12 percent of the respondents. At the same time, 6 percent considered $300,000 to less than $400,000 to be affordable and 4 percent would pay from $400,000 to less than $500,000. 2 percent of those surveyed were willing to pay $500,000 or more.



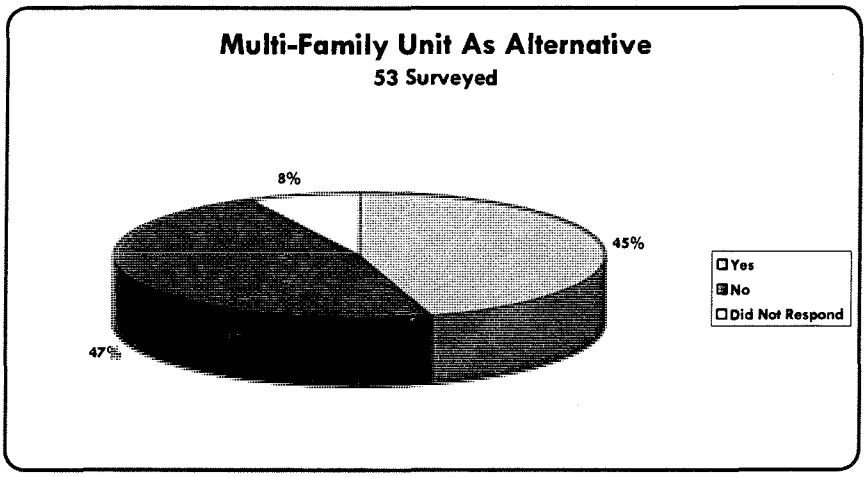
When asked how much they could afford to pay each month for housing costs, including utilities and maintenance fees, 27 percent stated $1,000 to less than $1,500. 19 percent said $500 to less than $1,000 and 11 percent felt they could only pay less than $500 per month. 9 percent could pay from $1,500 to less than $2,000, with 3 percent could afford monthly payments of $2,000 to less than $2,500. The categories of $2,500 to less than $3,000, $3,000 to less than $3,500, and $4,000 or more were each represented by 1 percent of those surveyed.



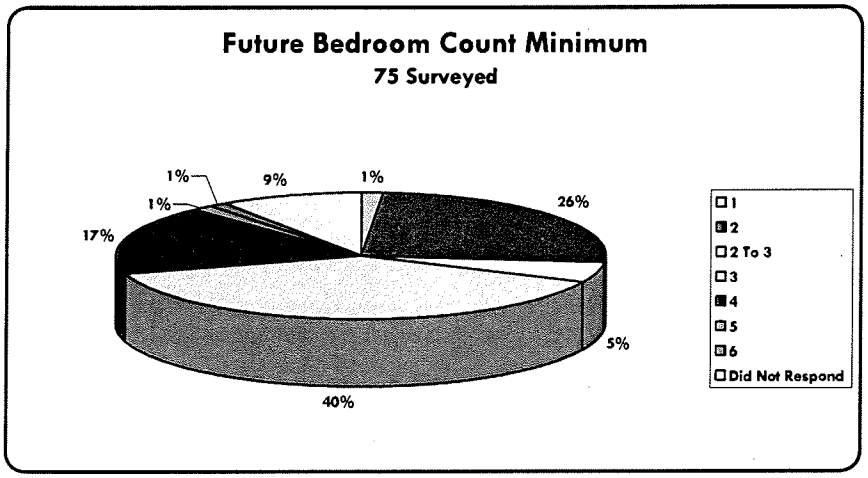
An overwhelming 71 percent would prefer a single-family home if they were to buy a housing unit. 13 percent would rather buy an apartment, townhouse or condominium unit.



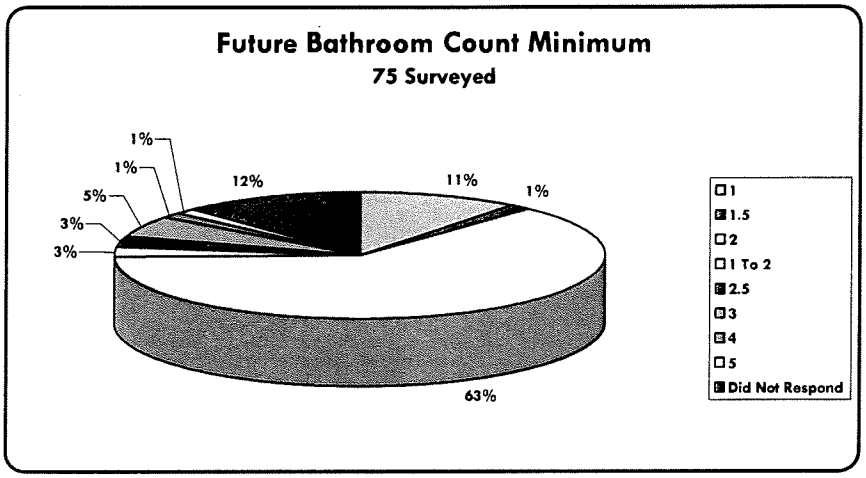
Of those that preferred to buy a single-family home as their next housing unit, 47 percent said they would not make a substitute purchase of a townhouse/condominium/apartment. This was compared to 45 percent who would consider buying a multi-family unit, should they not find a single-family home within their price range.



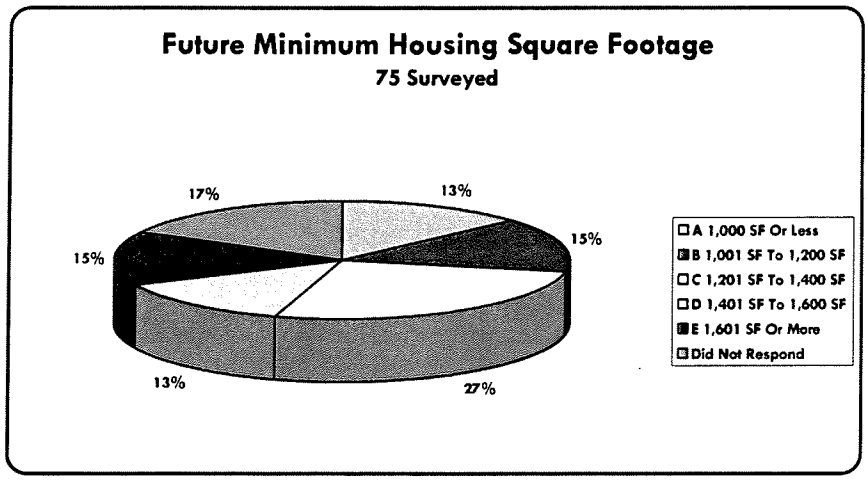
There were 40 percent who said they would need at least three bedrooms in their next housing unit. 26 percent felt they required at least two bedrooms. In addition, 5 percent stated either two or three bedrooms would be necessary. Four bedrooms were the minimum for 17 percent of the respondents. Those needing at least one bedroom, five bedrooms, and six bedrooms were each represented by 1 percent of those polled.



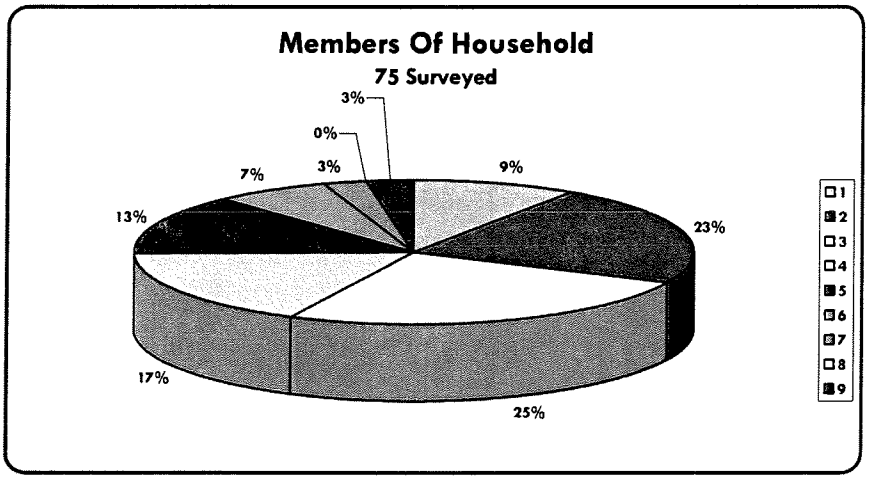
There were 63 percent who said they would need at least two bathrooms in their next housing unit. 11 percent felt they required at least one bathroom. In addition, 5 percent stated three bathrooms would be necessary. One to two bathrooms was the minimum for 3 percent of the respondents, as was two and one half bathrooms. Those needing at least one and one half bathrooms, four bathrooms, and five bathrooms were each represented by 1 percent of those polled.



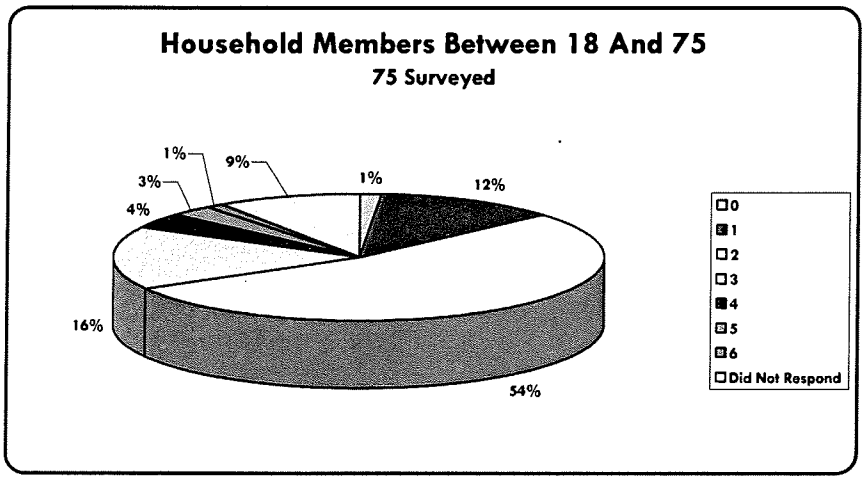
With regard to housing unit size, 27 percent required a minimum of 1,201 to 1,400 square feet. Each of the 1,001 to 1,200 square feet and 1,601 square feet or more categories had 15 percent of those surveyed. 13 percent felt a unit of either 1,000 square feet or less or 1,401 to 1,600 square feet was necessary.



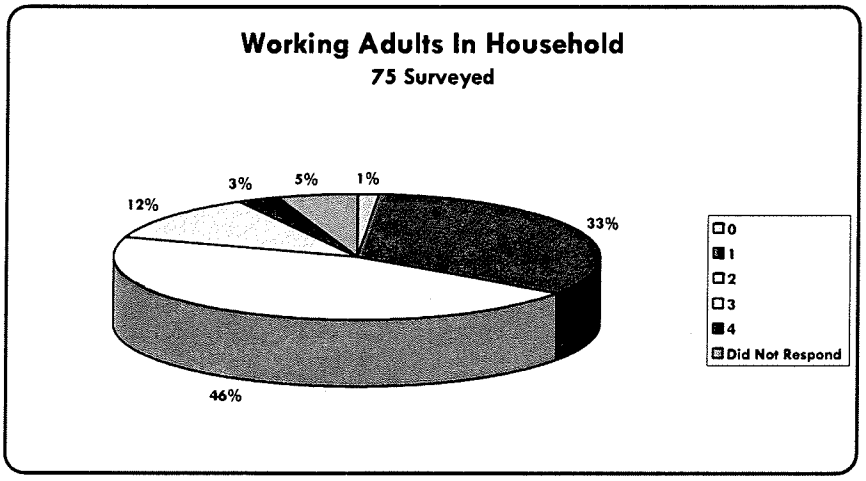
Many of the households, 25 percent, had three residents. This was closely followed by two residents, at 23 percent. Four residents was the response by 17 percent of those surveyed. 13 percent reported there were 5 people living in their housing unit. 7 percent of those polled had 6 residents. Seven residents and nine residents were each stated by 3 percent of the respondents.



54 percent of the households had two residents between the ages of 18 and 75. 16 percent of the households had three residents. There were 12 percent that stated only 1 resident was between the ages of 18 and 75. 4 percent of the respondents listed four residents in this age bracket, while 3 percent showed five residents. 1 percent of those surveyed had six residents between the ages of 18 and 75 and 1 percent had no residents in the age range.

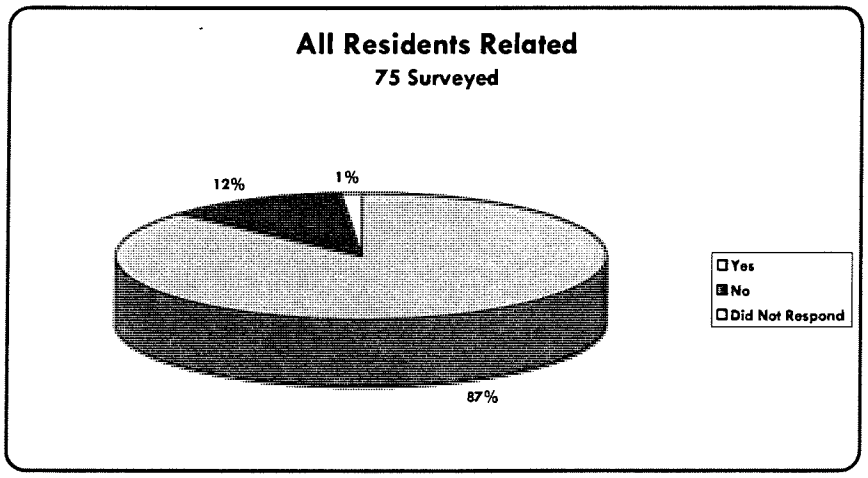


With regard to working adults per household, 46 percent listed two residents, followed by 33 percent answering one resident. 12 percent had three working household members and 3 percent had only one resident. Lastly, 1 percent had no employed adults.

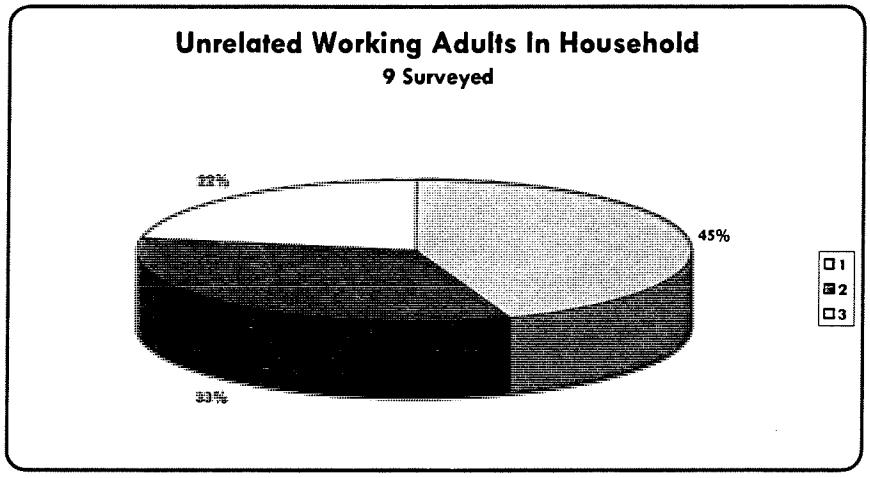


An overwhelming majority, 87 percent, stated that all of the members of their household are related by blood, marriage, or adoption. This was not the case for only 12 percent of those polled.

One could interpret this statistic to show that there were few housing units with more than one family unit living under the same roof. However, it was mentioned that it is still relatively common on Lana'i to have multiple generations of one family living together. Evidence of this was seen in the survey question regarding number of household members, where 13 percent responded has having six or more residents.



Of the nine households that were not all related by blood, marriage or adoption, 45 percent had one unrelated working adult. 33 percent reported one unrelated working adults, while 22 percent responded that there were three unrelated working adults in their household.



Summary of Lana'i Housing Survey

As previously mentioned, of the 75 households surveyed, 31 households were currently renting their housing units. Of these current renters, 55 percent would prefer to buy their next housing unit, while 45 percent would like to continue renting. There were 40 households that own their current housing unit, of which, 75 percent would like to buy their next housing unit. Interestingly, 15 percent of the homeowners stated they would rather rent their next housing unit.

Based on this information, it would appear that not all of those currently renting would be potential home buyers. However, it was apparent that affordability and the current economic conditions played a large role in many of their decisions.

It was revealed that 12 households surveyed reside in a multi-family unit. 75 percent of these households would prefer a single-family home as their next housing unit, while 17 percent stated they would like to remain in a multi-family unit. There were 58 households that presently reside in a single-family home. 76 percent would like another single-family home as their next housing unit, but 14 percent would like to switch to a multi-family unit.

Of the 75 households surveyed, 47 percent would prefer to live in a housing unit with more bedrooms. Conversely, 15 percent would rather live in a housing unit with fewer bedrooms. 39 percent of those polled would like a housing unit with the same bedroom count.

According to the responses received from the Lana'i Housing Survey, the preferred housing product would be a three-bedroom and two-bathroom single-family home, of between 1,200 and 1,400 square feet. The largest group of respondents suggested a price range of $100,000 to under $200,000, followed closely by $200,000 to under $300,000.

Lana'i Housing Interviews

The Consultant also met with numerous individuals familiar with the housing situation on Lana'i to gain additional insight into potential buyer sentiment. The following people were interviewed:

Ms. Sue Murray, Island of Lana'i Properties

Mr. Thomas Stuck, Lana'i Real Estate

Ms. Kay Okamoto, Okamoto Realty

Mr. Vince Bagoyo, Private Consultant

Many of the statements made by these individuals confirmed the responses of the Lana'i Housing Survey. However, those interviewed had similar opinions on several additional points:

- 50 single-family housing units would be appropriate for the initial phase
- Housing demand on Lana'i is directly influenced by tourism, as the hotels need more workers when it is busy
- Many current and former Castle & Cooke employees have subsidized rent; therefore, they may not want a mortgage
- Affordable rental units should see good demand
- Multi-family housing units may not be as readily accepted as single-family housing units

B. HOUSING PRODUCT ANALYSIS

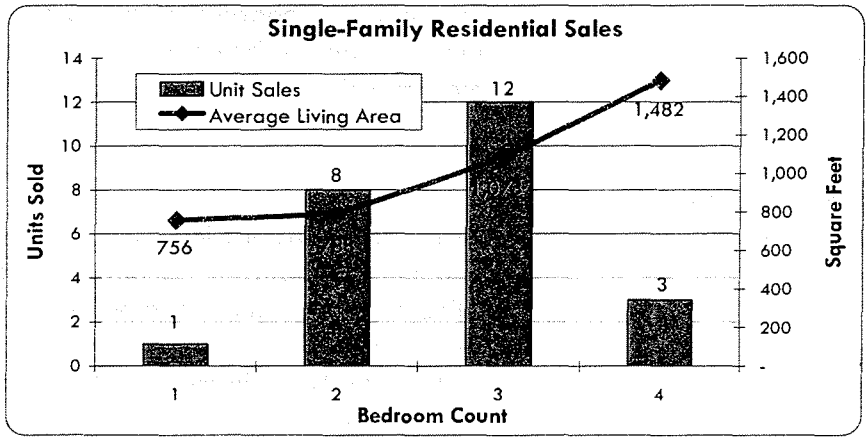
While the subject project is still in the planning stage, preliminary designs call for 412 residential units possessing mountain views. The Consultant was provided with a Preliminary Site plan and has gleaned information from this plan for information regarding the subject project district. According to the plan, there will be 239 house lots of approximately 5,000 square feet (R-1 Residential District) and 173 multi-family units on 14.46 acres. Early indications also include 4.19 acres of park space, 4.94 acres of public/quasi-public land, and a 4-acre detention pond.

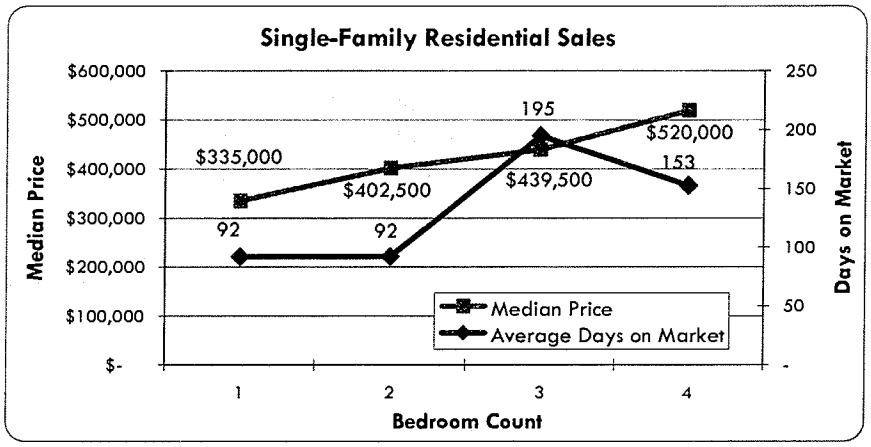
In 2006, the County of Maui's Residential Workforce Housing Policy (MRWHP) was enacted by the County Council. The MRWHP establishes affordable housing requirements applicable to all new projects. As required under the MRWHP, at least 40 percent of the proposed project's units must meet the affordable housing criteria. In this case, all of the single-family homes will meet the criteria; however, bedroom count and living area have not yet been determined.

The Consultant has researched data regarding the types of properties that have been sold within the various affordable price ranges.

General Product Characteristics

Research was conducted for sales for single family residential units in Lana'i City. Given the diminutive size of this market segment, sales from the last 24 months were utilized. Vacant land sales were excluded since the subject will offer an improved residential product. Condominium sales were also not analyzed, as all multi-family residential unit sales were from the resort areas of Manele and Koele. There were a total of 24 single-family residential sales within Lana'i City during this period.





Residential properties sold within the last 24 months ranged from one- to four-bedrooms. The majority of the sales were of three-bedroom properties, of which there were 12 sales or 50 percent of the total sales. They had a median price of $439,500 and an average living area of 1,073 square feet. This was followed by two-bedroom homes, which had eight sales and a median sales price of $402,500 and an average living area of 788 square feet.

There was one sale of a one-bedroom property at $335,000, with a living area of 756 square feet. Interestingly, this living area was not much smaller than the average of the two-bedroom sales; however, given the small sample pool in both categories, it is uncertain if this is typical of the Lana'i City market single-family residential market. Finally, there were three sales of four-bedroom homes, with a median price of $520,000 and average living area of 1,482 square feet.

Marketing times showed a broad range, from 92 days for the one- and two-bedroom homes to 195 days for the three-bedroom homes. At first glance, this could provide evidence of a market preference for one- and two-bedroom single-family residential units. However, this may also be attributed to the fact that these products had the lowest median sales prices, which could indicate a demand for affordable housing.

Affordable Housing Price Ranges

Listed below are the income ranges which qualify for the affordable housing income requirements as well as the breakdown of the allocated unit counts within each income range. This table is used by the County of Maui-Department of Housing and Human Concerns and reflects the HUD defined median income for 2008 for purchasing a three-bedroom home (**Exhibit D**). The price range was based on the assumption of a 6.125 percent mortgage rate for a three-bedroom home, as of the effective date of this report. It should be noted that

the price range could change, should a different bedroom count be selected.

Table 3 – Affordable Housing Price Ranges

Income Group	Range of HUD Median Income (%)	HUD Median Income Range ($) From	HUD Median Income Range ($) To	Single Family Price Range From	Single Family Price Range To	Multi Family Price Range From	Multi Family Price Range To
Very Low Income	50 and Below		$31,705		$ 137,300		$ 123,600
Low Income	51-80	$31,706	$50,728	$ 137,301	$ 219,700	$ 123,601	$ 197,700
Below Moderate Income	81-100	$50,729	$63,410	$ 219,701	$ 274,600	$ 197,701	$ 247,100
Moderate Income	101-120	$63,411	$76,092	$ 274,601	$ 329,600	$ 247,101	$ 296,600
Above Moderate Income	121-140	$76,093	$88,774	$ 329,601	$ 384,500	$ 296,601	$ 346,100
Gap Income Group	141-160	$88,775	$101,456	$ 384,501	$ 439,400	$ 346,101	$ 395,500

Assumed 3BR Home @ 6.125% 30 Yr. Fixed Rate

Properties Sold within Affordable Housing Price Ranges

To assist in determining an appropriate product design for the proposed Lana'i Affordable Housing Project, historical sales of properties were analyzed to determine what type of product is typically being sold within each price range. Given the limited number of sales in the Lana'i City real estate market, this proved difficult. Furthermore, many of the sales involved older plantation homes, which typically are smaller in size, having less bedrooms and bathrooms.

Research showed that within the past 24 months, there were 15 single-family sales within the affordable price range, one within the Moderate Income range (101 to 120 percent of median income), five within the Above Moderate Income range (121 to 140 percent of median income), and nine within the Gap Income range (141 to 160 percent of median income). The tables below summarize the average and median sales price, bedroom count, bathroom count, living area and marketing time for each income range.

101-120% HUD Median - Single Family

# of Units Sold		Sales Price	Bedroom Count	Bath Count	Living Area (SF)	DOM
1	Average	$ 300,000	3.0	2.0	1,084	100
	Median	$ 300,000	3.0	2.0	1,084	100

121-140% HUD Median - Single Family

# of Units Sold		Sales Price	Bedroom Count	Bath Count	Living Area (SF)	DOM
5	Average	$ 352,800	2.0	1.3	806	87
	Median	$ 349,000	2.0	1.0	756	92

141-160% HUD Median - Single Family

# of Units Sold		Sales Price	Bedroom Count	Bath Count	Living Area (SF)	DOM
9	Average	$ 414,300	2.4	1.3	896	174
	Median	$ 420,000	2.0	1.0	875	99

Summary of Housing Characteristics

The research of property characteristics was intended to provide a guidance of the type and pricing of products that should be offered by the project.

It goes without saying that a three-bedroom home priced within the lower ranges of the Lana'i Affordable Housing Guidelines should see market acceptability. From a developer's perspective; however, this can be extremely challenging, as construction costs continue to be at record levels. Also, many of the sales surveyed were older plantation homes; therefore, building a new three-bedroom home may require a sales price at the high end, or even above, the affordable price range, in order to be financially feasible.

In this case, since the parcel is already owned by the County of Maui, the lack of land acquisition costs may be a positive factor in the pricing of the proposed units. In addition, a two-bedroom home may need to be considered. Research indicated that this type of product has been well received in Lana'i City and may provide a good balance of cost feasibility and market acceptance.

Product pricing was also difficult to determine. At first glance, it appears that buyers are willing to pay for products at the high end of the affordable price range; but, this could just as easily be an effect of supply as it could demand. Listing evidence seemed to confirm this, as there was only one single-family home available within the Moderate Income range and four listings within the Gap Income range. There were no single-family residences available for sale within the Above Moderate Income range, Below Moderate Income range, Low Income range, or Very Low Income range.

Furthermore, although the Lana'i Affordable Housing Guidelines price ranges were based on the assumption of a three-bedroom home, many of the units being purchased within the affordable ranges had less than three-bedrooms. In fact, of the 15 sales within the last 24 months, only six were three-bedroom homes. This would indicate that market prices are still outpacing what can be afforded by the workforce.

As previously discussed, the most recent real estate surge saw little, if any, new housing units brought to market on Lana'i. Furthermore,

short-term new projects are limited at best. Castle & Cooke Hawaii's planned development may provide potential competition for the subject; however, its price points were unknown, as of the effective date. The proposed Department of Hawaiian Homelands project will only be available to qualified candidates, but at the same time could possibly draw away potential buyers from the subject development. In light of the emerging economic crisis, it is unknown whether either project will be seen to fruition.

Given the present state of the real estate market and current economic conditions, it was very difficult to determine the pricing and characteristics of the housing units for the proposed Lana'i Affordable Housing Project. After consideration of demographic data, historical real estate statistics in Lana'i City, results of the Lana'i Housing Survey, and interviews with representatives of the real estate community, the preferred housing unit has been concluded to be a **three-bedroom and two-bathroom single-family home, between 1,200 and 1,400 square feet in size, at a price range of $100,000 to under $300,000.**

Equally challenging was trying to estimate the project build-out. Market evidence showing the absorption of affordably priced housing units on Lana'i was limited; however, in general, this market segment typically sees the most interest. For example, Waikapu Gardens, on the island of Maui, is a single-family residential affordable subdivision with over 400 housing units. This project drew immense interest from the public, with over 3,500 households on their initial waiting list. Essentially, all of the housing units in this development "sold" in one day.

Granted, the population base on Lana'i pales in comparison to that of Maui. In addition, Waikapu Gardens was made available during a much stronger period of the real estate market. It is safe to assume that if the Lana'i Affordable Housing Project existed today; its absorption rate would not be as robust. However, there is a great deal of pre-construction entitlement work that would need to be completed before any housing units could be built. While this work is being conducted, it is possible that the economic climate could improve. Economists have varied opinions as to the recovery of the economy; however, many have estimated 2011 to be a possible turning point. If so, the subject may be well positioned to capture a potential upswing in the real estate market, provided that the entitlement process is completed by that point in time. Cognizant of this, it is the Consultant's opinion that construction of **50 single-family homes would be appropriate for the first phase** of the Lana'i Affordable Housing Project, with **subsequent phases of 15 to 20 units per year.** Furthermore, the Consultant recommends that

construction of the multi-family units be held off until after the single-family residences are completed.

EXHIBIT A

Demographic Reports - Claritas, Inc.

Pop-Facts: Demographic Snapshot Comparison Report

Place, (see appendix for geographies), aggregate

Description	Total *Place*	*%*
Population		
2013 Projection	3,823	
2008 Estimate	3,576	
2000 Census	3,164	
1990 Census	2,400	
Growth 2008-2013	6.91%	
Growth 2000-2008	13.02%	
Growth 1990-2000	31.83%	
2008 Est. Population by Single Race Classification	3,576	
White Alone	679	18.99
Black or African American Alone	11	0.31
American Indian and Alaska Native Alone	22	0.62
Asian Alone	1,856	51.90
Native Hawaiian and Other Pacific Islander Alone	229	6.40
Some Other Race Alone	8	0.22
Two or More Races	771	21.56
2008 Est. Population Hispanic or Latino by Origin	3,576	
Not Hispanic or Latino	3,303	92.37
Hispanic or Latino:	273	7.63
Mexican	38	13.92
Puerto Rican	101	37.00
Cuban	1	0.37
All Other Hispanic or Latino	133	48.72
2008 Est. Hispanic or Latino by Single Race Class.	273	
White Alone	22	8.06
Black or African American Alone	0	0.00
American Indian and Alaska Native Alone	1	0.37
Asian Alone	85	31.14
Native Hawaiian and Other Pacific Islander Alone	9	3.30
Some Other Race Alone	8	2.93
Two or More Races	148	54.21

Pop-Facts: Demographic Snapshot Comparison Report

Place, (see appendix for geographies), aggregate

Description	Total Place	%
2008 Est. Pop. Asian Alone Race by Category*	1,856	
Chinese, except Taiwanese	12	0.65
Filipino	1,455	78.39
Japanese	247	13.31
Asian Indian	3	0.16
Korean	11	0.59
Vietnamese	2	0.11
Cambodian	0	0.00
Hmong	0	0.00
Laotian	0	0.00
Thai	0	0.00
Other Asian	2	0.11
Two or more Asian categories	124	6.68
2008 Est. Population by Ancestry	3,576	
Pop, Arab	8	0.22
Pop, Czech	0	0.00
Pop, Danish	21	0.59
Pop, Dutch	0	0.00
Pop, English	42	1.17
Pop, French (except Basque)	26	0.73
Pop, French Canadian	14	0.39
Pop, German	58	1.62
Pop, Greek	0	0.00
Pop, Hungarian	0	0.00
Pop, Irish	76	2.13
Pop, Italian	12	0.34
Pop, Lithuanian	0	0.00
Pop, United States or American	10	0.28
Pop, Norwegian	22	0.62
Pop, Polish	6	0.17
Pop, Portuguese	44	1.23
Pop, Russian	0	0.00
Pop, Scottish	13	0.36
Pop, Scotch-Irish	4	0.11
Pop, Slovak	0	0.00
Pop, Subsaharan African	0	0.00
Pop, Swedish	0	0.00
Pop, Swiss	0	0.00
Pop, Ukrainian	0	0.00
Pop, Welsh	4	0.11
Pop, West Indian (exc Hisp groups)	0	0.00

Pop-Facts: Demographic Snapshot Comparison Report

Place, (see appendix for geographies), aggregate

Description	Total Place	%
2008 Est. Population by Ancestry		
Pop, Other ancestries	2,741	76.65
Pop, Ancestry Unclassified	475	13.28
2008 Est. Pop Age 5+ by Language Spoken At Home	3,311	
Speak Only English at Home	2,099	63.39
Speak Asian/Pacific Islander Language at Home	1,187	35.85
Speak IndoEuropean Language at Home	15	0.45
Speak Spanish at Home	10	0.30
Speak Other Language at Home	0	0.00
2008 Est. Population by Sex	3,576	
Male	1,814	50.73
Female	1,762	49.27
Male/Female Ratio	1.03	
2008 Est. Population by Age	3,576	
Age 0 - 4	265	7.41
Age 5 - 9	243	6.80
Age 10 - 14	252	7.05
Age 15 - 17	176	4.92
Age 18 - 20	126	3.52
Age 21 - 24	164	4.59
Age 25 - 34	511	14.29
Age 35 - 44	498	13.93
Age 45 - 49	230	6.43
Age 50 - 54	215	6.01
Age 55 - 59	184	5.15
Age 60 - 64	185	5.17
Age 65 - 74	249	6.96
Age 75 - 84	175	4.89
Age 85 and over	103	2.88
Age 16 and over	2,763	77.27
Age 18 and over	2,640	73.83
Age 21 and over	2,514	70.30
Age 65 and over	527	14.74
2008 Est. Median Age	36.03	
2008 Est. Average Age	37.72	

Pop-Facts: Demographic Snapshot Comparison Report

Place, (see appendix for geographies), aggregate

Description	Total Place	%
2008 Est. Male Population by Age	1,814	
Age 0 - 4	136	7.50
Age 5 - 9	126	6.95
Age 10 - 14	128	7.06
Age 15 - 17	90	4.96
Age 18 - 20	58	3.20
Age 21 - 24	88	4.85
Age 25 - 34	276	15.21
Age 35 - 44	265	14.61
Age 45 - 49	114	6.28
Age 50 - 54	111	6.12
Age 55 - 59	92	5.07
Age 60 - 64	70	3.86
Age 65 - 74	113	6.23
Age 75 - 84	92	5.07
Age 85 and over	55	3.03
2008 Est. Median Age, Male	35.21	
2008 Est. Average Age, Male	37.16	
2008 Est. Female Population by Age	1,762	
Age 0 - 4	129	7.32
Age 5 - 9	117	6.64
Age 10 - 14	124	7.04
Age 15 - 17	86	4.88
Age 18 - 20	68	3.86
Age 21 - 24	76	4.31
Age 25 - 34	235	13.34
Age 35 - 44	233	13.22
Age 45 - 49	116	6.58
Age 50 - 54	104	5.90
Age 55 - 59	92	5.22
Age 60 - 64	115	6.53
Age 65 - 74	136	7.72
Age 75 - 84	83	4.71
Age 85 and over	48	2.72
2008 Est. Median Age, Female	36.99	
2008 Est. Average Age, Female	38.31	

Pop-Facts: Demographic Snapshot Comparison Report

Place, (see appendix for geographies), aggregate

Description	Total *Place*	*%*
2008 Est. Population Age 15+ by Marital Status*	2,816	
Total, Never Married	786	27.91
Married, Spouse present	1,528	54.26
Married, Spouse absent	118	4.19
Widowed	170	6.04
Divorced	214	7.60
Males, Never Married	464	16.48
Previously Married	112	3.98
Females, Never Married	322	11.43
Previously Married	272	9.66
2008 Est. Pop. Age 25+ by Educational Attainment*	2,350	
Less than 9th grade	427	18.17
Some High School, no diploma	272	11.57
High School Graduate (or GED)	637	27.11
Some College, no degree	425	18.09
Associate Degree	196	8.34
Bachelor's Degree	310	13.19
Master's Degree	61	2.60
Professional School Degree	22	0.94
Doctorate Degree	0	0.00
Households		
2013 Projection	1,430	
2008 Estimate	1,322	
2000 Census	1,148	
1990 Census	837	
Growth 2008-2013	8.17%	
Growth 2000-2008	15.16%	
Growth 1990-2000	37.16%	
2008 Est. Households by Household Type	1,322	
Family Households	918	69.44
Nonfamily Households	404	30.56
2008 Est. Group Quarters Population	13	
2008 Households by Ethnicity: Hispanic/Latino	72	5.45

Pop-Facts: Demographic Snapshot Comparison Report

Place, (see appendix for geographies), aggregate

Description	Total *Place*	*%*
2008 Est. Households by Household Income	1,322	
Income Less than $15,000	175	13.24
Income $15,000 - $24,999	87	6.58
Income $25,000 - $34,999	125	9.46
Income $35,000 - $49,999	192	14.52
Income $50,000 - $74,999	337	25.49
Income $75,000 - $99,999	226	17.10
Income $100,000 - $149,999	130	9.83
Income $150,000 - $249,999	35	2.65
Income $250,000 - $499,999	13	0.98
Income $500,000 and more	2	0.15
2008 Est. Average Household Income	$63,657	
2008 Est. Median Household Income	$56,102	
2008 Est. Per Capita Income	$23,687	
2008 Est. Household Type, Presence Own Children*	1,322	
Single Male Householder	176	13.31
Single Female Householder	173	13.09
Married-Couple Family, own children	336	25.42
Married-Couple Family, no own children	374	28.29
Male Householder, own children	52	3.93
Male Householder, no own children	24	1.82
Female Householder, own children	79	5.98
Female Householder, no own children	53	4.01
Nonfamily, Male Householder	35	2.65
Nonfamily, Female Householder	20	1.51
2008 Est. Households by Household Size*	1,322	
1-person household	349	26.40
2-person household	390	29.50
3-person household	228	17.25
4-person household	173	13.09
5-person household	90	6.81
6-person household	59	4.46
7 or more person household	33	2.50
2008 Est. Average Household Size	2.70	

Pop-Facts: Demographic Snapshot Comparison Report

Place, (see appendix for geographies), aggregate

Description	Total Place	%
2008 Est. Households by Presence of People*	1,322	
Households with 1 or more People under Age 18:		
Married-Couple Family	370	27.99
Other Family, Male Householder	57	4.31
Other Family, Female Householder	91	6.88
Nonfamily, Male Householder	3	0.23
Nonfamily, Female Householder	0	0.00
Households no People under Age 18:		
Married-Couple Family	340	25.72
Other Family, Male Householder	19	1.44
Other Family, Female Householder	41	3.10
Nonfamily, Male Householder	208	15.73
Nonfamily, Female Householder	193	14.60
2008 Est. Households by Number of Vehicles*	1,322	
No Vehicles	201	15.20
1 Vehicle	502	37.97
2 Vehicles	453	34.27
3 Vehicles	123	9.30
4 Vehicles	39	2.95
5 or more Vehicles	4	0.30
2008 Est. Average Number of Vehicles*	1.48	
Family Households		
2013 Projection	993	
2008 Estimate	918	
2000 Census	797	
1990 Census	627	
Growth 2008-2013	8.17%	
Growth 2000-2008	15.18%	
Growth 1990-2000	27.11%	

Pop-Facts: Demographic Snapshot Comparison Report

Place, (see appendix for geographies), aggregate

Description	Total *Place*	*%*
2008 Est. Family Households by Household Income	918	
Income Less than $15,000	88	9.59
Income $15,000 - $24,999	43	4.68
Income $25,000 - $34,999	70	7.63
Income $35,000 - $49,999	106	11.55
Income $50,000 - $74,999	280	30.50
Income $75,000 - $99,999	188	20.48
Income $100,000 - $149,999	106	11.55
Income $150,000 - $249,999	29	3.16
Income $250,000 - $499,999	6	0.65
Income $500,000 and more	2	0.22
2008 Est. Average Family Household Income	$69,774	
2008 Est. Median Family Household Income	$63,568	
2008 Est. Families by Poverty Status*	918	
Income At or Above Poverty Level:		
Married-Couple Family, own children	334	36.38
Married-Couple Family, no own children	347	37.80
Male Householder, own children	46	5.01
Male Householder, no own children	7	0.76
Female Householder, own children	63	6.86
Female Householder, no own children	44	4.79
Income Below Poverty Level:		
Married-Couple Family, own children	7	0.76
Married-Couple Family, no own children	22	2.40
Male Householder, own children	20	2.18
Male Householder, no own children	3	0.33
Female Householder, own children	22	2.40
Female Householder, no own children	3	0.33
2008 Est. Pop Age 16+ by Employment Status*	2,763	
In Armed Forces	0	0.00
Civilian - Employed	1,758	63.63
Civilian - Unemployed	91	3.29
Not in Labor Force	914	33.08

Pop-Facts: Demographic Snapshot Comparison Report

Place, (see appendix for geographies), aggregate

Description	Total Place	%
2008 Est. Civ Employed Pop 16+ Class of Worker*	1,758	
For-Profit Private Workers	1,368	77.82
Non-Profit Private Workers	29	1.65
Local Government Workers	51	2.90
State Government Workers	206	11.72
Federal Government Workers	16	0.91
Self-Emp Workers	85	4.84
Unpaid Family Workers	3	0.17
2008 Est. Civ Employed Pop 16+ by Occupation*	1,758	
Management, Business, and Financial Operations	206	11.72
Professional and Related Occupations	204	11.60
Service	762	43.34
Sales and Office	357	20.31
Farming, Fishing, and Forestry	19	1.08
Construction, Extraction and Maintenance	111	6.31
Production, Transportation and Material Moving	99	5.63
2008 Est. Pop 16+ by Occupation Classification*	1,758	
Blue Collar	210	11.95
White Collar	761	43.29
Service and Farm	787	44.77
2008 Est. Workers Age 16+, Transportation To Work*	1,738	
Drove Alone	1,156	66.51
Car Pooled	355	20.43
Public Transportation	0	0.00
Walked	135	7.77
Motorcycle	14	0.81
Bicycle	20	1.15
Other Means	26	1.50
Worked at Home	32	1.84
2008 Est. Workers Age 16+ by Travel Time to Work*	1,706	
Less than 15 Minutes	1,014	59.44
15 - 29 Minutes	560	32.83
30 - 44 Minutes	88	5.16
45 - 59 Minutes	13	0.76
60 or more Minutes	31	1.82
2008 Est. Average Travel Time to Work in Minutes*	14.92	

Pop-Facts: Demographic Snapshot Comparison Report

Place, (see appendix for geographies), aggregate

Description	Total *Place*	*%*
2008 Est. Tenure of Occupied Housing Units	1,322	
Owner Occupied	666	50.38
Renter Occupied	656	49.62
2008 Occ Housing Units, Avg Length of Residence	10	
2008 Est. All Owner-Occupied Housing Values	666	
Value Less than $20,000	4	0.60
Value $20,000 - $39,999	1	0.15
Value $40,000 - $59,999	3	0.45
Value $60,000 - $79,999	0	0.00
Value $80,000 - $99,999	0	0.00
Value $100,000 - $149,999	21	3.15
Value $150,000 - $199,999	60	9.01
Value $200,000 - $299,999	158	23.72
Value $300,000 - $399,999	208	31.23
Value $400,000 - $499,999	89	13.36
Value $500,000 - $749,999	85	12.76
Value $750,000 - $999,999	15	2.25
Value $1,000,000 or more	22	3.30
2008 Est. Median All Owner-Occupied Housing Value	$341,388	
2008 Est. Housing Units by Units in Structure*	1,549	
1 Unit Attached	24	1.55
1 Unit Detached	1,161	74.95
2 Units	19	1.23
3 to 19 Units	322	20.79
20 to 49 Units	4	0.26
50 or More Units	12	0.77
Mobile Home or Trailer	7	0.45
Boat, RV, Van, etc.	0	0.00

Pop-Facts: Demographic Snapshot Comparison Report

Place, (see appendix for geographies), aggregate

Description	Total Place	%
2008 Est. Housing Units by Year Structure Built	1,549	
Housing Units Built 1999 to 2008	272	17.56
Housing Unit Built 1995 to 1998	84	5.42
Housing Unit Built 1990 to 1994	229	14.78
Housing Unit Built 1980 to 1989	253	16.33
Housing Unit Built 1970 to 1979	75	4.84
Housing Unit Built 1960 to 1969	70	4.52
Housing Unit Built 1950 to 1959	134	8.65
Housing Unit Built 1940 to 1949	162	10.46
Housing Unit Built 1939 or Earlier	270	17.43
2008 Est. Median Year Structure Built **	1983	

*In contrast to Claritas Demographic Estimates, "smoothed" data items are Census 2000 tables made consistent with current year estimated and 5 year projected base counts.

**1939 will appear when at least half of the Housing Units in this reports area were built in 1939 or earlier.

Appendix: Area Listing

Area Name:

Type: List - Place Reporting Detail: Aggregate Reporting Level: Place

Geography Code	Geography Name	Geography Code	Geography Name
1543700	Lanai City CDP		

Project Information:

Site: 1

Order Number: 967151065

EXHIBIT B

Lana'i Sales and Active Listings
Single-Family, Multi-Family and Vacant Land

Lana'i Single-Family Sales, 2 Years Trailing

MLS #	List Date	Closing Date	Original Price	Sold Price	% Change	Address	Subdivision	District	Zone	Sec	Plat	Par	Land SQFT	Liv A SF	Beds	Baths	DOM
319676	8/9/2006	11/17/2006	$460,000	$300,000	-35%	1140 Olapa Street		Lanai	4	9	013	083	4482	1084	3	2	100
323993	4/17/2007	7/18/2007	$425,000	$335,000	-21%	1236 Lanai Ave		Lanai	4	9	013	006	3118	756	1	2	92
324504	5/17/2007	6/27/2007	$370,000	$340,000	-8%	928 Houston St		Lanai	4	9	005	083	3563	1084	2	1.5	41
323450	3/19/2007	7/2/2007	$368,000	$349,000	-5%	1006 Houston		Lanai	4	9	005	075	3164	582	2	1	105
328665	10/11/2007	12/28/2007	$360,000	$360,000	0%	904 Fraser Avenue		Lanai	4	9	005	033	2800	550	2	1	78
328237	12/7/2007	4/4/2008	$385,000	$380,000	-1%	235 Gay Street		Lanai	4	9	008	008	3750	1056	3	1	119
326419	8/27/2007	8/12/2008	$550,000	$400,000	-27%	343 13th Street		Lanai	4	9	004	096	5914	1092	3	2	351
321477	12/7/2006	3/16/2007	$432,000	$400,000	-7%	1014 Kahana Street		Lanai	4	9	012	004	4400	856	2	1	99
313216	8/22/2005	2/20/2007	$475,000	$400,000	-16%	1513 Ohohia St	Lalakoa	Lanai	4	9	016	034	5000	1008	3	1.5	547
323187	3/2/2007	5/23/2007	$415,000	$405,000	-2%	340 Koele Street		Lanai	4	9	007	116	3413	596	2	1	82
324220	5/2/2007	6/21/2007	$425,000	$420,000	-1%	920 Fraser Avenue		Lanai	4	9	005	029	3068	780	2	1	50
323686	4/1/2007	7/6/2007	$447,000	$425,000	-5%	1504 Hoalauna Street	Lalakoa Subdivision	Lanai	4	9	016	045	5000	1008	3	1.5	96
322271	1/16/2007	6/12/2007	$468,000	$425,000	-9%	403 Iliahi Street	Lalakoa	Lanai	4	9	019	064	6200	1106	2	1.5	147
319180	7/6/2006	11/17/2006	$442,000	$425,000	-4%	414 Mahana Place		Lanai	4	9	010	042	7006	746	2	1	134
322541	1/30/2007	3/30/2007	$429,000	$429,000	0%	331 Caldwell Avenue		Lanai	4	9	009	011	6523	875	3	1	59
329812	2/19/2008	7/10/2008	$600,000	$450,000	-25%	368 Iliahi Street	Olapua Woods	Lanai	4	9	019	030	6686	1594	3	1	142
326387	8/27/2007	12/12/2007	$480,000	$455,000	-5%	1494 Ohohia	Lalakoa III	Lanai	4	9	016	003	5000	1008	3	2	107
326350	8/25/2007	5/1/2008	$475,000	$455,000	-4%	1469 Hoalauna Street	Lalakoa	Lanai	4	9	016	121	5239	1008	3	2	250
324058	4/21/2007	12/20/2007	$575,000	$460,000	-20%	223 Fifth Street		Lanai	4	9	009	044	7308	1506	4	2	243
318703	6/13/2006	3/8/2007	$525,000	$515,000	-2%	1016 Olapa Street		Lanai	4	9	012	008	7600	850	3	2	268
316395	2/1/2006	11/20/2006	$610,000	$515,000	-16%	244 Jacaranda Place	Lanai	Lanai	4	9	008	030	6240	1200	3	2	292
324442	5/10/2007	9/5/2007	$525,000	$520,000	-1%	1320 Lanai Ave.		Lanai	4	9	013	001	3870	1735	4	3	118
327286	10/18/2007	1/23/2008	$565,000	$525,000	-7%	255 Nau Place	Olopua Woods	Lanai	4	9	019	006	7936	1204	4	2	97
323541	3/15/2007	3/23/2007	$525,000	$525,000	0%	325 Thirteenth		Lanai	4	9	004	023	5914	1092	3	2	8

Moderate Income

Above Moderate Income

Gap Income

Lana'i Multi-Family Sales, 2 Years Trailing

MLS #	Closing Date	Original Price	Sold Price	% Change	Address	Building Name	Unit	Bds	Bths	Liv-SF	View	DOM
328406	11/14/2007	$ 610,000	$ 610,000	0%	115 Kukui Circle	Villas at Koele I	12E	1	2	1323	Golf Course	16
321820	6/7/2007	$ 1,250,000	$ 1,250,000	0%	635 Kaunaoa Drive	Villas at Koele II	3C	2	2	1745	Golf Course	162
317284	7/31/2008	$ 1,995,000	$ 1,450,000	-27%	3 Polihua Way	Terraces Manele Bay V	10B	2	2.5	1972	Ocean	864
325338	10/17/2007	$ 1,750,000	$ 1,600,000	-9%	43 Polihua Way	Terraces Manele Bay V	9C	2	2.5	1972	Mountain/Ocean	112
322853	2/9/2007	$ 2,279,663	$ 2,279,663	0%	10A Uhaloa Pl	Palms at Manele I	7A	3	3	2345	Golf Course	0
318290	2/15/2007	$ 2,595,000	$ 2,395,000	-8%	55 Awehi Way	Terraces Manele Bay I	6D	2	2.5	1972	Ocean	274
321098	11/30/2007	$ 2,495,000	$ 2,495,000	0%	26B Uhaloa Place	Palms at Manele I	3B	3	3.5	2836	Ocean	378
318739	6/8/2007	$ 2,495,000	$ 2,495,000	0%	7 Polihua Way	Terraces Manele Bay V	10D	3	3.5	3385	Ocean	358
325091	4/30/2008	$ 2,595,000	$ 2,500,000	-4%	34B Uhaloa Place	Palms at Manele I	1B	3	3	2345	Ocean	321
321368	2/16/2007	$ 2,775,000	$ 2,775,000	0%	38A Uhaloa Place	Palms at Manele I	19A	4	4	2946	Ocean	76

Lana'i Land Sales, 2 Years Trailing

MLS #	List Date	Closing Date	Original Price	Sold Price	% Change	Price/Lnd-SF	Address	Zone	Sec	Plat	Par	Land Acres	Lnd-SF	DOM
320322	9/25/2006	4/10/2007	$ 370,000	$ 355,000	-4%	$53.23	309 Houston St.	4	9	007	027	0.1531	6669	197
322257	1/16/2007	7/13/2007	$ 725,000	$ 645,000	-11%	$30.50	170 Kaunaoa	4	9	020	002	0.5	21150	178
325928	8/2/2007	5/15/2008	$ 750,000	$ 715,000	-5%	$34.20	240 Kauna'oa Drive	4	9	020	008	0.48	20909	287
316540	2/8/2006	4/9/2007	$ 1,250,000	$ 750,000	-40%	$1.52	0 Government Road	4	9	003	023	11.291	491836	425
330869	4/8/2008	5/16/2008	$ 1,725,000	$ 1,515,000	-12%	$61.77	463 Hulopoe Drive	4	9	023	010	0.56	24527	38

Lana'i Single-Family Active Listings

MLS #	List Date	Original Price	List Price	% Change	Address	Subdivision	District	Zone	Sec	Plat	Par	Land SQFT	Liv A SF	Beds	Baths	DOM
330253	2/8/2008	$ 400,000	$ 295,000	-26%	1030 Olopa Street		Lanai	4	9	012	042	2901	721	2	1	284
332915	8/4/2008	$ 390,000	$ 390,000	0%	1315 Jasmine Dr		Lanai	4	9	004	058	3325	746	3	1	106
332410	7/7/2008	$ 395,000	$ 395,000	0%	554 Fraser Ave.		Lanai	4	9	007	144	6829	980	3	1	134
327020	9/28/2007	$ 460,000	$ 410,000	-11%	253 Houston Place		Lanai	4	9	008	021	6250	1056	3	1	417
333046	8/10/2008	$ 441,000	$ 421,000	-5%	1444 Hoalauna		Lanai	4	9	016	129	5010	1008	3	1.5	100
330048	3/1/2008	$ 495,000	$ 495,000	0%	1118 Fraser Avenue		Lanai	4	9	005	006	6438	1177	3	2	262
326588	9/10/2007	$ 585,000	$ 498,000	-15%	303 Caldwell Avenue		Lanai	4	9	009	014	7220	846	3	2	435
329056	1/12/2008	$ 565,000	$ 520,000	-8%	1136 Gay Street		Lanai	4	9	005	004	6125	1300	3	2	311
334278	11/1/2008	$ 572,400	$ 572,400	0%	430 Jacaranda Street		Lanai	4	9	007	097	7080	1092	3	2.5	17
330334	3/14/2008	$ 642,000	$ 642,000	0%	942 Kahana St		Lanai	4	9	012	022	11349	1322	3	2	249
332446	7/7/2008	$ 895,000	$ 829,000	-7%	520 Jacaranda St		Lanai	4	9	007	091	6000	2942	6	5	134
332249	6/25/2008	$ 998,000	$ 910,000	-9%	648 Nani Street		Lanai	4	9	011	012	20601	1459	4	3	146

Moderate Income

Above Moderate Income

Gap Income

Lana'i Multi-Family Active Listings

MLS #	Original Price	List Price	% Change	Address	Building Name	Unit	Bds	Bths	Liv-SF	View	DOM
329271	$ 775,000	$ 649,000	-16%	135 Kukui Loop	Villas at Koele I	14B	1	2	1360	Golf Course	301
330396	$ 900,000	$ 900,000	0%	635 Kauna'oa Drive	Villas at Koele II	3D	3	1	1360	Mountain	246
328830	$ 1,750,000	$ 1,600,000	-9%	645 Kauna'oa Drive	Villas at Koele II	4C	3	3	2576	Golf Course	319
331045	$ 1,695,000	$ 1,650,000	-3%	645 Kauna'oa Drive	Villas at Koele II	4B	3	3	2660	Golf Course	213
333763	$ 1,699,000	$ 1,699,000	0%	43 Awehi Way	Terraces Manele Bay I	5B	2	2	1564	Ocean	49
332607	$ 1,748,000	$ 1,700,000	-3%	37 Polihua Way	Terraces Manele Bay V	9B	2	2	1564	Ocean	124
330405	$ 1,800,000	$ 1,800,000	0%	635 Kauna'oa Drive	Villas at Koele II	3B	3	3	2450	Mountain	246
333229	$ 2,295,000	$ 2,295,000	0%	97 Kapiha'a Place	Terraces Manele Bay III	4D	3	3.5	3208	Mountain/Ocean	85
330875	$ 2,300,000	$ 2,300,000	0%	26A Uhaloa Place	Palms at Manele I	3A	3	3	2345	Ocean	223
331575	$ 2,475,000	$ 2,475,000	0%	30B Uhaloa Place	Palms at Manele I	2B	3	3	2345	Ocean	181
331573	$ 2,525,000	$ 2,525,000	0%	22A Uhaloa Place	Palms at Manele I	4A	3	3.5	2835	Ocean	181
332873	$ 2,795,000	$ 2,795,000	0%	65 Polihua Place	Terraces Manele Bay IV	11C	4	4	2757	Ocean	109
332505	$ 3,150,000	$ 3,150,000	0%	47 Awehi Way	Terraces Manele Bay I	5D	3	3	2891	Ocean	130

Lana'i Land Active Listings

MLS #	List Date	Original Price	List Price	% Change	Price/Lnd-SF	Address	Zone	Sec	Plat	Par	Land Acres	Lnd-SF	DOM
332874	8/3/2008	$ 498,000	$ 498,000	0%	$61.85	534 Kualua	4	9	015	030	0.184848	8052	107
328399	12/17/2007	$ 700,000	$ 700,000	0%	$32.80	220 Kounooa Drive	4	9	020	006	0.49	21344	337
333220	8/25/2008	$ 995,000	$ 995,000	0%	$2.02	0 Government	4	9	003	023	11.291	491836	85
329190	1/18/2008	$ 1,725,000	$ 1,725,000	0%	$66.00	477 Hulopoe Drive	4	9	023	009	0.6	26136	305
325521	7/11/2007	$ 1,795,000	$ 1,795,000	0%	$65.05	505 Hulopoe Drive	4	9	023	007	0.63	27593	496
319097	7/3/2006	$ 1,995,000	$ 1,995,000	0%	$69.48	525 Hulopo'e Drive	4	9	023	006	0.659	28713	869
329148	1/16/2008	$ 2,345,000	$ 2,345,000	0%	$56.67	260 Hulopoe Drive	4	9	022	022	0.95	41382	307
333505	9/15/2008	$ 5,500,000	$ 5,500,000	0%	$58.02	220 Mauna Lei Drive	4	9	017	014	2.176	94787	64

EXHIBIT C

Copy of Lana'i Housing Survey
and Summary of Results

Lana'i Housing Survey

Thank you for taking the time to complete this survey. The results will be used to plan for housing needs on the Island of Lana'i. **Only one survey per household is needed.**

1. How many bedrooms in your current home? _____
2. How many bathrooms in your current home? _____
3. Is your current home a **single-family house**, or a **townhouse/condominium/apartment**? (circle one)
4. Do you rent or own your current home? **own/rent** (circle one)
5. What is the total monthly mortgage or rent for your current home? Include any utility payments, and maintenance fees. _____
6. How long have you lived in your current home? _____
7. Is your current home large enough for the number of people living there? **yes/no** (circle one)
8. Would you prefer to buy or rent your next home? **buy/rent** (circle one)
9. If you chose "rent" for Question 8, what are your main reason(s) for renting a home? (circle all that apply)
   A. **too expensive** B. **prefer to rent** C. **can't afford down payment**
   D. **can't afford monthly payment** E. **can't qualify for loan** F. **market is bad**
   G. **worried about job security** H. **don't want to be tied down**
   I. **won't stay long enough** J. **other** _____
10. If there were homes available that you could afford, would you want to buy one? **yes/no** (circle one)
11. If you chose "yes" for Question 10, what price range would you consider "affordable"? _____
12. About how much can you afford to pay each month for all housing costs, including utilities, and maintenance fees? _____
13. If you plan on buying your next home, would you be most likely to buy a **single-family house** or a **townhouse/condo/apartment**? (circle one)
14. If you chose "single-family house" for Question 13, but couldn't find a house in your price range, would you be willing to buy a townhouse/condo/apartment? **yes/no** (circle one)
15. If you were to buy a new home or rent a different home, how many bedrooms would you need? _____
16. If you were to buy a new home or rent a different home, how many bathrooms would you need? _____
17. What is the smallest size home you would be willing to live in? (circle one)
    A. **1,000 square feet or less** B. **1,001-1,200 square feet** C. **1,201-1,400 square feet**
    D. **1,401-1,600 square feet** E. **1,601 square feet or more**
18. Including yourself, how many people live in your household? _____
19. What are the ages of the people living in your household? _____
20. Of the adults in your household, how many are working? _____
21. Are all the people in your household related by blood, marriage, or adoption? **yes/no** (circle one)
22. If you chose "no" for Question 21, how many unrelated working adults are in your household? _____

SURVEY	Q1 # BR	Q2 # BA	Q3 TYPE	Q4 TENANCY	Q5 CURRENT EXPENSES	Q6 RESIDENCY	Q7 SIZE OK	Q8 BUY/RENT NEXT	Q9 REASONS FOR RENTING NEXT HOUSING UNIT											Q10 BUY AFFORDABLE	Q11 AFFORDABLE RANGE	Q12 CAN PAY EXPENSES	Q13 FUTURE UNIT	Q14 ALTERNATIVE AF	Q15 BR MINIMUM	Q16 BA MINIMUM	Q17 SF MINIMUM	Q18 # HOUSEHOLD	Q19 18 - 75	Q20 WORKING ADULTS	Q21 RELATED	Q22 UNRELATED WORKING
									TOO EXPENSIVE	PREFER RENT	NO DOWN PAYMENT	CAN'T PAY MONTHLY	CAN'T GET LOAN	BAD MARKET	JOB SECURITY	NO TIE DOWN	WON'T STAY	RENT FOR WORK														
1	3	2	SF	OWN	$500 - $999	15 YEARS < 20 YEARS	YES	BUY												YES	< $100,000	< $500	SF HOUSE		3	2	1,000 SF <	2	2	2	YES	
2	3	2	SF	OWN	$500 - $999	10 YEARS < 15 YEARS	NO	RENT	X											YES	OTHER	< $500	SF HOUSE	YES	7	2	1,201 SF - 1,400 SF	5	3	OTHER	YES	
3	2	1	SF	RENT	$500 - $999	< 1 YEAR	YES	RENT				X	X	X	X					YES	OTHER	OTHER	OTHER		OTHER	OTHER	OTHER	1	1		YES	
4	3	1.5	SF	OTHER	$3,000 +	10 YEARS < 15 YEARS	YES	RENT			X									YES	$100,000 < $200,000	$1,000 < $1,500	SF HOUSE	NO	3	2	1,601 SF >	3	3	3	YES	
5	2	2	MF	RENT	$1,000 - $1,499	< 1 YEAR	YES	BUY												YES	$200,000 < $300,000	$2,000 < $2,500	SF HOUSE	YES	7	3	3,000 SF <	2	2	2	YES	
6	4	3	SF	OWN	$1,500 - $1,999	20 YEARS < 25 YEARS	YES	RENT	X											NO		< $500	OTHER	OTHER	OTHER	OTHER	OTHER	7	OTHER	4	NO	2
7	3	1	SF	OWN	$1,000 - $1,499	5 YEARS < 10 YEARS	NO	RENT				X								YES	OTHER	$500 < $1,000	SF HOUSE	NO	3	1	1,401 SF - 1,600 SF	2	2	2	YES	
8	3	2	SF	OWN	$2,000 - $2,499	20 YEARS < 25 YEARS	YES	BUY												NO		OTHER	SF HOUSE	OTHER	3	2	1,401 SF - 1,600 SF	2	2	2	YES	
9	3	2	SF	OWN	$2,500 - $2,999	1 YEAR < 5 YEARS	YES	BUY												YES	$200,000 < $300,000	OTHER	SF HOUSE	YES	7	2	OTHER	3	2	2	YES	
10	2	1	SF	OWN	$500 - $999	5 YEARS < 10 YEARS	YES	BUY												NO		OTHER	OTHER	OTHER	OTHER	OTHER	OTHER	3	2	2	YES	
11	3	1.5	OTHER	OWN	OTHER	10 YEARS < 15 YEARS	YES	OTHER												NO		OTHER	OTHER	OTHER	2 - 3	OTHER	OTHER	3	2	2	YES	
12	3	2	SF	OWN	< $500	1 YEAR < 5 YEARS	YES	RENT	X											NO		OTHER	OTHER	OTHER	2 - 3	2	1,401 SF - 1,600 SF	3	3	3	NO	2
13	2	1.5	SF	RENT	$500 - $999	1 YEAR < 5 YEARS	NO	BUY												YES	$200,000 < $300,000	$1,000 < $1,500	SF HOUSE	YES	3	2	1,001 SF - 1,200 SF	2	1	1	YES	
14	2	1	MF	RENT	$500 - $999	1 YEAR < 5 YEARS	NO	BUY												YES	$300,000 < $400,000	$1,500 < $2,000	SF HOUSE	YES	4	2	1,000 SF <	3	3	3	YES	
15	3	2	SF	OWN	$1,500 - $1,999	15 YEARS < 20 YEARS	YES	BUY												YES	$200,000 < $300,000	$1,000 < $1,500	SF HOUSE		3	2	1,601 SF >	5	1	1	YES	
16	0	OTHER	MF	RENT	$500 - $999	< 1 YEAR	NO	RENT	X	X		X			X					YES	$300,000 < $400,000	$1,500 < $2,000	SF HOUSE		3	2	1,601 SF >	4	2	2	YES	
17	2	1	SF	RENT	$1,500 - $1,999	< 1 YEAR	YES	RENT							X					NO		$3,000 < $3,500	SF HOUSE	YES	7	2	2,000 SF <	2	2	2	YES	
18	3	OTHER	MF	RENT	< $500	1 YEAR < 5 YEARS	YES	RENT	X	X	X				X					YES	$500,000 OR MORE	$500 < $1,000	SF HOUSE	YES	3	1	1,001 SF - 1,200 SF	2	2	2	NO	1
19	3	2	SF	RENT	OTHER	20 YEARS < 25 YEARS	YES	BUY												NO		< $500	SF HOUSE	YES	3	OTHER	1,201 SF - 1,400 SF	4	4	1	YES	
20	5	2	OTHER	OWN	OTHER	30 YEARS +	YES	BUY												YES	$300,000 < $350,000	$1,000 < $1,500	SF HOUSE	YES	3	2	1,201 SF - 1,400 SF	6	6	4	YES	
21	3	1	SF	RENT	$2,000 - $2,499	1 YEAR < 5 YEARS	YES	RENT								X				NO		$1,000 < $1,500	SF HOUSE		3	2	1,201 SF - 1,400 SF	2	2	2	NO	1
22	2	1	OTHER	OTHER	$1,500 - $1,999	5 YEARS < 10 YEARS	YES	RENT							X					NO		$1,500 < $2,000	SF HOUSE	YES	2 - 3	1 - 2	1,001 SF - 1,200 SF	2	2	2	NO	2
23	3	2	SF	OWN	$1,000 - $1,499	15 YEARS < 20 YEARS	YES	BUY												NO		$1,000 < $1,500	OTHER	OTHER	OTHER	OTHER	OTHER	2	2	1		
24	0	1	MF	RENT	$500 - $999	< 1 YEAR	YES	RENT	X		X	X								YES	$200,000 < $300,000	$1,000 < $1,500	SF HOUSE	YES	3	2	1,000 SF <	4	2	2	YES	
25	2	1	SF	RENT	$500 - $999	1 YEAR < 5 YEARS	YES	RENT	X				X							YES	< $100,000	$500 < $1,000	SF HOUSE	NO	2	1	1,000 SF <	3	2	1	YES	
26	1	1	MF	OTHER	$500 - $999	1 YEAR < 5 YEARS	YES	BUY												YES	< $100,000	$500 < $1,000	SF HOUSE	NO	2	1	OTHER	3	2	1	YES	
27	3	2	SF	OWN	$1,500 - $1,999	5 YEARS < 10 YEARS	NO	BUY												YES	OTHER	< $500	SF HOUSE	NO	7	2	1,601 SF >	3	2	1	YES	
28	2	2	MF	RENT	$1,000 - $1,499	1 YEAR < 5 YEARS	NO	BUY												YES	$100,000 < $200,000	$1,500 < $2,000	SF HOUSE	YES	3	2	1,401 SF >	6	2	2	YES	
29	3	1.5	SF	RENT	$1,500 - $1,999	1 YEAR < 5 YEARS	NO	BUY												YES	$100,000 < $200,000	$1,000 < $1,500	SF HOUSE	YES	4	2	1,401 SF - 1,600 SF	5	2	2	YES	
30	3	1.5	SF	OWN	$2,500 - $2,999	20 YEARS < 25 YEARS	YES	BUY												YES	$100,000 < $200,000	$1,000 < $1,500	SF HOUSE	NO	4	2	1,401 SF - 1,600 SF	3	2	2	YES	
31	2	1	SF	OWN	$2,500 - $2,999	10 YEARS < 15 YEARS	NO	BUY												YES	$200,000 < $300,000	$1,000 < $1,500	SF HOUSE	NO	3	2	1,201 SF - 1,400 SF	2	2	2	YES	
32	2	1	MF	RENT	$500 - $999	1 YEAR < 5 YEARS	NO	RENT	X		X				X					YES	$100,000 < $200,000	$2,500 < $3,000	SF HOUSE	NO	4	2	1,201 SF - 1,400 SF	4	2	2	YES	
33	2	1	SF	RENT	$1,500 - $1,999	1 YEAR < 5 YEARS	NO	BUY												YES	$100,000 < $200,000	$300 < $1,000	SF HOUSE		2	1.5	1,000 SF <	2	2	2	YES	
34	2	1.5	SF	OWN	$2,000 - $2,499	5 YEARS < 10 YEARS	YES	BUY												YES	$100,000 < $200,000	$500 < $1,000	SF HOUSE	YES	4	2	1,401 SF - 1,600 SF	3	3	3	NO	1
35	3	2	SF	OWN	OTHER	25 YEARS < 30 YEARS	YES	RENT	X				X	X		X				YES	$100,000 < $200,000	$500 < $1,000	SF HOUSE	YES	4	2	1,201 SF - 1,400 SF	5	3	3	NO	1
36	3	1	SF	RENT	< $300	15 YEARS < 20 YEARS	NO	BUY												YES	< $100,000	< $300	SF HOUSE	OTHER	2	2	1,401 SF - 1,600 SF	3	2	1	YES	
37	3	1	SF	RENT	$1,000 - $1,499	5 YEARS < 10 YEARS	YES	RENT			X		X	X						YES	< $100,000	< $300	SF HOUSE	YES	3	2	1,601 SF >	6	3	3	YES	
38	3	1	SF	RENT	$2,500 - $2,999	1 YEAR < 5 YEARS	NO	BUY												YES	$400,000 < $500,000	$1,500 < $2,000	SF HOUSE	NO	7	2	1,201 SF - 1,400 SF	4	2	2	YES	
39	2	1	MF	RENT	< $300	< 1 YEAR	YES	RENT				X								YES	$100,000 < $200,000	$1,000 < $1,500	SF HOUSE	YES	4	3	1,601 SF >	6	4	3	NO	3
40	2	1	SF	RENT	$1,000 - $1,499	5 YEARS < 10 YEARS	NO	RENT	X		X			X						YES	OTHER	< $300	OTHER								
41	2	1	SF	OWN	$1,500 - $1,999	5 YEARS < 10 YEARS	NO	BUY												YES	$100,000 < $200,000	$1,500 < $2,000	SF HOUSE	YES	3	OTHER	1,401 SF - 1,600 SF	4	3	1	YES	
42	3	2	OTHER	OWN	OTHER	30 YEARS OR MORE	YES	OTHER												YES	$100,000 < $200,000	$1,000 < $1,500	SF HOUSE	NO	4	2	1,001 SF - 1,200 SF	2	2	1	YES	
43	2	1	SF	OWN	$2,500 - $2,999	5 YEARS < 10 YEARS	YES	BUY												NO		OTHER	OTHER		2 - 3	2.5	1,201 SF - 1,400 SF	5	2	2	YES	
44	2	1	SF	RENT	$1,500 - $1,999	1 YEAR < 5 YEARS	YES	BUY												YES	$200,000 < $300,000	OTHER	OTHER		3	2	OTHER	3	2	0		
45	2	2	MF	RENT	OTHER	10 YEARS < 15 YEARS	YES	RENT		X					X					YES	< $100,000	$1,000 < $1,500	SF HOUSE	YES	4	2	1,001 SF - 1,200 SF	3	3	2		
46	2	1	SF	OWN	$1,000 - $1,499	10 YEARS < 15 YEARS	YES	OTHER														$500 < $1,000	OTHER		2 - 3	2	1,001 SF - 1,200 SF	3	2	1	YES	
47	2	2	SF	OWN	$1,500 - $1,999	10 YEARS < 15 YEARS	NO	BUY														OTHER	OTHER	OTHER	OTHER	OTHER	OTHER	1	1	1	YES	
48	2	2	SF	RENT	< $500	OTHER	NO	BUY												YES		$1,000 < $1,500	SF HOUSE	YES	4	2	1,601 SF >	7	3	3	YES	
49	2	2	SF	OWN	OTHER	20 YEARS < 25 YEARS	YES	BUY												YES	OTHER	OTHER	SF HOUSE	OTHER	4	2	OTHER	1	OTHER	OTHER	YES	
50	2	1	SF	RENT	OTHER	10 YEARS < 15 YEARS	YES	BUY												YES	$100,000 < $200,000	$500 < $1,000	SF HOUSE	NO	3	2	1,001 SF - 1,200 SF	4	2	2	YES	
51	1	1	MF	RENT	OTHER	1 YEAR < 5 YEARS	YES	RENT			X				X					NO		OTHER	SF HOUSE	NO	2	1	1,000 SF <	1	1	1	YES	
52	3	2	SF	OWN	OTHER	1 YEAR < 5 YEARS	NO	RENT	X		X	X	X	X	X					NO		$1,000 < $1,300	SF HOUSE	NO	3	1	1,000 SF <	1	1	1	YES	
53	4	3	SF	OWN	OTHER	25 YEARS < 30 YEARS	YES	BUY												NO		$1,000 < $1,300	SF HOUSE	NO	3	2	1,201 SF - 1,400 SF	5	2	2	YES	
54	3	1	SF	OWN	OTHER	25 YEARS < 25 YEARS	YES	BUY												YES	OTHER	OTHER	SF HOUSE	YES	2 - 3	1 - 2	1,201 SF - 1,400 SF	2	OTHER	1	YES	
55	4	2	SF	OWN	$2,000 - $2,499	30 YEARS OR MORE	YES	BUY												NO		OTHER	SF HOUSE	NO	3	2	1,201 SF - 1,400 SF	3	2	2	YES	
56	3	1	SF	RENT	$500 - $999	1 YEAR < 5 YEARS	YES	BUY												YES	$300,000 < $400,000	$2,000 < $2,500	SF HOUSE	NO	3	2	1,001 SF - 1,200 SF	2	2	2	YES	
57	3	2	SF	OWN	$1,000 - $1,499	1 YEAR < 5 YEARS	YES	BUY												YES	$300,000 < $400,000	OTHER	SF HOUSE	YES	3	2	1,201 SF - 1,400 SF	1	1	1	YES	
58	3	2	OTHER	OTHER	$1,500 - $1,499	< 1 YEAR	OTHER	RENT												YES	$100,000 < $200,000	$500 < $1,000	SF HOUSE		3	2	1,201 SF - 1,400 SF	7	2	1	YES	
59	3	2	SF	RENT	$1,000 - $1,499	1 YEAR < 5 YEARS	YES	BUY												NO		OTHER	OTHER	OTHER	OTHER	OTHER	OTHER	6	2	1	YES	
60	3	2	SF	RENT	$1,500 - $1,999	1 YEAR < 5 YEARS	NO	BUY												YES	$200,000 < $300,000	$1,000 < $1,500	SF HOUSE	NO	3	2	1,201 SF - 1,400 SF	3	2	1	YES	
61	3	1	SF	OWN	$2,000 - $2,499	1 YEAR < 5 YEARS	YES	BUY												YES	$100,000 < $200,000	$1,000 < $1,500	SF HOUSE	NO	4	2	1,601 SF >	3	2	1	YES	
62	3	1	SF	OWN	< $500	30 YEARS OR MORE	YES	BUY												YES	$200,000 < $300,000	$500 < $1,000			3	2		2	2	1	YES	
63	3	2	SF	OWN	$2,500 - $2,999	15 YEARS < 20 YEARS	YES	BUY												YES	OTHER	$1,000 < $1,500	SF HOUSE	NO	3	2	1,201 SF - 1,400 SF	3	3	2	YES	
64	3	1.5	SF	OWN	OTHER	OTHER	YES	BUY												YES	$200,000 < $300,000	$500 < $1,000	SF HOUSE	NO	3	2	1,001 SF - 1,200 SF	5	2	2	YES	
65	1	1	MF	RENT	< $500	1 YEAR < 5 YEARS	NO	RENT	X		X		X							YES	$100,000 < $200,000	$500 < $1,000	SF HOUSE	NO	3	2	1,201 SF - 1,400 SF	3	2	1	YES	
66	2	1	SF	OWN	$1,000 - $1,499	< 1 YEAR	YES	BUY												YES	$100,000 < $200,000	$500 < $1,000	SF HOUSE	NO	3	2	1,401 SF - 1,600 SF	2	2	2	YES	
67	3	2	SF	OWN	OTHER	15 YEARS < 20 YEARS	YES	BUY												NO		< $500	SF HOUSE	NO	3	2	1,601 SF >	3	3	1	YES	
68	3	2	SF	OWN	$2,500 - $2,999	< 1 YEAR	NO	BUY												OTHER		OTHER	OTHER	OTHER	OTHER	OTHER	OTHER	3	OTHER	1	YES	
69	2	2	SF	RENT	$500 - $999	1 YEAR < 5 YEARS	YES	BUY												YES	$200,000 < $300,000	$1,000 < $1,500	SF HOUSE	YES	4	2.5	1,201 SF - 1,400 SF	9	3	3	YES	
70	3	2	SF	OWN	$3,000 +	1 YEAR < 5 YEARS	YES	BUY												YES	$200,000 < $300,000	$1,000 < $1,500	SF HOUSE	NO	4	3	1,201 SF - 1,400 SF	9	5	3	YES	
71	3	1	SF	OWN	OTHER	20 YEARS < 25 YEARS	YES	BUY												YES	$400,000 < $500,000	$4,000 OR MORE	SF HOUSE	YES	3	2	1,201 SF - 1,400 SF	5	4	2	NO	2
72	2	1	SF	OWN	$2,500 - $2,999	1 YEAR < 5 YEARS	YES	BUY												YES	OTHER	OTHER	SF HOUSE	NO	2	2	OTHER	2	OTHER	1	YES	
73	2	1	SF	RENT	$500 - $999	1 YEAR < 5 YEARS	NO	BUY												NO		OTHER	OTHER		3	2	1,401 SF >	4	OTHER	2	YES	
74	3	2	SF	OWN	$1,500 - $1,999	5 YEARS < 10 YEARS	NO	BUY												YES	OTHER	OTHER	OTHER		3	2	1,401 SF - 1,600 SF	4	OTHER	2	YES	
75	3	2	SF	OWN	OTHER	10 YEARS < 15 YEARS	YES	BUY												YES	$200,000 < $300,000	$1,500 < $2,000	SF HOUSE	YES	3	2	1,001 SF - 1,200 SF	5	2	OTHER	YES	
																				OTHER		OTHER	SF HOUSE	NO	3	2	1,001 SF - 1,200 SF	4	3	2	YES	

ADDENDUM

DEFINITIONS

The purpose of this Glossary is to assist the reader in understanding specific terminology used in this report.

Appraisal (noun) the act or process of estimating value; an estimate of value. (adjective) of or pertaining to appraising and related functions, e.g. appraisal practice, appraisal services.

Binding Requirement All or part of a standards rule of the Uniform Standards of Professional Appraisal Practice (USPAP) from which departure is not permitted (See Departure Provision).

Cash Equivalent A price expressed in terms of cash, as distinguished from a price expressed totally or partly in terms of the face amounts of notes or other securities that cannot be sold at their face amounts.

Counseling Providing competent, disinterested, and unbiased advice and guidance on diverse problems in the broad field of real estate; may involve any or all aspects of the business such as merchandising, leasing, management, acquisition/disposition planning, financing, development, cost-benefit studies, feasibility analysis, and similar services. Counseling services are often associated with evaluation, but they are beyond the scope of appraisal.

Discounting The procedure used to convert periodic income and reversions into present value; based on the assumption that benefits received in the future are worth less than the same benefits received now.

Extraordinary Assumption An assumption, directly related to a specific assignment, which, if found to be false, could alter the appraiser's opinions or conclusions. Extraordinary assumptions presume as fact otherwise uncertain information about physical, legal, or economic characteristics of the subject property; or about conditions external to the property such as market conditions or trends; or about the integrity of data used in an analysis. An extraordinary assumption may be used in an assignment only if:

- It is required to properly develop credible opinions and conclusions;
- The appraiser has a reasonable basis for the extraordinary assumption;
- Use of the extraordinary assumption results in a credible analysis; and
- The appraiser complies with the disclosure requirements set forth in USPAP for extraordinary assumptions.

Fair Value The cash price that might reasonably be anticipated in a current sale under all conditions requisite to a fair sale. A fair sale means that buyer and seller are each acting prudently, knowledgeably, and under no necessity to buy or sell-, i.e., other than in a forced or liquidation sale. The appraiser should estimate the cash price that might be received upon exposure to the open market for a reasonable time, considering the property type and local market conditions. ***When a current sale is unlikely (i.e., when it is unlikely that the sale can be completed within 12 months) the appraiser must discount all cash flows generated by the property to obtain the estimate of fair value.*** These cash flows include, but are not limited to, those arising from ownership, development, operating, and sale of the property. The discount applied

shall reflect the appraiser's judgment of what a prudent, knowledgeable purchase under o necessity to buy would be willing to pay to purchase the property in a current sale.

Fee Simple Estate — Absolute ownership encumbered by any other interest or restate, subject only to the limitations imposed by the governmental powers of taxation, eminent domain, police power, and escheat.

Hawaiian Terms — The Hawaiian words "mauka" and "makai" are commonly used in the islands as indicators of direction. The word "mauka" means toward the mountain, and "makai" means toward the ocean.

Highest and Best Use — The reasonably probable and legal use of vacant land or an improved property, which is physically possible, appropriately supported, financially feasible, and that results in the highest value. The four criteria the highest and best use must meet are legal permissibility, physical possibility, financial feasibility, and maximum profitability.

Highest and Best Use of Land or a Site as Though Vacant — The use of a property based on the assumption that a parcel of land is vacant or can be made vacant through demolition of any improvements.

Highest and Best Use of Property as Improved — The use that should be made of a property as it exists.

Hypothetical Condition — That which is contrary to what exists, but is supposed for the purpose of analysis. Hypothetical conditions assume conditions contrary to known facts about physical, legal, or economic characteristics of the subject property; or about conditions external to the property, such as market conditions or trends; or about the integrity of data used in an analysis. A hypothetical condition may be used in an assignment only if:

- Use of the hypothetical condition is clearly required for legal purposes, for purposes of reasonable analysis, or for purposes of comparison;
- Use of the hypothetical condition results in a credible analysis; and
- The appraiser complies with the disclosure requirements set forth in USPAP for hypothetical conditions

Leased Fee Estate — An ownership interest held by a landlord with the right of use and occupancy conveyed by lease others; the rights of lessor or the leased fee owner and leased fee are specified by contract terms contained within the lease

Leasehold Estate — The right to use and occupy real estate for a stated term and under certain conditions; conveyed by a lease.

Market Rent — The rental income that a property would most probably command in the open market.

Market Value — Market value is the major focus of most real property appraisal assignments. Both economic and legal definitions of market value have been developed and refined. Continual refinement is essential to the growth of the appraisal

profession. The current economic definition of market value can be stated as follows:

"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress."

The current economic definition of "market value" as stated in the Uniform Standards of Professional Practice, published by The Appraisal Foundation in 1990, is as follows:

"The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

1. buyer and seller are typically motivated.

2. both parties are well informed or well advised, and acting in what they consider their best interests;

3. a reasonable time is allowed for exposure in the open market;

4. payment is made in terms of cash in United States dollars or in terms of financial arrangements comparable thereto; and

5. the price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale."

Prospective Market Value Upon Completion of Construction

The prospective future value of a property on the date that construction is completed, based upon market conditions forecast to exist as of the completion date.

Prospective Value Estimate

A forecast of the value expected at a specified future date. A prospective value estimate is most frequently sought in connection with real estate projects that are proposed, under construction, or under conversion to a new use, or those that have not achieved sellout or a stabilized level of long-term occupancy at the time the appraisal report is written.

Report

Any communication, written or oral, of an appraisal, review, or consulting service that is transmitted to the client upon completion of an assignment. The types of written reports listed below apply to real property appraisals:

Self-Contained Appraisal Report: A written report prepared under Standards Rule 2-2(a) of the Uniform Standards of Professional Appraisal Practice.

Summary Appraisal Report: A written report prepared under Standards Rule 2-2(b) or 8-2(b).

Restricted Use Appraisal Report: A written report prepared under Standards Rule 2-2(c), 8-2(c), or 10-2(b).

Uniform Standards of Professional Appraisal Practice

Current standards of the appraisal profession, developed for appraisers and the users of appraisal services; the USPAP deal with the procedures to be followed in developing an appraisal, analysis, or opinion and the manner in which an appraisal, analysis, or opinion is communicated. The USPAP are endorsed by the Appraisal Institute and other professional appraisal organizations.

LIMITING AND CONTINGENT CONDITIONS
ACM Consultants, Inc.

LIMITING AND CONTINGENT CONDITIONS: The certification of the Consultant appearing in the appraisal report is subject to the following conditions and to such other specific and limiting conditions as are set forth by the Consultant in the report. By this notice, all persons and firms reviewing, utilizing or relying on the report in any manner bind themselves to accept these assumptions and limiting conditions. Do not use this report if you do not so accept. These conditions are a part of the appraisal report, they are a preface to any certification, definition, fact or analysis, and are intended to establish as a matter of record that the Consultant's function is to provide a present market value indication for the subject property bosed upon the Consultant's observation as to the subject property and real estate market. This appraisal report is an economic study to estimate value os defined in it. It is not an engineering, construction, legal or architectural study nor survey and expertise in these areas, among others, is not implied.

1. CONFIDENTIALITY. The contents of the appraisal are confidential. Release of this appraisal by ACM Consultants, Inc. to you is limited to and solely for your business use only. Any further release of this appraisal by you or any of your agents is strictly prohibited and you shall accept the risk and liability for any such release without the previous written consent of ACM Consultants, Inc. Further, you shall indemnify and defend ACM Consultants, Inc. from any claims arising out of any such unauthorized disclosure.

2. LIMIT OF LIABILITY. The liability of ACM Consultants, Inc. and employees and affiliated independent contractors is limited to the fee actually received by Consultant (total per appraisal). Further, there is no accountability, obligation, or liability to any third party. If this report is placed in the hands of anyone other than client, the client shall make such party aware of all limiting conditions and assumptions of the assignment and related discussions. The Consultant is in no way to be responsible for any costs incurred to discover or correct any deficiencies of any type present in the property; physically, financially, and/or legally. In the case of limited partnerships or syndication offerings or stock offerings in real estate, client agrees that in case of lawsuit (brought by lender, partner or part owner in any form of ownership, tenant, or any other party), any and all awards, settlements of any type in such suit, regardless of outcome, client will hold Consultant harmless in any such action.

3. INFORMATION USED. No responsibility is assumed for accuracy of information furnished by work of or work by others, the client, his designee, or public records. We are not liable for such information or the work of possible subcontractors. The comparable date relied upon in this report has been confirmed with one or more parties familiar with the transaction or from affidavit or other source though reasonable; all are considered appropriate for inclusion to the best of our factual judgment and knowledge. An impractical and uneconomic expenditure of time would be required in attempting to furnished unimpeachable verification in all instances, particularly as to engineering and market-related information. It is suggested that the client consider independent verification as a prerequisite to any transaction involving sale, lease, or other significant commitment of funds of subject property.

4. TESTIMONY, CONSULTATION, COMPLETION OF CONTRACT FOR APPRAISAL SERVICES. The contract for appraisal, consultation or analytical service is fulfilled, and the total fee is payable upon completion of the report.

   The Consultant(s) or those assisting in preparation of the report will not be asked or required to give testimony in court or hearing because of having made the oppraisal, in full or in part, nor engage in post appraisal consultation with client or third parties except under separate and special arrangement and ot odditional fee. If testimony or deposition is required because of subpoena, the client shall be responsible for any additional time, fees, and charges regardless of issuing party.

5. LEGALITY OF USE. The appraisal is based on the premise that, there is full compliance with all applicoble federal, state and local environmental regulations and laws unless otherwise stated in the report; further, that all applicable zoning, building, use regulations and restrictions of all types have been complied with unless otherwise stated in the report; further, it is assumed that all required licenses, consents, permits, or other legislative or administrative authority, local , state, federal and/or private entity or organization have been or can be obtained or renewed for any use considered in the value estimate.

6. COMPONENT VALUES. The distribution of the total valuatian in this report between land and improvements applies only under the existing program of utilization. The separate valuations for land and building must not be used in conjunction with any other appraisal and are invalid if so used.

7. AUXILIARY AND RELATED STUDIES. No environmental or impact studies, speciol market study or analysis, highest and best use analysis or feasibility study has been requested or made unless otherwise specifically stated in an agreement for services or in the report.

8. DOLLAR VALUES, PURCHASING POWER. The market value estimated, and the costs used, are as of the date of the estimate of value. All dollar amounts are based on the purchasing power and price of the dollar as of the date of the value estimate.

9. INCLUSIONS. Furnishings and equipment or personal property or business operations except as specifically indicated and typically considered as a part of real estate, have been disregarded with only the real estate being considered in the value estimate unless otherwise stated.

10. ENVIRONMENTAL DISCLAIMER. The value estimated in this report is based on the assumption that the property is not negatively affected by the existence of hazardous substances or detrimental environmental conditions. The Consultant is not an expert in the identification of hazardous substances or detrimental environmental conditions. The Consultant's routine inspection of and inquiries about the subject property did not develop any information that indicated any apparent significant hazardous substances or detrimental environmental conditions which would affect the property negatively. It is possible that tests and inspections made by a qualified hazardous substance and environmental expert would reveal the existence of hazard material and environmental conditions on or around the property that would negatively affect its value.

11. LEGAL, ENGINEERING, FINANCIAL, STRUCTURAL, OR MECHANICAL NATURE, HIDDEN COMPONENTS, SOIL. The Consultant and/or firm has no responsibility for matters legal in character or nature, nor of any architectural, structural, mechanical, or engineering nature. No opinion is rendered as to the title, which is presumed to be good and merchantable. The property is appraised as if free and clear, unless otherwise stated in particular parts of the report.

    The legal description is assumed to be correct as used in this report as furnished by the client, his designee, or as derived by the Consultant.

Note that no advice is given regarding mechanical equipment or structural integrity or adequacy, no soils and potential for settlement, drainage, and such (seek assistance from qualified architect and/or engineer) nor matters concerning liens, title status, and legal marketability (seek legal assistance), and such. The lender and owner should inspect the property before any disbursement of funds; further it is likely that the lender or owner may wish to require mechanical or structural inspections by a qualified and licensed contractor, civil or structural engineer, architect, or other expert.

The Consultant has inspected as far as possible, by observation, the land and the improvements; however, it was not possible to personally observe conditions beneath the soil or hidden structurally or by other components. We have not critically inspected mechanical components within the improvements and no representations are made herein as to these matters unless specifically stated and considered in the report. The value estimate considers there being no such conditions that would cause a loss of value. The land or the soil of the area being appraised appears firm, however, subsidence in the area is unknown. The Consultant(s) do not warrant against this condition or occurrence of problems arising from soil conditions.

The appraisal is based on there being no hidden, unapparent, or apparent conditions of the property site, subsoil, or structures or toxic material which would render it more or less valuable. The Consultant and firm have no responsibility for any such conditions or for any expertise or engineering to discover them. All mechanical components are assumed to be in operable condition and status standard for properties of the subject type. Conditions of heating, cooling, ventilation, electrical and plumbing equipment is considered to be commensurate with the conditions of the balance of the improvements unless otherwise stated. No judgment may be made by us as to adequacy of insulation, type of insulation, or energy efficiency of the improvements or equipment which is assumed standard for subject and type.

If the Consultant has not been supplied with a termite inspection, survey or occupancy permit, na responsibility or representation is assumed or made for costs associated with obtaining same or for any deficiencies discovered before or after they are obtained. No representation or warranties are made concerning obtaining the above mentioned items.
The Consultant has no responsibility for any costs or consequences arising due to the need, or the lack of need for flaod hazard insurance. An Agent for the Federal Flood Insurance Program should be contacted to determine the actual need for Flood Hazard Insurance.

12. PROPOSED IMPROVEMENTS, CONDITIONED VALUE. Improvements proposed, if any, on or off-site, as well as any repairs required are considered, for purposes of the appraisal to be completed in good and workmanlike manner according to information submitted and/or considered by the Consultant(s). In cases of proposed construction, the appraisal is subject to change upon inspection of property after construction is completed. This estimate of market value is as of the date shown, as proposed, as if completed and operating at levels shown and projected. On all appraisals, subject to satisfactory completion, repairs, or alterations, the appraisal report and value conclusion are contingent upon completion of the improvements in a workmanlike manner.

13. VALUE CHANGE, DYNAMIC MARKET, INFLUENCES, ALTERATION OF ESTIMATE BY CONSULTANT. The estimated market value, which is defined in the report, is subject to change with market changes over time; value is highly related to exposure, time, promotional effort, terms, motivation, and conditions surrounding the offering. The value estimate considers the productivity and relative attractiveness of the property physically and economically in the marketplace.

    Appraisal report and value estimate subject to change if physical or legal entity or financing is different than that envisioned in this report.

14. EXHIBITS. The sketches and maps in this report are included to assist the reader in visualizing the property and are not necessarily to scale. Various photos, if any, are included for the same purpose as of the date of the photos. Site plans are not surveys unless shown from separate surveyor. All documents, materials, photographs, negatives, and other items provided to or obtained by the Consultant becomes the property of the Consultant unless other arrangements have been previously made therefore.

15. CHANGES, MODIFICATION. The Consultant(s) and/or officers of ACM Cansultants, Inc., reserve the right to alter statements, analysis, conclusion or any value estimate in the appraisol if there becomes known to us facts pertinent to the appraisal process which were unknown to us when the report was completed.

16. DISCLOSURE. Disclosure of the contents of the appraisal report is governed by the Bylaws and Regulations of the professional appraisal organizations with which the Consultant is affiliated. Neither all, nor any part of the content of the report, or copy thereof (including conclusions as to the property value, the identity of the Consultant, professional designations, reference to any professional appraisal organizations, or the firm with which the Consultant is connected, shall be used for any purpose by anyone but the client specified in the report, without the previous written consent of the Consultant; nor shall it be conveyed by anyone to the public through advertising, public relations, news sales, or other media, without the written consent and approval of the Consultant. The Consultant may not divulge the material (evaluation) contents of the report, analytical findings or conclusions, or give a copy of the report to anyone other than the client or his designee as specified in writing except as may be required by the Appraisal Institute as they may request in confidence for ethics enforcement, or by a court of law or body with the power of subpoena.

17. CONTINUING EDUCATION. The Appraisal Institute conducts a voluntary program of continuing education for its designated members. As of the date of this report, Glenn Kunihisa has completed the requirements of the continuing education program of the Appraisal Institute.

    ACCEPTANCE OF, AND/OR USE OF THIS APPRAISAL REPORT BY CLIENT OR ANY THIRD PARTY CONSTITUTES ACCEPTANCE OF THE ACM CONSULTANTS, INC., CERTIFICATION, LIMITING AND CONTINGENT CONDITIONS. CONSULTANT LIABILITY EXTENDS ONLY TO STATED CLIENT, NOT SUBSEQUENT PARTIES OR USERS OF ANY TYPE, and the total liability of Consultant(s) and firm is limited to the amount of fee received by Consultant.

APPRAISAL QUALIFICATIONS

Glenn K. Kunihisa, MAI, CRE

STATE LICENSING

State Certified General Appraiser,
State of Hawaii, License No. CGA 39, July 17, 1991
Expiration: December 31, 2007

PROFESSIONAL AFFILIATIONS

Member, Appraisal Institute, MAI Designation, Hawaii Chapter No. 67
Member, The Counselors of Real Estate, CRE Designation, Hawaii Chapter
Member, International Right of Way Association
Appraiser-Realtor, National Association of Realtors, Maui Board of Realtors

PROFESSIONAL INVOLVEMENT

Former Education Chairperson – Hawaii Chapter of the Appraisal Institute – 2004 and 2005
Former Island of Maui Representative – Hawaii Chapter of the Appraisal Institute
Former Multiple Listing Service (MLS) Committee Member – Realtors Association of Maui

COMMUNITY AFFILIATIONS

St. Anthony Parish School Board
Board Member, 1995 to Present
Board President, 1997 and 1998
Alii Community Care, Inc. – A non-profit corporation
Former Board Member 2004 to 2006

EMPLOYMENT

President, ACM Consultants, Inc. - May, 1997 to present

Previously associated with the following:
ACM, Real Estate Appraisers, Inc. - 1986 to 1997
A&B Commercial Company; a division of Alexander & Baldwin, Inc. - 1979 to 1985
Bank of Hawaii - 1976 to 1979

GENERAL EDUCATION

University of Hawaii at Manoa
Master of Business Administration (MBA) - Executive MBA Program V, 1988
Bachelor of Business Administration (BBA), 1976
Iolani School, 1971

LEGAL

Qualified as an expert witness in the Second Circuit Court of the State of Hawaii
Experienced in real estate arbitration in the State of Hawaii

APPRAISAL EDUCATION

Appraisal Institute

Seminar	*Uniform Appraisal Standards for Federal Land Acquisitions* Honolulu, Hawaii – December, 2006
Seminar	*California Conservation Easements* Sacramento, California – November, 2005
Course 400	*7-Hour National USPAP Update Course* Honolulu, Hawaii – October, 2005
Seminar	*Case Studies in Limited Partnership and Partial Interest Valuation* Honolulu, Hawaii – May, 2005

Seminar	*Appraisal Consulting: A Solutions Approach for Professionals* Honolulu, Hawaii – February, 2005
Seminar	*Real Estate Finance, Value and Investment Performance* Honolulu, Hawaii – February 2005
Seminar	*Fannie Mae Residential Presentation* Honolulu, Hawaii - July 2004
Seminar	*Subdivision Analysis* Chicago, Illinois - August 2003
Seminar	*Supporting Capitalization Rates* Chicago, Illinois - August 2003
Seminar	*The Technology Assisted Appraiser* Chicago, Illinois - August 2003
Seminar	*Scope of Work: Expanding Your Range of Services* Chicago, Illinois - August 2003
Course 400	*National Uniform Standards of Professional Practice* Honolulu, Hawaii - May 2003
Course 420	*Business Practices and Ethics* Honolulu, Hawaii - May 2003
Seminar	*The Private Conservation Market* Honolulu, Hawaii - July 2002
Seminar	*Finance Reporting Valuations Parts I and II* Honolulu, Hawaii - July 2002
Seminar	*Future of Appraisal Profession from a Global Perspective* Honolulu, Hawaii - July 2002
Seminar	*Appraisal Office Management* Honolulu, Hawaii - July 2002
Course 540	*Report Writing* Denver, Colorado - December 2000
Seminar	*Partial Interests: Theory and Case Law* Las Vegas, Nevada - July 2000
Seminar	*Easement Valuation* Las Vegas, Nevada - July 2000
Seminar	*Bridging the Gap: Marketability Discounts for Real Estate Interests* Las Vegas, Nevada - July 2000
Course 430	*Standards of Professional Practice, Part C* Honolulu, Hawaii - September 1999
Seminar	*Litigation Skills for the Appraiser: An Overview* Honolulu, Hawaii - May 1998
Seminar	*Special Purpose Properties* Honolulu, Hawaii - September 1997
Seminar	*Highest and Best Use Applications* Honolulu, Hawaii - September 1997
Seminar	*Detrimental Conditions* Honolulu, Hawaii - July 1997
Seminar	*The Appraiser As Expert Witness* Honolulu, Hawaii - August 1995
Seminar	*How to Appraise FHA-Insured Property* Los Angeles, California - January 1995
Seminar	*Understanding Limited Appraisals and Reporting Options* Honolulu, Hawaii - August 1994

Seminar	*Valuation of Leasehold Interests* Honolulu, Hawaii – May 1993
Seminar	*Valuation of Leased Fee Interests* Honolulu, Hawaii - May 1993
Seminar	*Valuation Considerations: Appraising Non-Profits* Boston, Massachusetts - July 1992
Seminar	*Americans With Disabilities Act* Boston, Massachusetts - July 1992
Seminar	*Valuation in Today's Capital and Financing Markets* Honolulu, Hawaii - June 1992
Seminar	*Arbitration Principles, Procedures and Pitfalls* Honolulu, Hawaii - June 1992
Seminar	*Institutional Real Estate in the 1990's* Honolulu, Hawaii - June 1992
Seminar	*FIRREA and its Impact on Appraisers* Honolulu, Hawaii - June 1992
Course 410/420	*Standards of Professional Practice, Parts A & B* Honolulu, Hawaii - April 1991

<u>The American Society of Farm Managers and Rural Appraisers</u>

Seminar	Agricultural Lease Valuation Honolulu, Hawaii – March 2006

<u>Maui Coastal Land Trust</u>

Seminar	*Understanding the New Tax Incentives: Conservation Easements & Other Charitable Contributions* Wailuku, Hawaii – June 2007

<u>Society of Real Estate Appraisers</u>

Course 101	*Introduction to Appraising Real Property* Dallas, Texas - 1987
Course 102	*Applied Residential Property Valuation* Honolulu, Hawaii - July 1990
Course 201	*Principles of Income Property Appraising* Chicago, Illinois - 1987
Course 202	*Applied Income Property Valuation* San Diego, California - 1988
Seminar	*Professional Practice and the Society of Real Estate Appraisers* Honolulu, Hawaii - 1988
Seminar	*Appraisal Standards Seminar - Federal Home Loan Bank Board Guidelines, Regulations and Policies* Honolulu, Hawaii - April 1988

<u>American Institute of Real Estate Appraisers</u>

Seminar	*Rates, Ratios and Reasonableness* Honolulu, Hawaii - 1989
Seminar	*Discounted Cash Flow Analysis* Honolulu, Hawaii - 1989
Seminar	*Highest and Best Use* Honolulu, Hawaii - 1989
Seminar	*Capitalization Overview - Part A* Honolulu, Hawaii – 1990

Seminar *Capitalization Overview - Part B*
Honolulu, Hawaii - 1990
Seminar *Accrued Depreciation*
Honolulu, Hawaii - 1990

International Right of Way Association
Course 101 *Appraisal*
Las Vegas, Nevada - October, 1998
Course 101 *Negotiation*
Las Vegas, Nevada - October 1998

National Business Institute, Inc.
Seminar *Commercial Real Estate Leasing In Hawaii*
Honolulu, Hawaii - 1989

American Arbitration Association
Seminar *Real Estate Dispute Resolution - Mediation and Arbitration*
Kahului, Maui, Hawaii - October, 1990

APPRAISAL QUALIFICATIONS

Shane M. Fukuda

STATE LICENSING

State Certified General Appraiser
State of Hawaii, License No. CGA-810, July 1, 2007
Expiration: December 31, 2007

PROFESSIONAL AFFILIATIONS

None

EMPLOYMENT

Staff Appraiser
ACM Consultants, Inc.
October 2004 to Present

Previously associated with the following:

Dollar Thrifty Automotive Group, Inc.
1994 to 2004
Positions held: Rental Agent; Lead Rental Agent; Station Manager; Senior Station Manager

GENERAL EDUCATION

Maui Community College, 1989-1990

Henry Perrine Baldwin High School, 1989

APPRAISAL EDUCATION

Appraisal Institute

Course 320 *General Applications*
San Diego, California – July 2006

Course 310 *Basic Income Capitalization*
San Diego, California – July 2006

Course 101 *Basic Appraisal Procedures*
Denver, Colorado – April 2005

Course 100 *Basic Appraisal Principles*
Denver, Colorado – April 2005

Lincoln Graduate Center

Course 405 *Residential Sales Comparison & Income Approaches*
Honolulu, Hawaii – November 2006

Course 404 *Residential Appraiser Site Valuation & Cost Approach*
Honolulu, Hawaii – November 2006

Course 403 *Residential Market Analysis & Highest & Best Use*
Honolulu, Hawaii – November 2006

Course 772 *National USPAP Course*
Honolulu, Hawaii – October 2006

Course 772 *National USPAP Course*
Honolulu, Hawaii – January 2005

MISCELLANEOUS EDUCATION

REALM Business Solutions Argus 12.0
Honolulu, Hawaii – July 2005

APPENDIX G.

Traffic Impact Analysis Report

TRAFFIC IMPACT ANALYSIS REPORT
LANAI CITY AFFORDABLE HOUSING

LANAI CITY, LANAI, HAWAII

FINAL

October 16, 2009

Prepared for:

Munekiyo & Hiraga, Inc
305 South High Street, Suite 104
Wailuku, Hawaii 96793

Austin, Tsutsumi & Associates, Inc.
Civil Engineers • Surveyors
501 Sumner Street, Suite 521
Honolulu, Hawaii 96817-5031
Telephone: (808) 533-3646
Facsimile: (808) 526-1267
E-mail: atahnl@atahawaii.com
Honolulu • Wailuku • Hilo, Hawaii

TRAFFIC IMPACT ANALYSIS REPORT
LANAI CITY AFFORDABLE HOUSING

Lanai City, Lanai, Hawaii

FINAL

Prepared for

Munekiyo & Hiraga, Inc.

Prepared by
Austin, Tsutsumi & Associates, Inc.
Civil Engineers • Surveyors
Honolulu • Wailuku, Hawaii

October 16, 2009

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APPENDICES

AUSTIN, TSUTSUMI & ASSOCIATES, INC. CIVIL ENGINEERS • SURVEYORS
CONTINUING THE ENGINEERING PRACTICE FOUNDED BY H. A. R. AUSTIN IN 1934

KENNETH K. KUROKAWA, P.E.
TERRANCE S. ARASHIRO, P.E.
DONOHUE M. FUJII, P.E.
STANLEY T. WATANABE
IVAN K. NAKATSUKA, P.E.

TRAFFIC IMPACT ASSESSMENT REPORT

LANAI CITY AFFORDABLE HOUSING

Lanai City, Lanai, Hawaii

I. INTRODUCTION

This report documents the findings of a traffic study conducted by Austin, Tsutsumi & Associates, Inc. (ATA) to evaluate the potential traffic impacts resulting from the proposed Lanai City Affordable Housing Project a single-family and multi-family development. Hereinafter, the Lanai City Affordable Housing Project shall be referred to as the "Project".

A. Location

The Project is situated on approximately 73 acres of vacant land on the west side of Lanai City, Lanai, which is more specifically identified as TMK: (2) 4-9-002:058. The Project will occupy 65 acres of the parcel, while the remainder of the parcel will be subdivided out and dedicated to the State of Hawaii Department of Education. The proposed Project site is located west of Fraser Avenue and north of the Lanai High/Elementary School. Figure 1 shows the location of the Project.

B. Project Description

The Project proposes to construct 239 single-family units and two (2) multi-family lots containing a total of 173 units.

For the purpose of this study, it is assumed that the Project will be constructed in two (2) phases as shown in Figure 2. Phase I of the Project is anticipated to be completed in the Year 2017 and will include the extension of 5th

REPLY TO:
501 SUMNER STREET, SUITE 521 • HONOLULU, HAWAII 96817-5031
PHONE (808) 533-3646 • FAX (808) 526-1267
EMAIL : atahnl@atahawaii.com

OFFICES IN:
HONOLULU, HAWAII
WAILUKU, MAUI, HAWAII
HILO, HAWAII

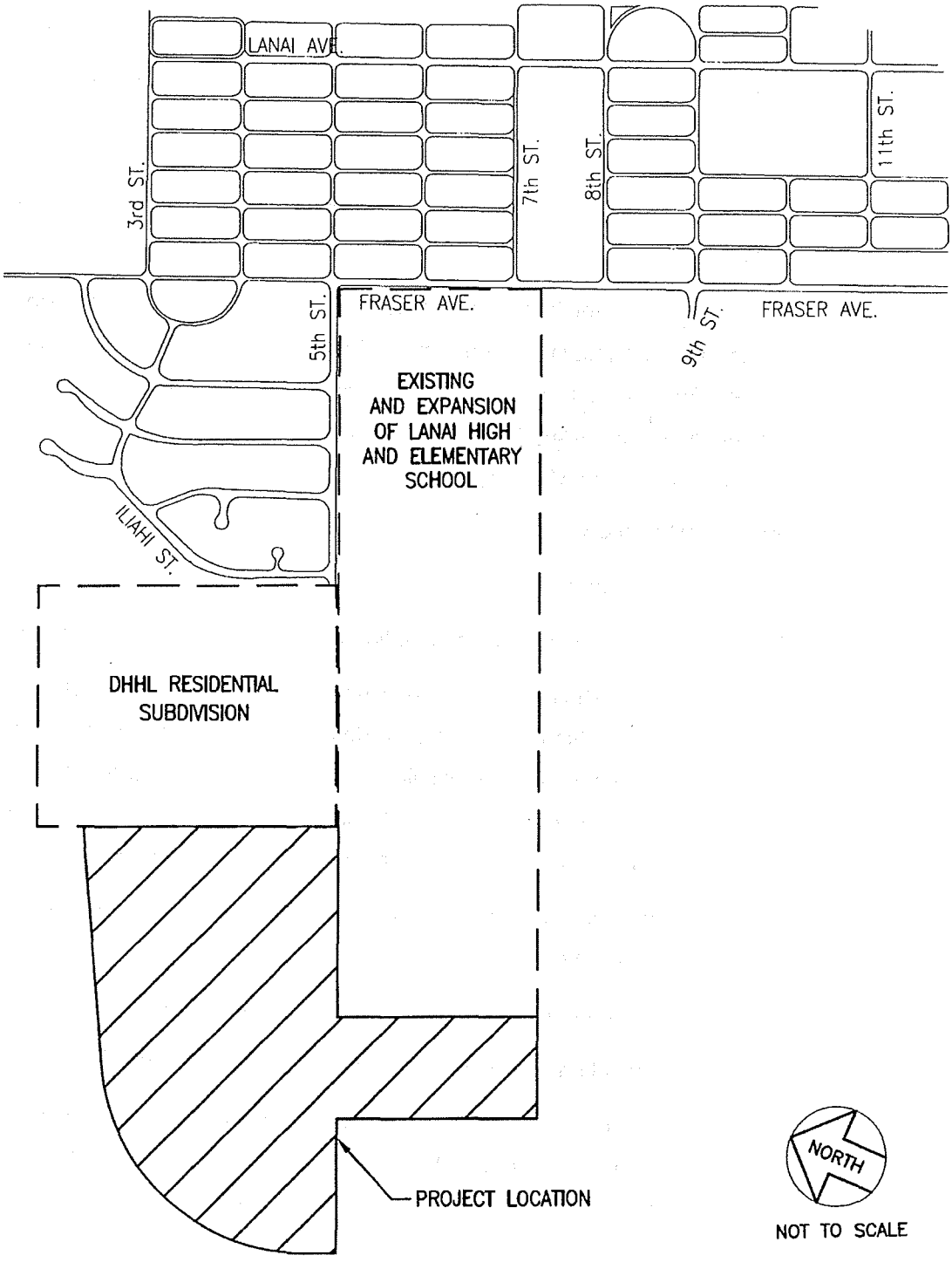
Street and other supporting streets within the development. A total of 58 single-family units and 23 multi-family units will be constructed as part of Phase I. Phase II of the Project is anticipated to be completed by the Year 2026 which will include further extension of 5th Street, and additional support streets within the development. Phase II will include 181 single family units and 150 multi-family units.

At the completion of the Project, there will be four (4) proposed access points to the Project site. The primary Project access points will all be from 5th Street. An additional access to the Project via a proposed by-pass road with a connection to 9th Street, however, will not be implemented with the Project. See Figure 2 for the Project site plan.

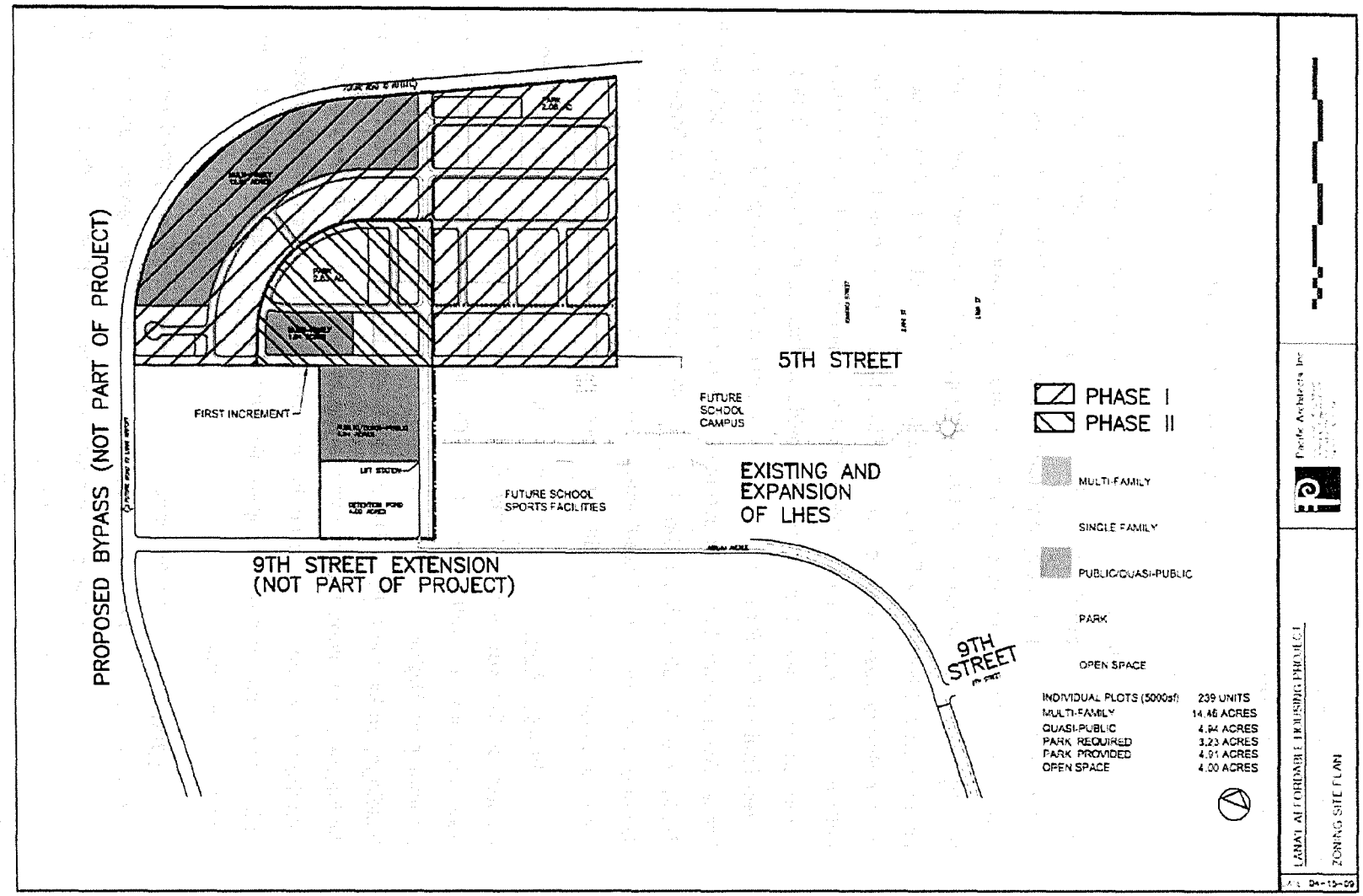
C. Study Methodology

This study will address the following:

1. Existing traffic operating conditions at key locations within the study area.
2. Traffic Projections for Base Year 2017 and 2026 (without the Project) includes traffic generated by a defacto growth rate and the other known developments in the vicinity of the Project that are currently under construction as well as new/future developments that are expected to affect traffic demand and operations within the study area.
3. Identification of potential traffic mitigation measures for the Base Year 2017 and 2026 Traffic.
4. Trip generation and trip generation for the proposed Project.
5. Determination of the impact of Project-generated traffic.
6. Recommendations for roadway improvements or other mitigative measures, as appropriate, to reduce or eliminate the adverse impacts resulting from traffic generated by the Project.



LANAI AFFORDABLE HOUSING	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	PROJECT LOCATION	1



LANAI AFFORDABLE HOUSING

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS, SURVEYORS • HONOLULU, HAWAII

SITE PLAN

FIGURE 2

II. EXISTING CONDITIONS

A. Roadway System

The following are brief descriptions of the existing roadway network in the vicinity of the Project:

5th Street is a two-lane, east-west, County roadway located on the north side of Lanai City. 5th Street is a half mile long road that begins at Alapa Street on the east side of Lanai City and terminating at Iliahi Street on the west side of Lanai City. 5th Street is a connector road that provides a link between the two (2) major north-south roads (Lanai Avenue and Fraser Avenue). Lanai City, Lanai High & Elementary School (LHES), is located at the southwest corner of the 5th Street/Fraser Avenue, and 5th Street also has various residential housing units and intersects various subdivision streets along its length. 5th Street will be extended west past Iliahi Street to provide access to the Project. The posted speed limit on 5th Street is 25 mph. All intersections along 5th Street except Fraser Avenue and Lanai Avenue are two-way stop-controlled intersections with the intersecting street being the stop-controlled approach. The 5th Street/Fraser Avenue and the 5th Street/Lanai Avenue Intersections are two-way stop-controlled intersections with 5th Street being stop-controlled approach.

Fraser Avenue is a two-lane, primary north-south, County roadway located on the west side of Lanai City. Fraser Avenue generally serves traffic traveling from the north side of Lanai City to the south side of Lanai City and Kaumalapau Highway providing access to various residential homes, County buildings, parks and LHES. The posted speed limit on Fraser Street is 25 mph. All intersections along Fraser Avenue are two-way stop-controlled intersections with the intersecting street being the stop-controlled approach, with the exception of its intersection with Kaumalapau Highway in which Fraser Avenue is the stop-controlled approach.

Lanai Avenue is a two-lane, primary north-south, County roadway located on the east side of Lanai City. Lanai Avenue generally serves traffic traveling from the north side of Lanai City and/or the Lodge at Koele to the south side of Lanai City and to Kaumalapau Highway providing access to two (2) hotels, a City park, as well as various residential homes and commercial businesses. The

posted speed limit on Lanai Avenue is 25 mph. All intersections along Lanai Avenue are two-way stop-controlled intersections with the intersecting street being the stop-controlled approach, with the exception of its intersection with Kaumalapau Highway in which Lanai Avenue is the stop-controlled approach.

Figure 3 shows the existing lane configuration at the study intersections.

B. Existing Traffic Volumes

The hourly turning movement data utilized in this report were collected on Tuesday, September 23, 2008.

Based on the proximity to the Project site, the following intersections were studied:

- Fraser Avenue/5th Street (Unsignalized)
- Lanai Avenue/5th Street (Unsignalized)

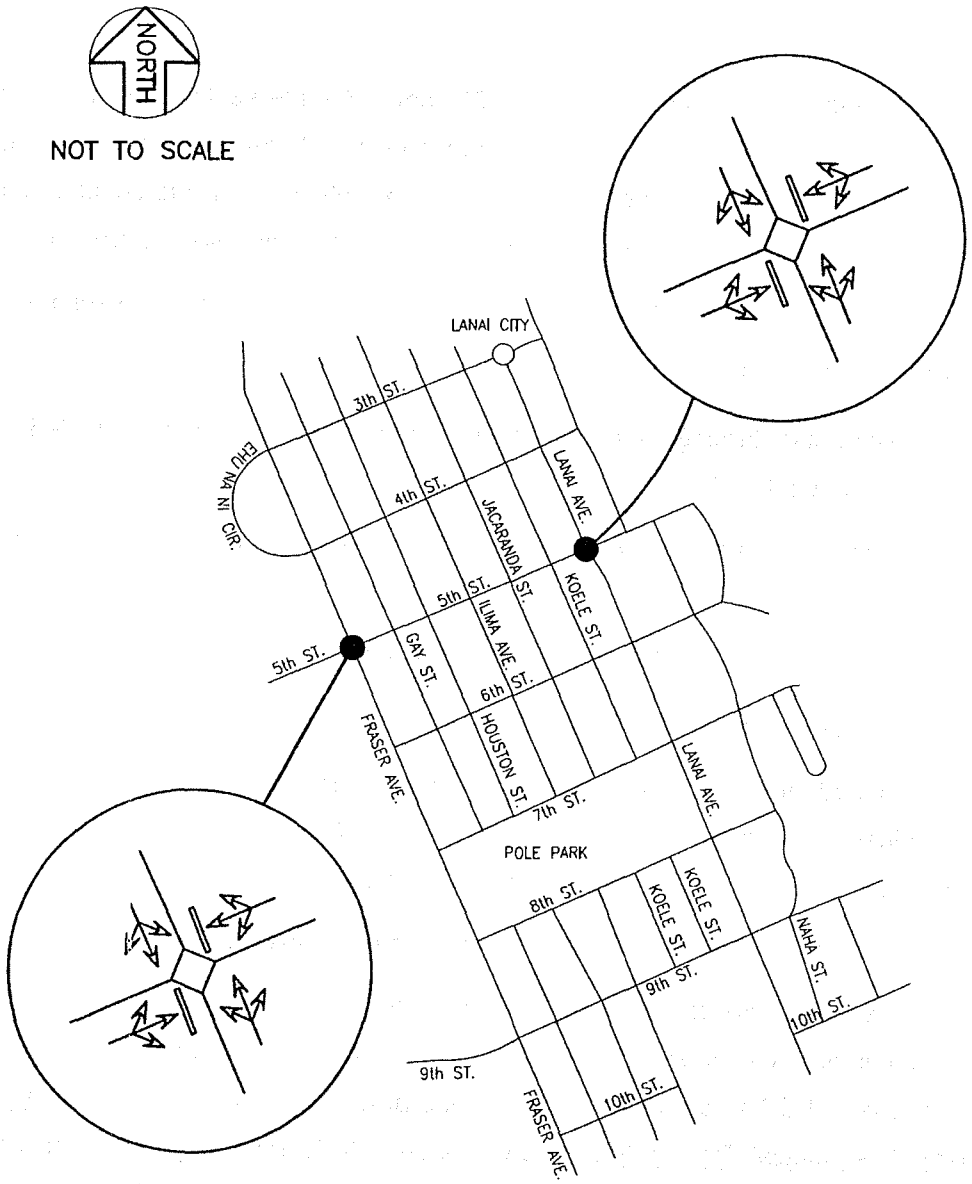
Based on traffic count data, the peak hours of traffic of traffic were determined to be from 7:15 AM to 8:15 AM and 2:45 PM to 3:45 PM on the weekdays. The traffic count data is provided in Appendix A.

C. Existing Traffic Conditions Analysis and Observations

Level of Service (LOS) is a qualitative measure used to describe the conditions of traffic flow at intersections, with values ranging from free-flow conditions at LOS A to congested conditions at LOS F. The Highway Capacity Manual – Special Report 209 (HCM), dated 2000, methods for calculating volume to capacity ratios, delays and corresponding Levels of Service were utilized in this study. LOS definitions for signalized intersections are provided in Appendix B.

Methodology

Analyses for the Project intersections were performed using the traffic analysis software Synchro, which is able to prepare Highway Capacity Manual (HCM) reports. The reports contain quantitative delay results, as based on intersection lane geometry, signal timing, and hourly traffic volume.



LEGEND:

◇ – UNSIGNALIZED INTERSECTION

– LANE CONFIGURATION

– STOP–CONTROLLED APPROACH

LANAI AFFORDABLE HOUSING	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	EXISTING LANE CONFIGURATION	3

Field Observations

During the AM peak hour of traffic, queuing of traffic was observed to be minimal at the Fraser Avenue/5th Street Intersection and any queuing in excess of two (2) or three (3) cars was the result of vehicles waiting on pedestrians crossing the street. Pedestrians at this period of the day were generally observed to be school children and their parents walking to school. One (1) to two (2) vehicles queuing resulting from commuters traveling to work was observed to be minimal.

The LHES school parking and student drop off driveway is located off of Fraser Street approximately 150 feet south of its intersection with 5th Street. During the AM peak hour of traffic, it was observed that approximately four (4) to five (5) vehicles occasionally queued in the southbound direction on Fraser Avenue at the LHES driveway.

During the PM peak hour of traffic, opposite of the AM peak hour of traffic, it was observed that approximately three (3) to four (4) vehicles occasionally queued in the northbound direction on Fraser Avenue at the LHES driveway. Queues are caused by pedestrian traffic accessing LHES.

Results of Intersection Analysis

The analysis and observations described below are based on prevailing conditions during the time at which the data was collected. Hereinafter, observations that are expressed as ongoing and current shall represent the conditions that prevailed at the time at which the data was collected.

Fraser Avenue/5th Street Intersection

The Fraser Avenue/5th Street Intersection operates at LOS B on the westbound stop-controlled approach during the AM and PM peak hour of traffic. All other movements at this intersection operate at LOS A during the AM and PM peak hours of traffic.

Lanai Avenue/5th Street Intersection

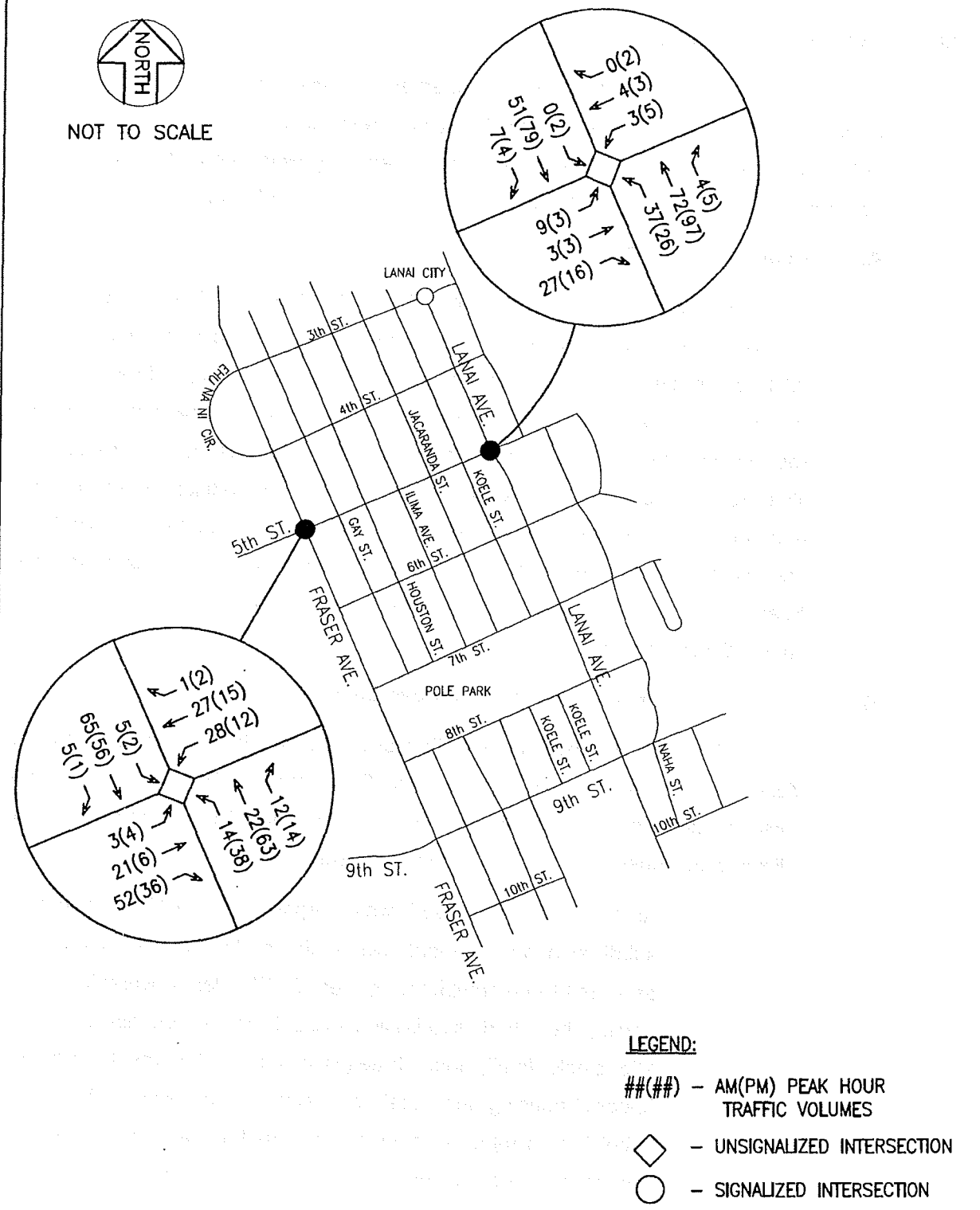
The Lanai Avenue/5th Street intersection operates at LOS B on the westbound stop-controlled approach during the AM and PM peak hours of traffic.

All other movements at this intersection operate at LOS A during the AM and PM peak hours of traffic.

Figure 4 shows the existing traffic volumes and Table 1 shows the level-of-service summary table.

Table 1: LOS for Existing Conditions

	AM Peak Hour of Traffic			PM Peak Hour of Traffic		
	delay	LOS	v/c ratio	delay	LOS	v/c ratio
Fraser Avenue/5th Street						
EB LT/TH/RT	9.5	A	0.09	9.2	A	0.06
WB LT/TH/RT	10.6	B	0.09	10.7	B	0.05
Lanai Avenue/5th Street						
EB LT/TH/RT	9.3	A	0.05	9.3	A	0.03
WB LT/TH/RT	10.5	B	0.01	10.3	B	0.02



LANAI AFFORDABLE HOUSING	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	EXISTING TRAFFIC VOLUMES	4

III. BASE YEAR SCENARIOS

The Year 2017 and 2026 were selected as the Base Years to reflect the Project Phase I and Phase II projected completion years, respectively. Base Years 2017 and 2026 Projections were formulated by applying a defacto growth rate and adding the trip generation of other known developments, as described in the following sections.

A. Defacto Growth Rate

Traffic volumes obtained from the State Department of Transportation (SDOT) 24 hour traffic counts done in past years yielded a growth factor of 0.01 percent per year. Therefore, as a conservative estimate, a defacto growth rate of 0.5 percent per year was applied to the existing 2008 traffic volumes resulting in a defacto growth rate of 4.6 percent for Year 2017 and 9.4 percent for Year 2026 being applied to existing traffic volumes. In addition, traffic volumes generated by the other known developments that are expected to be completed and occupied by the Year 2017 and Year 2026 were utilized to estimate the Base Year 2017 and 2026 traffic volumes. The following section describes the other known developments.

B. Traffic Forecasts for Other Known Developments

Other known developments that are proposed to be completed by the Year 2017 and/or the Year 2026 are the Department of Hawaiian Homelands (DHHL) residential subdivision development and the LHES expansion. The following describes the other known developments:

- At the time this report was prepared, the DHHL residential subdivision development was in the early planning stages and assumed to be completed by Year 2017. Per conversations with DHHL, the DHHL subdivision Project will include approximately 125 single family lots, three (3) lots over 8 acres for Kapuna (elderly) housing and possibly a sewer pump station. The DHHL subdivision Project is adjacent and to the east of the Project. Proposed access to the DHHL subdivision Project is along 5th Street west of Fraser Street. Peak hour vehicular trips for were estimated by applying appropriate trip generation rates obtained from the Trip Generation, 8th Edition, published by the Institute of

Transportation Engineers (ITE) and trip distribution is determined utilizing the existing traffic volumes.

- In accordance with the Traffic Impact Report for the Proposed High & Elementary School, dated January 2009 and prepared by Wilson Okamoto Corporation, buildout of the LHES expansion Project will consist of the following:
  - Elementary school (320 students)
  - Middle school (170 students)
  - High school (210 students)
  - Preschool (40 students)
  - Community college (40 students)
  - New support facilities including administration buildings, library, cafeteria, auditorium, athletic fields and facilities, faculty housing, and parking areas.

  The LHES expansion will extend 5th Street along its boundaries and includes nine (9) new driveways and relocation of the Fraser Street driveway further south. It is anticipated that the LHES expansion will be completed by Year 2028. Trip generation and trip distribution for the LHES expansion project were obtained from the Traffic Impact Report for the Proposed High & Elementary School.

Table 2 shows the trip generation rates for the DHHL subdivision Project. Table 3 shows the peak hour trips generated by the DHHL subdivision Project and the LHES expansion.

Table 2: DHHL Subdivision Project Trip Generation Rates

Land Use (ITE Code)	Independent Variable	AM Peak hour of Traffic		PM Peak hour of Traffic	
		Trips Rate	% Entering	Trip Rate	% Entering
DHHL Single Family Detached Housing (210)	Units	0.75	25%	1.01	63%
DHHL Residential Planned Unit Development (270)*	Acres	2.88	22%	4.05	65%

Table 3: Other Known Developments Land Uses and Trip Generation

		AM Peak hour of Traffic			PM Peak hour of Traffic		
Land Use (ITE Code)	Independent Variable	Enter (vph)	Exit (vph)	Total (vph)	Enter (vph)	Exit (vph)	Total (vph)
DHHL Single Family Detached Housing (210)	125 Units	25	74	99	81	48	129
DHHL Residential Planned Unit Development (270)*	8 Acres	3	9	12	17	8	25
LHES (From Wilson Okomoto Report)	140 Students	63	33	96	64	46	110

vph = vehicle per hour

A Residential Planned Unit Development land use type (ITE Code 270) was utilized to determine the number of trips generated for the proposed Kapuna housing since the number of units to be provided was unknown. A Senior Adult Housing land use type (ITE Code 252) would be more appropriate; however, data given is based on the number of dwelling units.

C. Planned Roadway Project

The Lanai City and Koele Village Master Plan does include the layout for a proposed by-pass road, however the timeframe on the actual need and construction for the bypass road is unknown.

D. Base Year 2017 (WITHOUT Project) Traffic and Analysis

The following are conditions of the study intersections due to the defacto growth rate and other known developments, and not due to the proposed Project.

Fraser Avenue/5th Street Intersection

The Fraser Avenue/5th Street intersection will continue to operate at LOS B or better during both the AM and PM peak hours of traffic.

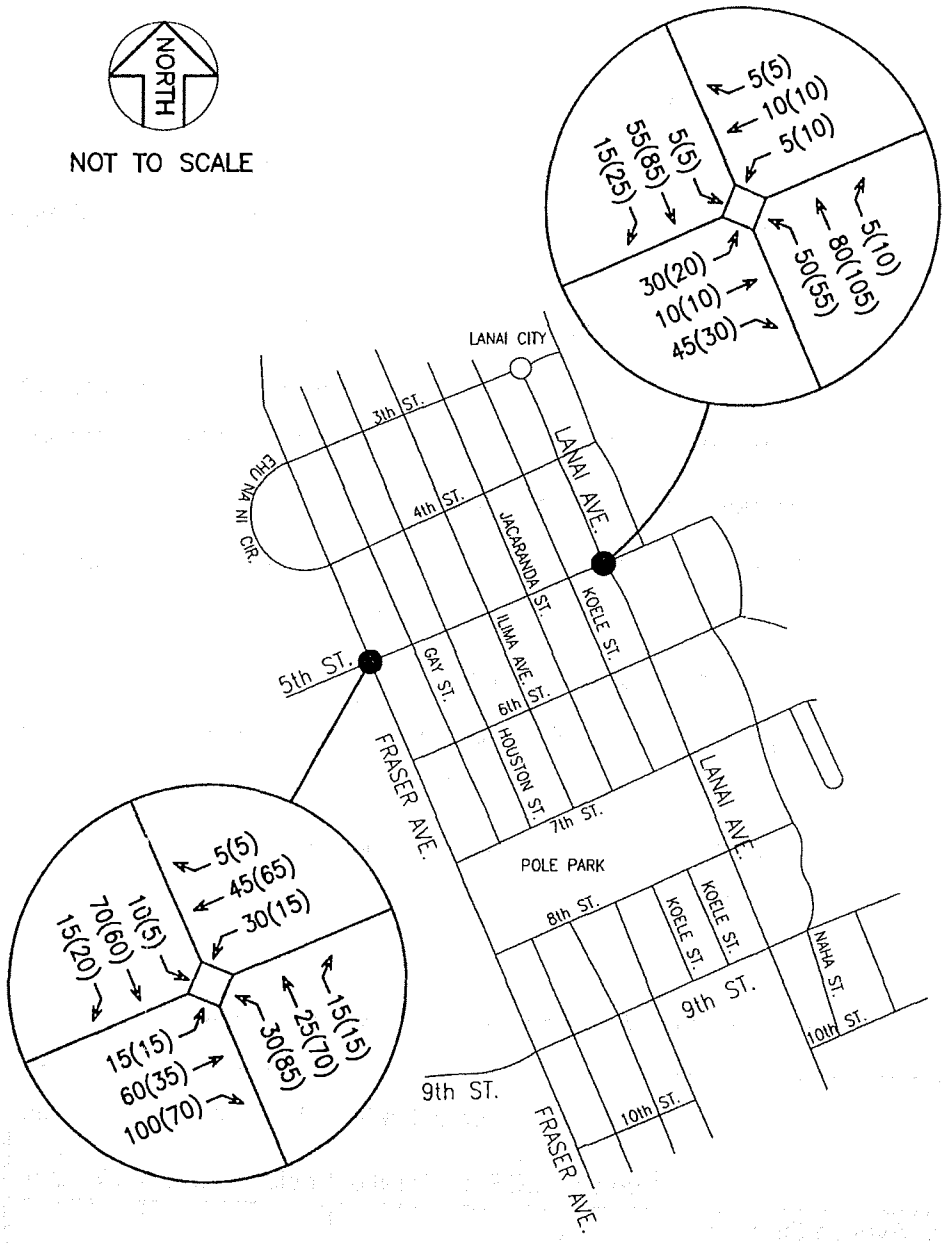
Lanai Avenue/5th Street Intersection

The Lanai Avenue/5th Street intersection will continue to operate at LOS B or better during both the AM and PM peak hours of traffic.

Table 4 shows the level-of-service for Base Year 2017 and Figure 5 shows the projected traffic volumes for Year 2017.

Table 4: LOS for Base Year 2017 without Project

	AM Peak Hour of Traffic			PM Peak Hour of Traffic		
	delay	LOS	v/c ratio	delay	LOS	v/c ratio
Fraser Avenue/5th Street						
EB LT/TH/RT	10.8	B	0.23	11.2	B	0.18
WB LT/TH/RT	12.1	B	0.15	13.4	B	0.18
Lanai Avenue/5th Street						
EB LT/TH/RT	10.2	B	0.12	10.7	B	0.09
WB LT/TH/RT	10.7	B	0.03	11.5	B	0.05



LEGEND:

##(##) – AM(PM) PEAK HOUR TRAFFIC VOLUMES

◇ – UNSIGNALIZED INTERSECTION

LANAI AFFORDABLE HOUSING	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	BASE YEAR 2017 TRAFFIC VOLUMES	5

E. Base Year 2026 (WITHOUT Project) Traffic and Analysis

The following are conditions of the study intersections due to the defacto growth rate and other known developments, and not due to the proposed Project.

Fraser Avenue/5th Street

The Fraser Avenue/5th Street intersection will operate at LOS C or better during the AM and PM peak hours of traffic. Fraser Avenue will continue to operate as free flowing roadway.

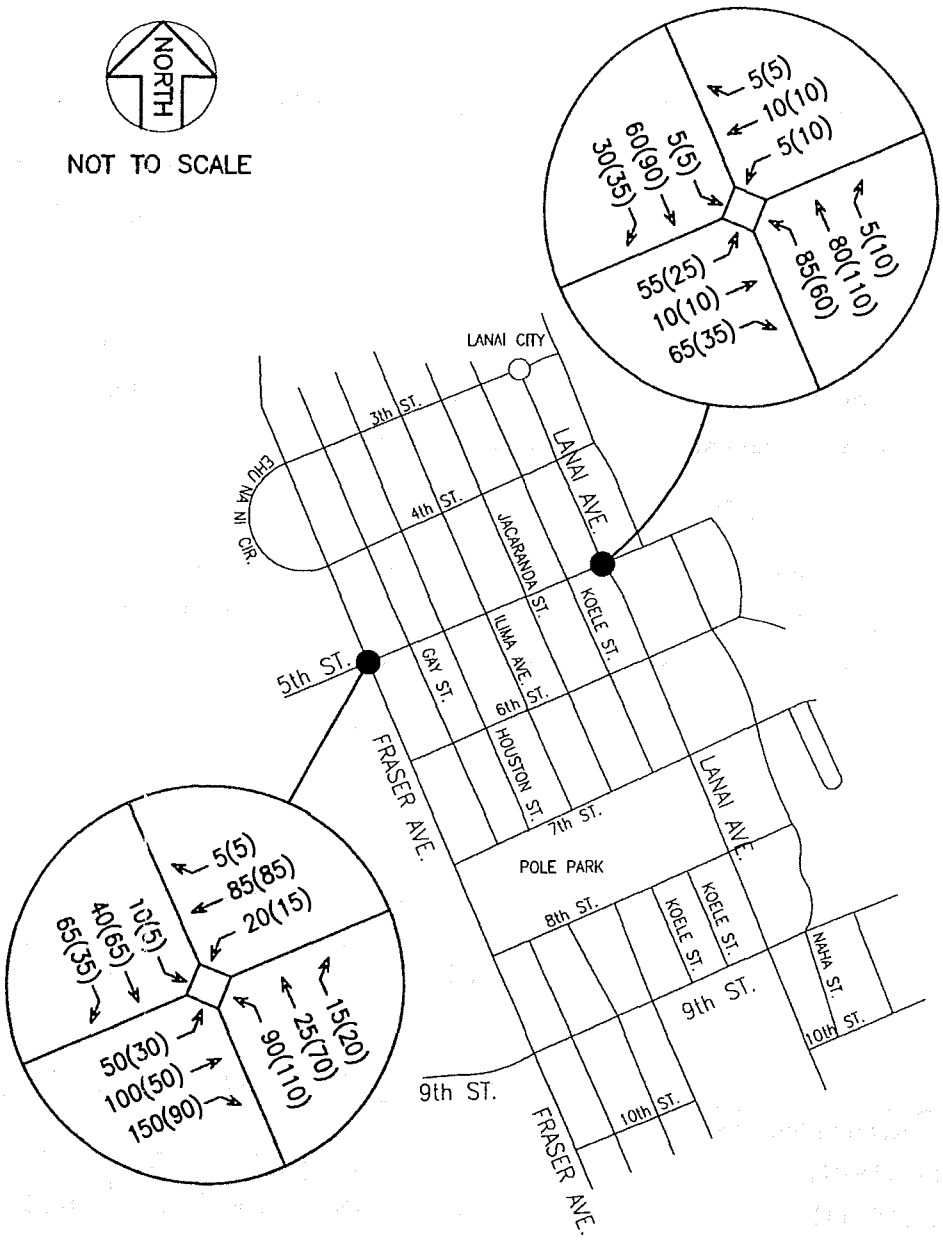
Lanai Avenue/5th Street

The Lanai Avenue/5th Street intersection will continue to operate at LOS B or better during the AM and PM peak hours of traffic. Lanai Avenue will continue to operate as free flowing roadway.

Table 5 shows the LOS for Base Year 2026 and Figure 6 shows the traffic volumes and level of service for Year 2026.

Table 5: LOS for Base Year 2026 Without Project

	AM Peak Hour of Traffic			PM Peak Hour of Traffic		
	delay	LOS	v/c ratio	delay	LOS	v/c ratio
Fraser Avenue/5th Street						
EB LT/TH/RT	15.2	C	0.48	13.3	B	0.30
WB LT/TH/RT	15.3	C	0.26	15.6	C	0.25
Lanai Avenue/5th Street						
EB LT/TH/RT	11.5	B	0.20	11.0	B	0.11
WB LT/TH/RT	11.7	B	0.04	11.9	B	0.05



LEGEND:

##(##) – AM(PM) PEAK HOUR TRAFFIC VOLUMES

◇ – UNSIGNALIZED INTERSECTION

LANAI AFFORDABLE HOUSING	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	BASE YEAR 2026 TRAFFIC VOLUMES	6

IV. PROJECT GENERATED TRAFFIC

A. Trip Generation

Trip generation estimates the total number of trips produced by a given land use. Trip rates contained in the nationally published ITE, Trip Generation, 8th Edition were used to estimate the number of trips generated by the Project. Table 6 shows these trip rate formulas used and Table 7 shows the number of peak hour trips that are expected to be generated by the Project.

Table 6: Project Trip Generation Rates

Land Use (ITE Code)	Independent Variable	AM Peak Hour of Traffic		PM Peak Hour of Traffic	
		Trips Rate	% Entering	Trip Rate	% Entering
Single Family Detached Housing (210)	Units	a	25%	b	63%
Residential Condo/Townhouse (230)	Units	c	17%	d	67%

a: T = 0.70(X) + 9.74
b: Ln(T) = 0.90 Ln(X) + 0.51
c: Ln(T) = 0.80 Ln(X) + 0.26
d: Ln(T) = 0.82 Ln(X) + 0.32

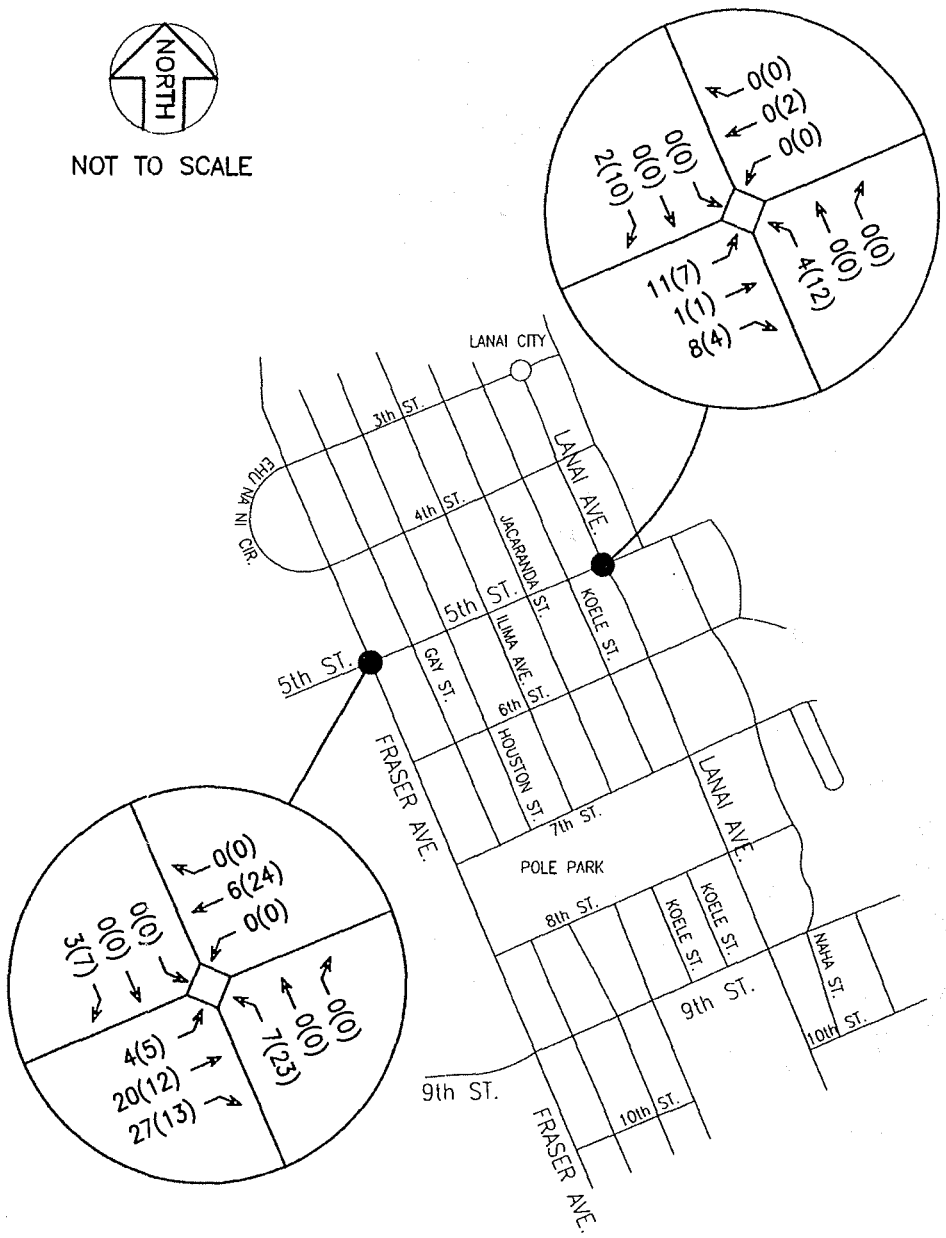
Table 7: Project Land Use and Trip Generation

			AM Peak Hour of Traffic			PM Peak Hour of Traffic		
	Land Use (ITE Code)	Independent Variable	Enter (vph)	Exit (vph)	Total	Enter (vph)	Exit (vph)	Total
YEAR 2017	Single Family Detached Housing (210)	58 Units	13	38	51	41	24	65
	Residential Condo/Townhouse (230)	23 Units	3	13	16	13	6	19
	Phase I Total		*26*	*52*	*78*	*54*	*30*	*84*
YEAR 2026	Single Family Detached Housing (210)	239 Units	45	134	179	146	85	231
	Residential Condo/Townhouse (230)	173 Units	14	67	81	64	31	95
	Phase I and II Total		*59*	*201*	*260*	*210*	*116*	*326*

vph = vehicle per hour

B. Trip Distribution

The Project generated trips were distributed based on the location of the Project and the existing traffic volumes. Due to the proposed location of the entrances of the Project along 5th Street, 100 percent of the project generated trips are anticipated to utilize the Fraser Avenue/5th Street Intersection. Figure 7 shows the Project generated traffic with Phase I of the Project and Figure 8 shows the Project generated traffic with Phase I and Phase II of the Project.

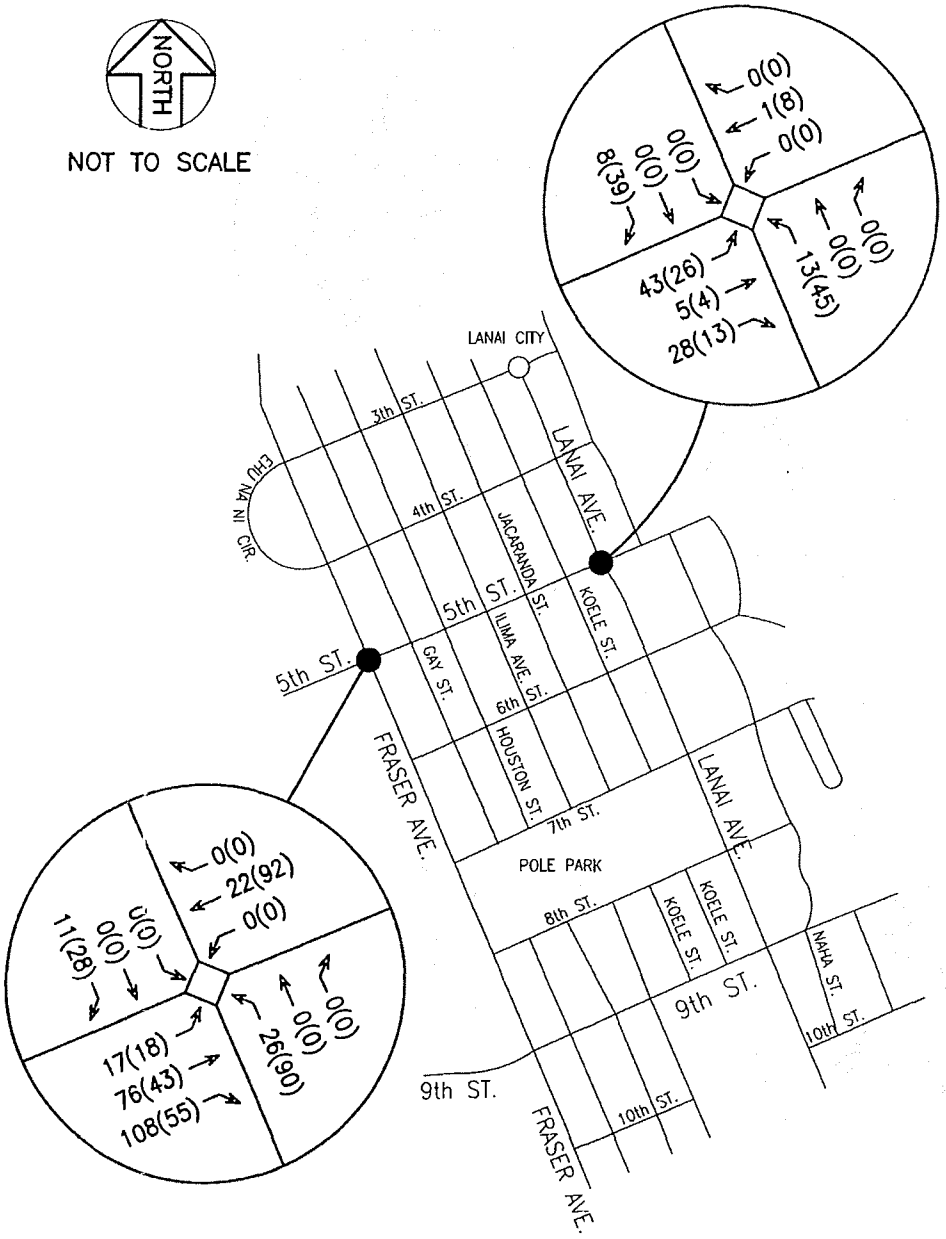


LEGEND:

##(##) – AM(PM) PEAK HOUR TRAFFIC VOLUMES

◇ – UNSIGNALIZED INTERSECTION

LANAI AFFORDABLE HOUSING	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	PHASE I PROJECT GENERATED TRAFFIC	7



LEGEND:

##(##) – AM(PM) PEAK HOUR TRAFFIC VOLUMES

◇ – UNSIGNALIZED INTERSECTION

LANAI AFFORDABLE HOUSING	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII PHASE I AND II PROJECT GENERATED PROJECT	FIGURE 8

C. Future Year 2017 (WITH Project) Traffic and Analysis

Traffic generated by the Project was added to the Base Year 2017 traffic volumes to estimate traffic volumes for the Year 2017 with the Project.

Fraser Avenue/5th Street Intersection

The westbound approach to the Fraser Avenue/5th Street Intersection operates at LOS B during the AM peak hour of traffic and LOS C during the PM peak hour of traffic. All other movements operate at LOS B or better during the AM and PM peak hours of traffic.

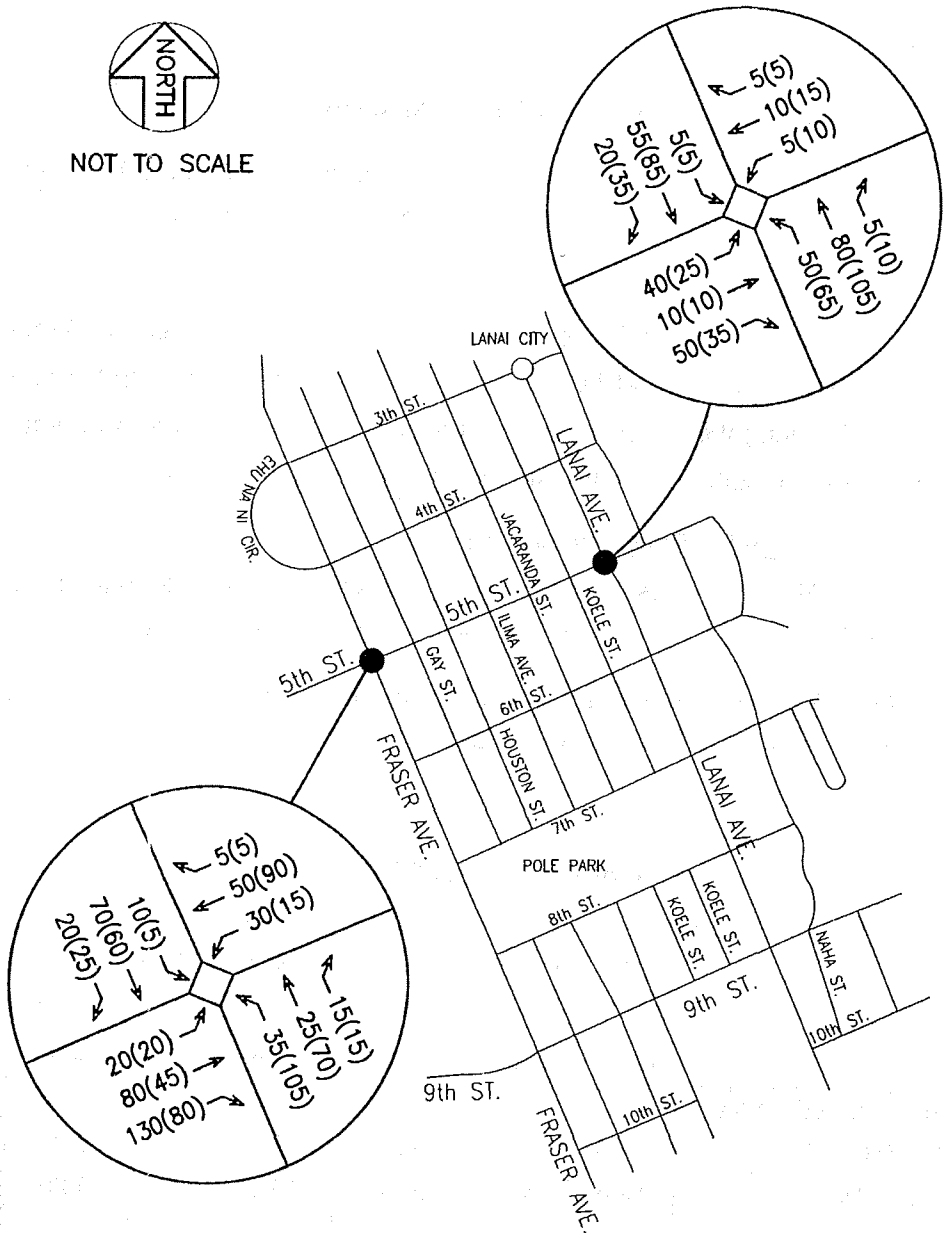
Lanai Avenue/5th Street Intersection

All approaches from 5th Street to Lanai Avenue will continue to operate at LOS B during both the AM and PM peak hours of traffic.

Figure 9 shows the Future Year 2017 traffic volumes with the Project and Table 8 show the level-of-service with the Project.

Table 8: LOS for Future Year 2017 with Project

	AM Peak Hour of Traffic			PM Peak Hour of Traffic		
	delay	LOS	v/c ratio	delay	LOS	v/c ratio
Fraser Avenue/5th Street						
EB LT/TH/RT	11.6	B	0.31	12.3	B	0.24
WB LT/TH/RT	12.8	B	0.17	15.1	C	0.25
Lanai Avenue/5th Street						
EB LT/TH/RT	10.5	B	0.14	11.0	B	0.11
WB LT/TH/RT	10.8	B	0.03	12.1	B	0.06



LEGEND:

##(##) – AM(PM) PEAK HOUR TRAFFIC VOLUMES

◇ – UNSIGNALIZED INTERSECTION

LANAI AFFORDABLE HOUSING	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	FUTURE YEAR 2017 TRAFFIC VOLUMES	9

D. Future Year 2026 (WITH Project) Traffic and Analysis

Traffic generated by the Project was added to the Base Year 2026 traffic volumes to estimate traffic volumes for the Year 2026 with the Project.

Fraser Avenue/5th Street Intersection

As a result of the growth factor, the DHHL subdivision project, the proposed expansion of LHES, and the Project, an approximate 260 percent increase in traffic volumes are projected during the AM and PM peak hours of traffic at the Fraser Avenue/5th Street intersection. With the significant increase in traffic volumes, the 5th Street eastbound and westbound approaches to Fraser Avenue will operate at LOS E during the AM and PM peak hours of traffic. All other movements will operate at LOS C or better during both the AM and PM peak hours of traffic.

Due to the high volume on the eastbound right-turn movement (260 vehicles and 145 vehicles during the AM and PM peak hours of traffic, respectively), restriping the eastbound approach to provide a shared eastbound left-turn/through lane and an exclusive right-turn lane will allow the intersection to operate at LOS C or better during the AM peak hour of traffic. However, during the PM peak hour of traffic the eastbound left-turn/through and westbound approach will continue to operate at LOS E.

To mitigate the LOS E conditions, an all-way stop-control at the Fraser Avenue/5th Street intersection is studied. Per the Manual on Uniform Traffic Control Devices (MUTCD), an all-way stop-control is warranted when the total vehicular volume from the major street approach averages 300 vehicles per hour for any eight (8) hours of an average day and the total vehicular, pedestrian, bicycle volume from the minor street approach averages 200 vehicles per hour for the same eight (8) hours. The AM and PM peak hour of traffic projected volumes exceed the major street vehicular volume requirement of 300 vehicles per hour and the minor street vehicular volume requirement of 200 vehicles per hour. Therefore, an all-way stop-control at the intersection may be warranted, however, a warrant study should be performed to study the eight (8) hour

vehicular volumes at the appropriate time. As an all-way stop-control and restriped eastbound approach (shared left-turn/through lane and an exclusive right-turn lane) the intersection will operate at LOS C or better during the AM and PM peak hours of traffic.

Alternatively, since the other known development's and the Project's access is proposed off of 5th Street, trips generated from these developments are concentrated at the Fraser Avenue/5th Street intersection, as mentioned in Section III.C., the Lanai Village and Koele Master Plan proposes a bypass road in which a second connection can be made at 9th Street. If the bypass road is constructed by Year 2026, a secondary connection would provide an alternate route and restriping of the eastbound approach and an all-way stop-control may not be needed.

Table 9 shows the LOS at the Fraser Avenue/5th Street intersection.

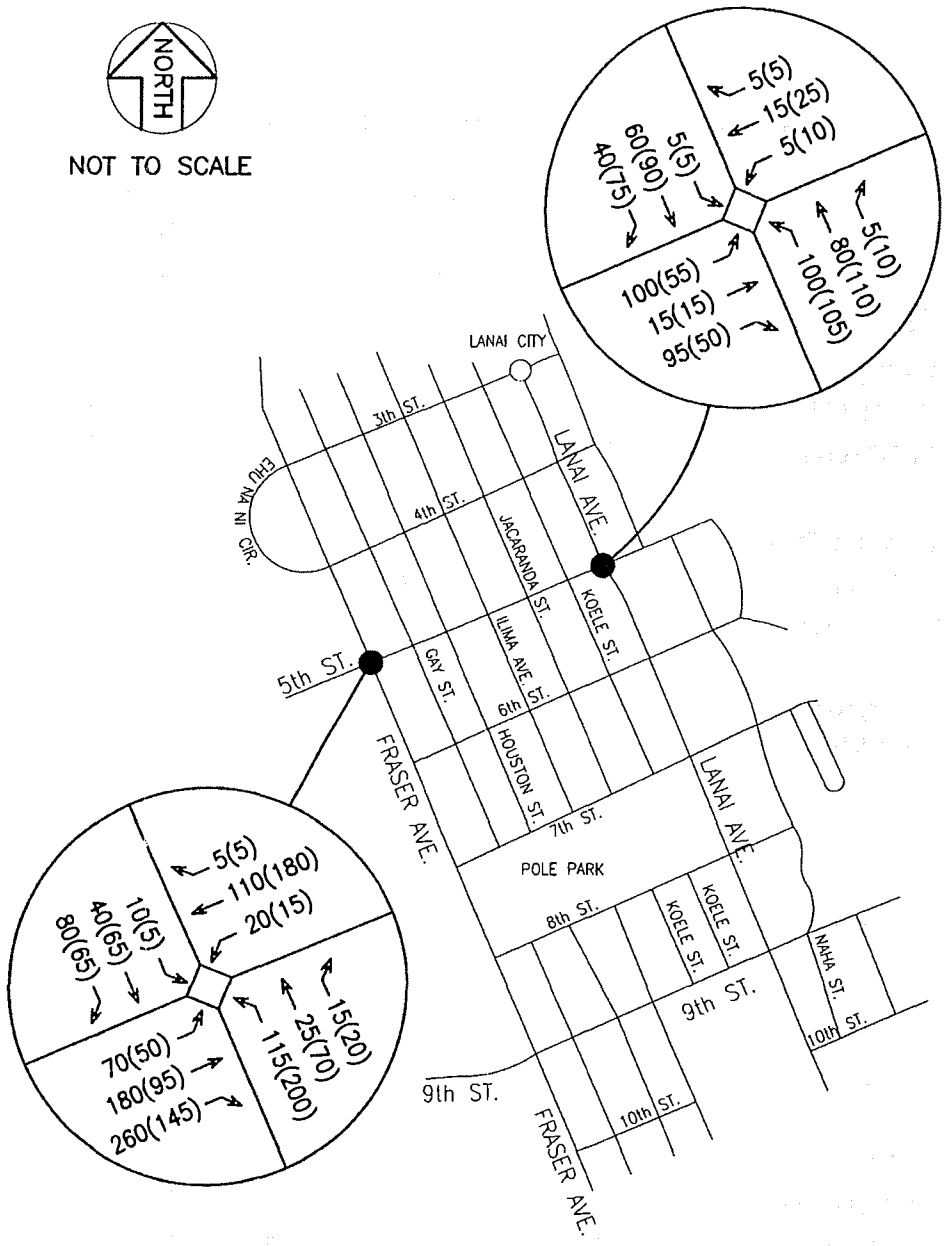
Lanai Avenue/5th Street

With the Project generated trips, the Lanai Avenue/5th Street intersection will operate at LOS C or better during both the AM and PM peak hours of traffic.

Table 9 shows the LOS with the Project and Figure 10 shows the Future Year 2026 traffic volumes with the Project.

Table 9: LOS for Future Year 2026 with Project

	AM Peak Hour of Traffic			PM Peak Hour of Traffic		
	delay	LOS	v/c ratio	delay	LOS	v/c ratio
WITHOUT MITIGATION						
Fraser Avenue/5th Street						
EB LT/TH/RT	40.5	E	0.89	49.0	E	0.84
WB LT/TH/RT	22.1	C	0.41	43.0	E	0.72
Lanai Avenue/5th Street						
EB LT/TH/RT	13.8	B	0.36	13.8	B	0.24
WB LT/TH/RT	12.5	B	0.05	14.2	B	0.09
WITH RESTRIPED EASTBOUND APPROACH						
Fraser Avenue/5th Street						
EB LT/TH	24.3	C	0.60	47.5	E	0.68
EB RT	10.2	B	0.29	9.6	A	0.17
WB LT/TH/RT	22.1	C	0.41	43.0	E	0.72
WITH ALL-WAY STOP-CONTROL						
Fraser Avenue/5th Street						
EB LT/TH	12.0	B	-	10.8	B	-
EB RT	9.9	A	-	9.1	A	-
WB LT/TH/RT	10.4	B	-	12.3	B	-
NB LT/TH/RT	11.1	B	-	14.5	B	-
SB LT/TH/RT	10.1	B	-	10.5	B	-



LEGEND:

##(##) – AM(PM) PEAK HOUR TRAFFIC VOLUMES

◇ – UNSIGNALIZED INTERSECTION

LANAI AFFORDABLE HOUSING	AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS • HONOLULU, HAWAII	FIGURE
	FUTURE YEAR 2026 TRAFFIC VOLUMES	10

V. SUMMARY AND RECOMMENDATIONS

A. Summary

Currently, the Fraser Avenue/5th Street and Lanai Avenue/5th Street intersections vehicles experience minimal delays at the stop controlled approaches. As the population of Lanai continues to grow and housing opportunities increase, an increase in traffic volumes in Lanai City will gradually increase as a natural consequence of these factors. Buildout of the Project, Year 2026 will consist of 239 single family units and 173 multi-family units and is projected to generate approximately 260 trips during the AM peak hour of traffic and 326 trips during the PM peak hour of traffic. Access to the Project is proposed off of 5th Street.

As a result of the Project and other developments in the surrounding vicinity that also proposes access off of 5th Street, the Fraser Avenue/5th Street Intersection is projected to increase in traffic volumes approximately 260 percent during the AM and PM peak hours of traffic. With the projected increase in traffic volumes at the Fraser Avenue/5th Street intersection, analyses show that restriping the eastbound approach (providing a shared left-turn/through lane and an exclusive right-turn lane) will improve the intersection during the AM peak hour of traffic, but, minimally improve the intersection during the PM peak hour of traffic. As a result, an all-way stop-control was studied at the intersection and analyses show that the intersection operates at LOS B or better during both the AM and PM peak hours of traffic. Per the MUTCD, an all-way stop-control is warranted utilizing data over an eight (8) hour period. In the case of the Fraser Avenue/5th Street intersection, the projected volumes during the AM and PM peak hours of traffic exceed the required minimum vehicular volumes to warrant an all-way stop-control. It is recommended that a warrant study should be done prior to installation of an all-way stop-control to verify that it is warranted at the Fraser Avenue/5th Street intersection at the appropriate time.

Alternatively, since the other known development's and the Project's access is proposed off of 5th Street, trips generated from these developments are concentrated at the Fraser Avenue/5th Street intersection, as mentioned in Section III.C., the Lanai Village and Koele Master Plan proposes a bypass road

in which a second connection can be made at 9th Street. If the bypass road is constructed by Year 2026, a secondary connection would provide an alternate route and restriping of the eastbound approach and an all-way stop-control may not be needed

B. Recommendations

The following are recommendations of the traffic study that would be needed by Year 2026:

- Restripe the Fraser Avenue/5th Street intersection eastbound approach to provide a shared left-turn/through lane and an exclusive right-turn lane.
- Perform an all-way stop-control warrant at the Fraser Avenue/5th Street intersection.

If the proposed bypass road providing an alternate route is constructed and a secondary connection is provided for the Project, DHHL subdivision project, and LHES, improvements to Fraser Avenue/5th Street intersection may not be needed.

REFERENCES

1. Institute of Transportation Engineers, Trip Generation, 7th Edition, 1997

2. Institute of Transportation Engineers, Trip Generation Handbook, and ITE Recommended Practice, 2001

3. Transportation Research Board, Highway Capacity Manual, 2000

4. Wilson Okamoto Corporation, Traffic Impact Report for Lanai High & Elementary School, January 2009.

APPENDICES

APPENDIX A

TRAFFIC COUNT DATA

Austin, Tsutsumi and Associates

501 Sumner Street, Suite 521
Honolulu, Hawaii 96817
ph: 533-3646 Fax: 526-1267

File Name : Fraser - 5th AM
Site Code : 00000000
Start Date : 9/23/2008
Page No : 1

Groups Printed- Unshifted - Bank 1

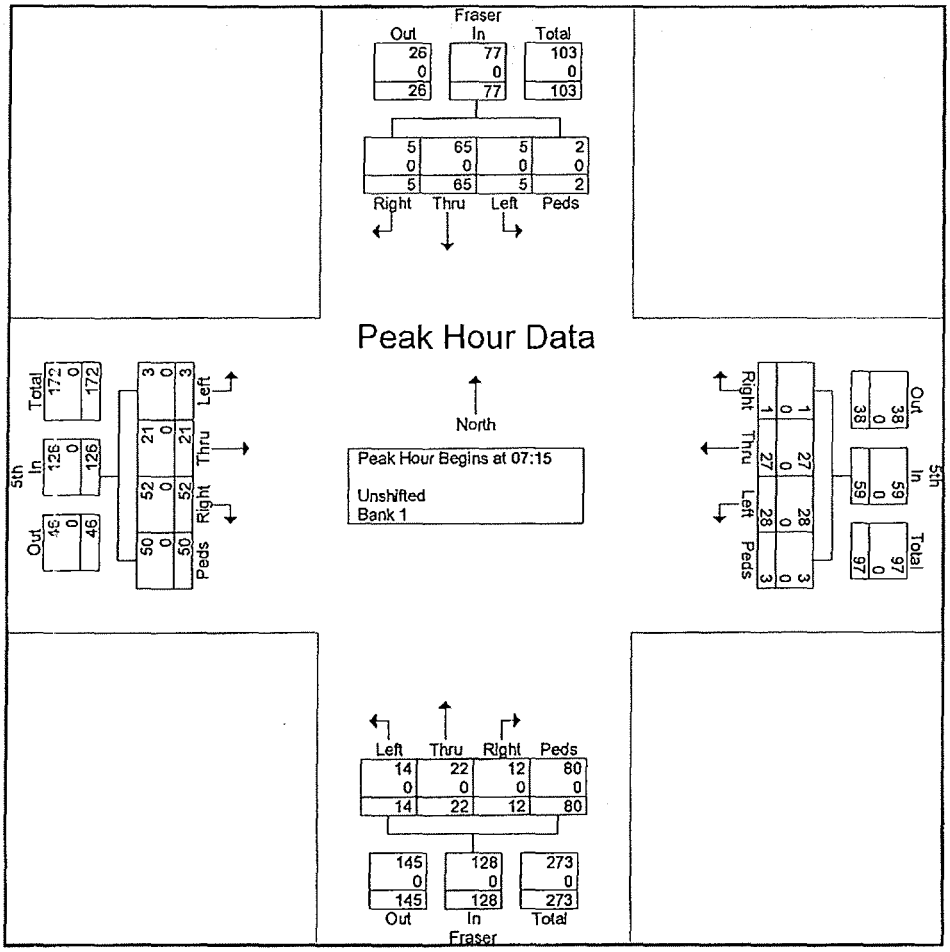
	Fraser From North				5th From East				Fraser From South				5th From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
06:15	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2
06:30	0	3	0	0	1	1	0	0	0	4	2	1	8	5	0	1	26
06:45	0	13	0	0	0	2	0	0	0	7	0	2	10	3	0	2	39
Total	0	16	0	0	1	3	0	1	0	12	2	3	18	8	0	3	67
07:00	0	10	1	3	0	3	3	0	0	3	3	6	10	2	1	8	53
07:15	0	8	3	2	1	0	6	3	2	4	1	19	11	3	0	13	76
07:30	2	25	1	0	0	6	6	0	3	5	3	25	19	2	1	18	116
07:45	1	22	1	0	0	14	10	0	4	9	6	23	13	9	1	13	126
Total	3	65	6	5	1	23	25	3	9	21	13	73	53	16	3	52	371
08:00	2	10	0	0	0	7	6	0	3	4	4	13	9	7	1	6	72
Grand Total	5	91	6	5	2	33	31	4	12	37	19	89	80	31	4	61	510
Apprch %	4.7	85	5.6	4.7	2.9	47.1	44.3	5.7	7.6	23.6	12.1	56.7	45.5	17.6	2.3	34.7	
Total %	1	17.8	1.2	1	0.4	6.5	6.1	0.8	2.4	7.3	3.7	17.5	15.7	6.1	0.8	12	
Unshifted	5	91	6	5	2	33	31	4	12	37	19	89	80	31	4	61	510
% Unshifted	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Austin, Tsutsumi and Associates

501 Sumner Street, Suite 521
Honolulu, Hawaii 96817
ph: 533-3646 Fax: 526-1267

File Name : Fraser - 5th AM
Site Code : 00000000
Start Date : 9/23/2008
Page No : 2

	Fraser From North					5th From East					Fraser From South					5th From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 to 08:00 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15																					
07:15	0	8	3	2	13	1	0	6	3	10	2	4	1	19	26	11	3	0	13	27	76
07:30	2	25	1	0	28	0	6	6	0	12	3	5	3	25	36	19	2	1	18	40	116
07:45	1	22	1	0	24	0	14	10	0	24	4	9	6	23	42	13	9	1	13	36	126
08:00	2	10	0	0	12	0	7	6	0	13	3	4	4	13	24	9	7	1	6	23	72
Total Volume	5	65	5	2	77	1	27	28	3	59	12	22	14	80	128	52	21	3	50	126	390
% App. Total	6.5	84.4	6.5	2.6		1.7	45.8	47.5	5.1		9.4	17.2	10.9	62.5		41.3	16.7	2.4	39.7		
PHF	.625	.650	.417	.250	.688	.250	.482	.700	.250	.615	.750	.611	.583	.800	.762	.684	.583	.750	.694	.788	.774
Unshifted	5	65	5	2	77	1	27	28	3	59	12	22	14	80	128	52	21	3	50	126	390
% Unshifted																					
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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ph: 533-3646 Fax: 526-1267

File Name : Lanai - 5th AM
Site Code : 00000000
Start Date : 9/23/2008
Page No : 1

Groups Printed- Unshifted - Bank 1

	Lanai From North				5th From East				Lanai From South				5th From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
06:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2
06:30	0	13	0	0	1	0	2	0	0	5	1	0	3	0	1	0	26
06:45	0	16	0	0	0	0	2	2	0	10	2	0	4	0	1	0	37
Total	0	29	0	0	1	0	4	2	0	15	4	0	7	0	2	1	65
07:00	1	10	0	0	0	0	0	0	2	8	3	0	2	1	0	0	27
07:15	0	12	0	0	0	0	1	0	1	15	7	0	6	1	2	0	45
07:30	2	12	0	2	0	2	1	2	1	20	9	0	5	0	1	0	57
07:45	2	16	0	2	0	1	0	0	2	28	11	0	10	2	5	0	79
Total	5	50	0	4	0	3	2	2	6	71	30	0	23	4	8	0	208
08:00	3	11	0	0	0	1	1	0	0	9	10	2	6	0	1	0	44
Grand Total	8	90	0	4	1	4	7	4	6	95	44	2	36	4	11	1	317
Apprch %	7.8	88.2	0	3.9	6.2	25	43.8	25	4.1	64.6	29.9	1.4	69.2	7.7	21.2	1.9	
Total %	2.5	28.4	0	1.3	0.3	1.3	2.2	1.3	1.9	30	13.9	0.6	11.4	1.3	3.5	0.3	
Unshifted	8	90	0	4	1	4	7	4	6	95	44	2	36	4	11	1	317
% Unshifted	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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ph: 533-3646 Fax: 526-1267

File Name : Lanai - 5th AM
Site Code : 00000000
Start Date : 9/23/2008
Page No : 2

	Lanai From North					5th From East					Lanai From South					5th From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 to 08:00 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15																					
07:15	0	12	0	0	12	0	0	1	0	1	1	15	7	0	23	6	1	2	0	9	45
07:30	2	12	0	2	16	0	2	1	2	5	1	20	9	0	30	5	0	1	0	6	57
07:45	2	16	0	2	20	0	1	0	0	1	2	28	11	0	41	10	2	5	0	17	79
08:00	3	11	0	0	14	0	1	1	0	2	0	9	10	2	21	6	0	1	0	7	44
Total Volume	7	51	0	4	62	0	4	3	2	9	4	72	37	2	115	27	3	9	0	39	225
% App. Total	11.3	82.3	0	6.5		0	44.4	33.3	22.2		3.5	62.6	32.2	1.7		69.2	7.7	23.1	0		
PHF	.583	.797	.000	.500	.775	.000	.500	.750	.250	.450	.500	.643	.841	.250	.701	.675	.375	.450	.000	.574	.712
Unshifted	7	51	0	4	62	0	4	3	2	9	4	72	37	2	115	27	3	9	0	39	225
% Unshifted																					
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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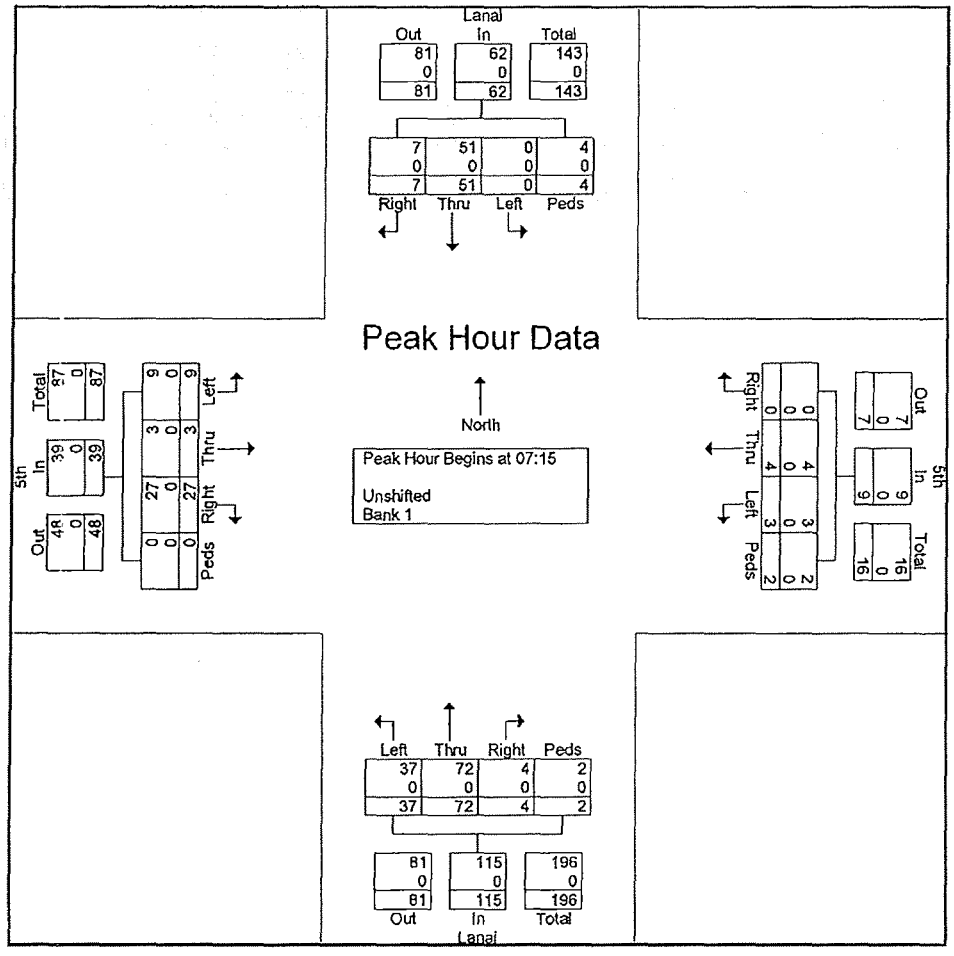

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501 Sumner Street, Suite 521
Honolulu, Hawaii 96817
ph: 533-3646 Fax: 526-1267

File Name : Fraser - 5th PM
Site Code : 00000000
Start Date : 9/23/2008
Page No : 1

Groups Printed- Unshifted - Bank 1

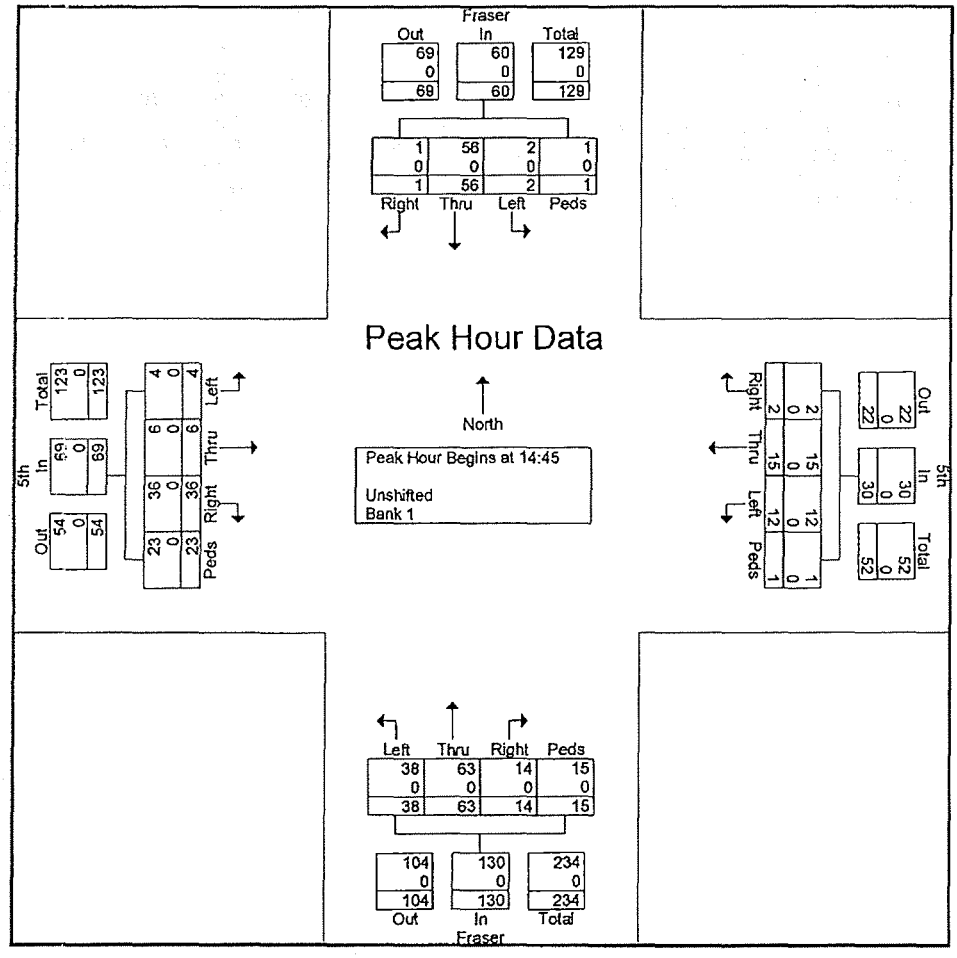
	Fraser From North				5th From East				Fraser From South				5th From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
13:15	0	3	1	3	1	5	2	0	0	8	9	0	14	4	0	2	52
13:30	0	13	0	1	0	6	3	0	1	7	17	3	10	2	0	6	69
13:45	1	11	2	0	1	3	2	0	2	5	4	2	14	8	0	8	63
Total	1	27	3	4	2	14	7	0	3	20	30	5	38	14	0	16	184
14:00	1	10	0	1	1	4	5	0	3	14	5	17	12	1	1	21	96
14:15	0	11	0	0	0	4	1	0	2	20	5	7	8	2	2	10	72
14:30	1	14	0	0	0	5	1	0	3	19	10	0	10	1	0	3	67
14:45	0	14	0	0	0	2	4	0	5	16	11	3	13	1	1	5	75
Total	2	49	0	1	1	15	11	0	13	69	31	27	43	5	4	39	310
15:00	0	16	1	0	1	6	2	0	2	20	10	5	3	2	0	9	77
15:15	0	12	0	0	0	2	4	0	5	11	9	6	9	2	2	5	67
15:30	1	14	1	1	1	5	2	1	2	16	8	1	11	1	1	4	70
15:45	2	14	0	0	0	5	2	0	2	16	9	2	11	2	0	7	72
Total	3	56	2	1	2	18	10	1	11	63	36	14	34	7	3	25	286
16:00	1	15	0	2	0	4	2	1	2	19	21	1	8	0	1	4	81
16:15	0	11	1	0	1	4	1	0	2	18	9	2	9	2	2	0	62
Grand Total	7	158	6	8	6	55	31	2	31	189	127	49	132	28	10	84	923
Apprch %	3.9	88.3	3.4	4.5	6.4	58.5	33	2.1	7.8	47.7	32.1	12.4	52	11	3.9	33.1	
Total %	0.8	17.1	0.7	0.9	0.7	6	3.4	0.2	3.4	20.5	13.8	5.3	14.3	3	1.1	9.1	
Unshifted	7	158	6	8	6	55	31	2	31	189	127	49	132	28	10	84	923
% Unshifted	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Austin, Tsutsumi and Associates

501 Sumner Street, Suite 521
Honolulu, Hawaii 96817
ph: 533-3646 Fax: 526-1267

File Name : Fraser - 5th PM
Site Code : 00000000
Start Date : 9/23/2008
Page No : 2

	Fraser From North					5th From East					Fraser From South					5th From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 14:45 to 15:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 14:45																					
14:45	0	14	0	0	14	0	2	4	0	6	5	16	11	3	35	13	1	1	5	20	75
15:00	0	16	1	0	17	1	6	2	0	9	2	20	10	5	37	3	2	0	9	14	77
15:15	0	12	0	0	12	0	2	4	0	6	5	11	9	6	31	9	2	2	5	18	67
15:30	1	14	1	1	17	1	5	2	1	9	2	16	8	1	27	11	1	1	4	17	70
Total Volume	1	56	2	1	60	2	15	12	1	30	14	63	38	15	130	36	6	4	23	69	289
% App. Total	1.7	93.3	3.3	1.7		6.7	50	40	3.3		10.8	48.5	29.2	11.5		52.2	8.7	5.8	33.3		
PHF	.250	.875	.500	.250	.882	.500	.625	.750	.250	.833	.700	.788	.864	.625	.878	.692	.750	.500	.639	.863	.938
Unshifted	1	56	2	1	60	2	15	12	1	30	14	63	38	15	130	36	6	4	23	69	289
% Unshifted																					
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Austin, Tsutsumi and Associates

501 Sumner Street, Suite 521
Honolulu, Hawaii 96817
ph: 533-3646 Fax: 526-1267

File Name : Lanai - 5th PM
Site Code : 00000000
Start Date : 9/23/2008
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Groups Printed- Unshifted - Bank 1

	Lanai From North				5th From East				Lanai From South				5th From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
13:15	0	14	1	0	1	1	1	0	0	13	3	0	5	0	3	0	42
13:30	0	16	0	0	0	0	0	0	1	13	7	0	2	0	0	0	39
13:45	1	11	2	0	0	1	1	2	1	20	5	0	9	0	3	0	56
Total	1	41	3	0	1	2	2	2	2	46	15	0	16	0	6	0	137
14:00	2	25	2	0	1	1	3	0	0	26	5	4	2	0	1	0	72
14:15	3	9	0	0	0	0	0	0	4	33	4	0	3	1	0	0	57
14:30	1	22	0	0	1	0	1	0	1	24	3	0	2	0	2	0	57
14:45	0	14	0	0	2	1	2	0	1	17	5	0	4	1	1	0	48
Total	6	70	2	0	4	2	6	0	6	100	17	4	11	2	4	0	234
15:00	0	25	1	1	0	0	1	0	2	22	7	0	2	1	0	0	62
15:15	1	18	1	0	0	2	1	0	0	21	6	0	6	1	2	0	59
15:30	3	22	0	0	0	0	1	0	2	37	8	0	4	0	0	0	77
15:45	2	22	0	0	0	1	5	0	3	26	4	1	6	1	1	0	72
Total	6	87	2	1	0	3	8	0	7	106	25	1	18	3	3	0	270
16:00	2	10	2	0	0	0	1	1	0	19	6	0	1	0	2	0	44
16:15	2	14	1	0	0	1	0	6	0	27	4	0	4	1	2	0	62
Grand Total	17	222	10	1	5	8	17	9	15	298	67	5	50	6	17	0	747
Apprch %	6.8	88.8	4	0.4	12.8	20.5	43.6	23.1	3.9	77.4	17.4	1.3	68.5	8.2	23.3	0	
Total %	2.3	29.7	1.3	0.1	0.7	1.1	2.3	1.2	2	39.9	9	0.7	6.7	0.8	2.3	0	
Unshifted	17	222	10	1	5	8	17	9	15	298	67	5	50	6	17	0	747
% Unshifted	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Austin, Tsutsumi and Associates

501 Sumner Street, Suite 521
Honolulu, Hawaii 96817
ph: 533-3646 Fax: 526-1267

File Name : Lanai - 5th PM
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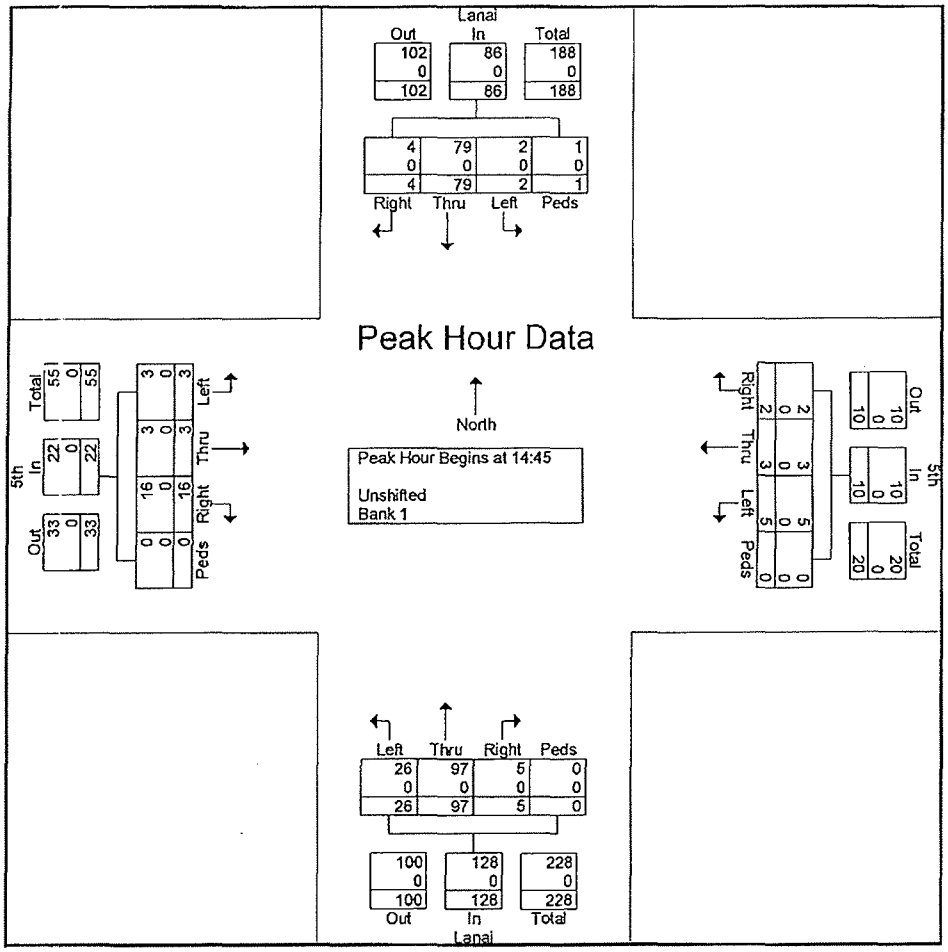
	Lanai From North					5th From East					Lanai From South					5th From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 14:45 to 15:30 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 14:45																					
14:45	0	14	0	0	14	2	1	2	0	5	1	17	5	0	23	4	1	1	0	6	48
15:00	0	25	1	1	27	0	0	1	0	1	2	22	7	0	31	2	1	0	0	3	62
15:15	1	18	1	0	20	0	2	1	0	3	0	21	6	0	27	6	1	2	0	9	59
15:30	3	22	0	0	25	0	0	1	0	1	2	37	8	0	47	4	0	0	0	4	77
Total Volume	4	79	2	1	86	2	3	5	0	10	5	97	26	0	128	16	3	3	0	22	246
% App. Total	4.7	91.9	2.3	1.2		20	30	50	0		3.9	75.8	20.3	0		72.7	13.6	13.6	0		
PHF	.333	.790	.500	.250	.796	.250	.375	.625	.000	.500	.625	.655	.813	.000	.681	.667	.750	.375	.000	.611	.799
Unshifted	4	79	2	1	86	2	3	5	0	10	5	97	26	0	128	16	3	3	0	22	246
% Unshifted																					
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



APPENDIX B

LEVEL OF SERVICE CRITERIA

APPENDIX B – LEVEL OF SERVICE (LOS) CRITERIA

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM 2000)

The level of service criteria for unsignalized intersections is defined as the average total delay, in seconds per vehicle. As used here, total delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position. While the criteria for level of service for TWSC and AWSC intersections are the same, procedures to calculate the average total delay may differ.

Level of Service Criteria for Two-Way Stop-Controlled Intersections

Level of Service	Average Total Delay (sec/veh)
A	≤ 10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	> 50

LEVEL OF SERVICE CRITERIA FOR ALL-WAY STOP-CONTROLLED INTERSECTIONS (HCM 2000)

The all-way stop-controlled intersection is a special type of unsignalized intersection, where vehicles on all approaches are required to stop before entering the intersection. Generally, the sequence of entry into the intersection is on a "first come, first serve basis", according to order of arrival at the intersection. In theory, if vehicles arrive at two or more of the approaches at the same time, then according the "rules of the road", the vehicle to the right is allowed to proceed first. However, it has been observed that two-lane AWSC intersections often operate on a virtual 2-phase patterns, where North-South streams alternate right-of-way with East-West streams. Multilane AWSC intersections generally operate in 4 phases, where each approach will take up a single phase. The table, shown below, identifies the Level of Service and corresponding average stopped delay for all-way stop-controlled intersections.

Level of Service Criteria for AWSC Intersections

Level of Service	Average Total Delay (sec/veh)
A	≤ 10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	> 50

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Existing Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	3	21	52	28	27	1	14	22	12	5	65	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	23	57	30	29	1	15	24	13	5	71	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	161	152	73	213	148	30	76			37		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	161	152	73	213	148	30	76			37		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	97	94	96	96	100	99			100		
cM capacity (veh/h)	771	730	988	678	734	1044	1523			1574		

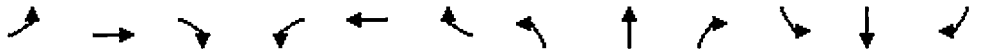
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	83	61	52	82
Volume Left	3	30	15	5
Volume Right	57	1	13	5
cSH	891	708	1523	1574
Volume to Capacity	0.09	0.09	0.01	0.00
Queue Length 95th (ft)	8	7	1	0
Control Delay (s)	9.5	10.6	2.2	0.5
Lane LOS	A	B	A	A
Approach Delay (s)	9.5	10.6	2.2	0.5
Approach LOS	A	B		

Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	23.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	9	3	27	3	4	0	37	72	4	0	51	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	3	29	3	4	0	40	78	4	0	55	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	222	222	59	251	224	80	63			83		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	222	222	59	251	224	80	63			83		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	97	100	99	100	97			100		
cM capacity (veh/h)	715	659	1006	666	657	980	1540			1515		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	42	8	123	63
Volume Left	10	3	40	0
Volume Right	29	0	4	8
cSH	887	661	1540	1515
Volume to Capacity	0.05	0.01	0.03	0.00
Queue Length 95th (ft)	4	1	2	0
Control Delay (s)	9.3	10.5	2.6	0.0
Lane LOS	A	B	A	
Approach Delay (s)	9.3	10.5	2.6	0.0
Approach LOS	A	B		

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	22.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	4	6	36	12	15	2	38	63	14	2	56	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	7	39	13	16	2	41	68	15	2	61	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	235	232	61	267	225	76	62			84		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	235	232	61	267	225	76	62			84		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	96	98	98	100	97			100		
cM capacity (veh/h)	689	649	1004	640	655	985	1541			1513		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	50	32	125	64
Volume Left	4	13	41	2
Volume Right	39	2	15	1
cSH	903	664	1541	1513
Volume to Capacity	0.06	0.05	0.03	0.00
Queue Length 95th (ft)	4	4	2	0
Control Delay (s)	9.2	10.7	2.6	0.3
Lane LOS	A	B	A	A
Approach Delay (s)	9.2	10.7	2.6	0.3
Approach LOS	A	B		

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	3	3	16	5	3	2	26	97	5	2	79	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	3	17	5	3	2	28	105	5	2	86	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	261	260	88	276	259	108	90			111		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	261	260	88	276	259	108	90			111		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	98	99	99	100	98			100		
cM capacity (veh/h)	677	632	970	651	632	946	1505			1479		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	24	11	139	92
Volume Left	3	5	28	2
Volume Right	17	2	5	4
cSH	857	688	1505	1479
Volume to Capacity	0.03	0.02	0.02	0.00
Queue Length 95th (ft)	2	1	1	0
Control Delay (s)	9.3	10.3	1.6	0.2
Lane LOS	A	B	A	A
Approach Delay (s)	9.3	10.3	1.6	0.2
Approach LOS	A	B		

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	23.5%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2017 WITHOUT Project

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	15	60	100	30	45	5	30	25	15	10	70	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	65	109	33	49	5	33	27	16	11	76	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	236	215	84	348	215	35	92			43		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	236	215	84	348	215	35	92			43		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	90	89	93	93	99	98			99		
cM capacity (veh/h)	660	664	975	488	664	1037	1502			1565		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	190	87	76	103
Volume Left	16	33	33	11
Volume Right	109	5	16	16
cSH	811	596	1502	1565
Volume to Capacity	0.23	0.15	0.02	0.01
Queue Length 95th (ft)	23	13	2	1
Control Delay (s)	10.8	12.1	3.3	0.8
Lane LOS	B	B	A	A
Approach Delay (s)	10.8	12.1	3.3	0.8
Approach LOS	B	B		

Intersection Summary				
Average Delay	7.5			
Intersection Capacity Utilization	29.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	30	10	45	5	10	5	50	80	5	5	55	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	11	49	5	11	5	54	87	5	5	60	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	288	280	68	332	285	90	76			92		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	288	280	68	332	285	90	76			92		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	98	95	99	98	99	96			100		
cM capacity (veh/h)	632	604	995	566	600	968	1523			1502		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	92	22	147	82
Volume Left	33	5	54	5
Volume Right	49	5	5	16
cSH	778	652	1523	1502
Volume to Capacity	0.12	0.03	0.04	0.00
Queue Length 95th (ft)	10	3	3	0
Control Delay (s)	10.2	10.7	2.9	0.5
Lane LOS	B	B	A	A
Approach Delay (s)	10.2	10.7	2.9	0.5
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.8			
Intersection Capacity Utilization	28.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	15	35	70	15	65	5	85	70	15	5	60	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	38	76	16	71	5	92	76	16	5	65	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	397	364	76	451	367	84	87			92		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	397	364	76	451	367	84	87			92		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	93	92	96	87	99	94			100		
cM capacity (veh/h)	478	527	985	430	526	975	1509			1502		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	130	92	185	92
Volume Left	16	16	92	5
Volume Right	76	5	16	22
cSH	711	519	1509	1502
Volume to Capacity	0.18	0.18	0.06	0.00
Queue Length 95th (ft)	17	16	5	0
Control Delay (s)	11.2	13.4	4.0	0.5
Lane LOS	B	B	A	A
Approach Delay (s)	11.2	13.4	4.0	0.5
Approach LOS	B	B		

Intersection Summary				
Average Delay	7.0			
Intersection Capacity Utilization	31.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	20	10	30	10	10	5	55	105	10	5	85	25
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	11	33	11	11	5	60	114	11	5	92	27
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	367	361	106	394	370	120	120			125		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	367	361	106	394	370	120	120			125		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	98	97	98	98	99	96			100		
cM capacity (veh/h)	557	541	948	520	535	932	1468			1462		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	65	27	185	125
Volume Left	22	11	60	5
Volume Right	33	5	11	27
cSH	698	577	1468	1462
Volume to Capacity	0.09	0.05	0.04	0.00
Queue Length 95th (ft)	8	4	3	0
Control Delay (s)	10.7	11.5	2.7	0.4
Lane LOS	B	B	A	A
Approach Delay (s)	10.7	11.5	2.7	0.4
Approach LOS	B	B		

Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	26.7%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Base Year 2026 WITHOUT Project

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	50	100	150	20	85	5	90	25	15	10	40	65
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	109	163	22	92	5	98	27	16	11	43	71
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	383	340	79	549	367	35	114			43		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	383	340	79	549	367	35	114			43		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	80	83	93	82	99	93			99		
cM capacity (veh/h)	467	540	982	298	521	1037	1475			1565		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	326	120	141	125
Volume Left	54	22	98	11
Volume Right	163	5	16	71
cSH	674	468	1475	1565
Volume to Capacity	0.48	0.26	0.07	0.01
Queue Length 95th (ft)	66	25	5	1
Control Delay (s)	15.2	15.3	5.4	0.7
Lane LOS	C	C	A	A
Approach Delay (s)	15.2	15.3	5.4	0.7
Approach LOS	C	C		

Intersection Summary				
Average Delay	10.8			
Intersection Capacity Utilization	43.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	55	10	65	5	10	5	85	80	5	5	60	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	11	71	5	11	5	92	87	5	5	65	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	378	370	82	443	383	90	98			92		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	378	370	82	443	383	90	98			92		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	98	93	99	98	99	94			100		
cM capacity (veh/h)	539	523	978	456	514	968	1495			1502		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	141	22	185	103
Volume Left	60	5	92	5
Volume Right	71	5	5	33
cSH	693	562	1495	1502
Volume to Capacity	0.20	0.04	0.06	0.00
Queue Length 95th (ft)	19	3	5	0
Control Delay (s)	11.5	11.7	4.0	0.4
Lane LOS	B	B	A	A
Approach Delay (s)	11.5	11.7	4.0	0.4
Approach LOS	B	B		

Intersection Summary				
Average Delay	5.9			
Intersection Capacity Utilization	35.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	30	50	90	15	85	5	110	70	20	5	65	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	54	98	16	92	5	120	76	22	5	71	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	478	438	90	552	446	87	109			98		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	478	438	90	552	446	87	109			98		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	88	90	95	80	99	92			100		
cM capacity (veh/h)	393	470	968	341	465	972	1482			1495		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	185	114	217	114
Volume Left	33	16	120	5
Volume Right	98	5	22	38
cSH	616	453	1482	1495
Volume to Capacity	0.30	0.25	0.08	0.00
Queue Length 95th (ft)	31	25	7	0
Control Delay (s)	13.3	15.6	4.5	0.4
Lane LOS	B	C	A	A
Approach Delay (s)	13.3	15.6	4.5	0.4
Approach LOS	B	C		

Intersection Summary				
Average Delay	8.4			
Intersection Capacity Utilization	38.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	25	10	35	10	10	5	60	110	10	5	90	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	11	38	11	11	5	65	120	11	5	98	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	394	389	117	427	402	125	136			130		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	394	389	117	427	402	125	136			130		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	98	96	98	98	99	95			100		
cM capacity (veh/h)	533	520	935	489	511	926	1448			1455		

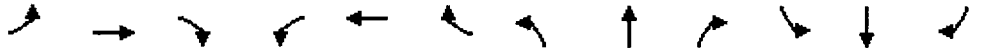
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	76	27	196	141
Volume Left	27	11	65	5
Volume Right	38	5	11	38
cSH	676	550	1448	1455
Volume to Capacity	0.11	0.05	0.05	0.00
Queue Length 95th (ft)	9	4	4	0
Control Delay (s)	11.0	11.9	2.8	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	11.0	11.9	2.8	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

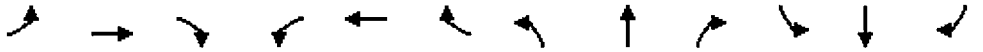
- Future Year 2017 WITH Phase I of the Project



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	20	80	130	30	50	5	35	25	15	10	70	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	87	141	33	54	5	38	27	16	11	76	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	253	228	87	405	231	35	98			43		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	253	228	87	405	231	35	98			43		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	87	85	92	92	99	97			99		
cM capacity (veh/h)	636	650	972	416	647	1037	1495			1565		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	250	92	82	109
Volume Left	22	33	38	11
Volume Right	141	5	16	22
cSH	798	552	1495	1565
Volume to Capacity	0.31	0.17	0.03	0.01
Queue Length 95th (ft)	34	15	2	1
Control Delay (s)	11.6	12.8	3.6	0.8
Lane LOS	B	B	A	A
Approach Delay (s)	11.6	12.8	3.6	0.8
Approach LOS	B	B		

Intersection Summary				
Average Delay	8.4			
Intersection Capacity Utilization	31.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	40	10	50	5	10	5	50	80	5	5	55	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	11	54	5	11	5	54	87	5	5	60	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	291	283	71	340	291	90	82			92		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	291	283	71	340	291	90	82			92		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	98	95	99	98	99	96			100		
cM capacity (veh/h)	629	602	992	555	595	968	1516			1502		

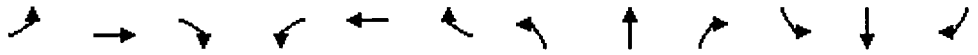
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	109	22	147	87
Volume Left	43	5	54	5
Volume Right	54	5	5	22
cSH	766	646	1516	1502
Volume to Capacity	0.14	0.03	0.04	0.00
Queue Length 95th (ft)	12	3	3	0
Control Delay (s)	10.5	10.8	2.9	0.5
Lane LOS	B	B	A	A
Approach Delay (s)	10.5	10.8	2.9	0.5
Approach LOS	B	B		

Intersection Summary				
Average Delay	5.1			
Intersection Capacity Utilization	30.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	20	45	80	15	90	5	105	70	15	5	60	25
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	49	87	16	98	5	114	76	16	5	65	27
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	457	410	79	514	416	84	92			92		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	457	410	79	514	416	84	92			92		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	90	91	96	80	99	92			100		
cM capacity (veh/h)	407	489	982	373	486	975	1502			1502		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	158	120	207	98
Volume Left	22	16	114	5
Volume Right	87	5	16	27
cSH	651	477	1502	1502
Volume to Capacity	0.24	0.25	0.08	0.00
Queue Length 95th (ft)	24	25	6	0
Control Delay (s)	12.3	15.1	4.5	0.4
Lane LOS	B	C	A	A
Approach Delay (s)	12.3	15.1	4.5	0.4
Approach LOS	B	C		

Intersection Summary				
Average Delay	8.1			
Intersection Capacity Utilization	35.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	25	10	35	10	15	5	65	105	10	5	85	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	11	38	11	16	5	71	114	11	5	92	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	397	389	111	427	402	120	130			125		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	397	389	111	427	402	120	130			125		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	98	96	98	97	99	95			100		
cM capacity (veh/h)	525	518	942	488	509	932	1455			1462		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	76	33	196	136
Volume Left	27	11	71	5
Volume Right	38	5	11	38
cSH	672	542	1455	1462
Volume to Capacity	0.11	0.06	0.05	0.00
Queue Length 95th (ft)	10	5	4	0
Control Delay (s)	11.0	12.1	3.0	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	11.0	12.1	3.0	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	28.5%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX C

LEVEL OF SERVICE CALCULATIONS

- Future Year 2026 WITH Phase I and II of the Project

Austin, Tsutsumi & Associates, Inc.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	70	180	260	20	110	5	115	25	15	10	40	80
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	196	283	22	120	5	125	27	16	11	43	87
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	459	402	87	774	438	35	130			43		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	459	402	87	774	438	35	130			43		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	80	60	71	85	74	99	91			99		
cM capacity (veh/h)	381	487	972	144	465	1037	1455			1565		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	554	147	168	141
Volume Left	76	22	125	11
Volume Right	283	5	16	87
cSH	621	355	1455	1565
Volume to Capacity	0.89	0.41	0.09	0.01
Queue Length 95th (ft)	271	49	7	1
Control Delay (s)	40.5	22.1	5.9	0.6
Lane LOS	E	C	A	A
Approach Delay (s)	40.5	22.1	5.9	0.6
Approach LOS	E	C		

Intersection Summary				
Average Delay	26.5			
Intersection Capacity Utilization	57.9%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	100	15	95	5	15	5	100	80	5	5	60	40
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	109	16	103	5	16	5	109	87	5	5	65	43
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	418	408	87	516	427	90	109			92		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	418	408	87	516	427	90	109			92		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	78	97	89	99	97	99	93			100		
cM capacity (veh/h)	497	492	972	385	480	968	1482			1502		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	228	27	201	114
Volume Left	109	5	109	5
Volume Right	103	5	5	43
cSH	637	506	1482	1502
Volume to Capacity	0.36	0.05	0.07	0.00
Queue Length 95th (ft)	41	4	6	0
Control Delay (s)	13.8	12.5	4.4	0.4
Lane LOS	B	B	A	A
Approach Delay (s)	13.8	12.5	4.4	0.4
Approach LOS	B	B		

Intersection Summary				
Average Delay	7.7			
Intersection Capacity Utilization	42.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	180	260	20	110	5	115	25	15	10	40	80
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	196	283	22	120	5	125	27	16	11	43	87
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	459	402	87	774	438	35	130			43		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	459	402	87	774	438	35	130			43		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	80	60	71	85	74	99	91			99		
cM capacity (veh/h)	381	487	972	144	465	1037	1455			1565		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	272	283	147	168	141
Volume Left	76	0	22	125	11
Volume Right	0	283	5	16	87
cSH	452	972	355	1455	1565
Volume to Capacity	0.60	0.29	0.41	0.09	0.01
Queue Length 95th (ft)	97	30	49	7	1
Control Delay (s)	24.3	10.2	22.1	5.9	0.6
Lane LOS	C	B	C	A	A
Approach Delay (s)	17.1		22.1	5.9	0.6
Approach LOS	C		C		

Intersection Summary				
Average Delay	13.7			
Intersection Capacity Utilization	45.1%	ICU Level of Service	A	
Analysis Period (min)	15			

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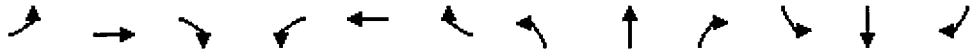
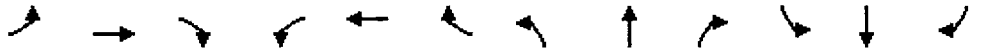


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	70	180	260	20	110	5	115	25	15	10	40	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	196	283	22	120	5	125	27	16	11	43	87

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	272	283	147	168	141
Volume Left (vph)	76	0	22	125	11
Volume Right (vph)	0	283	5	16	87
Hadj (s)	0.17	-0.67	0.04	0.12	-0.32
Departure Headway (s)	5.8	5.0	5.7	5.9	5.5
Degree Utilization, x	0.44	0.39	0.23	0.28	0.22
Capacity (veh/h)	598	702	588	554	590
Control Delay (s)	12.0	9.9	10.4	11.1	10.1
Approach Delay (s)	10.9		10.4	11.1	10.1
Approach LOS	B		B	B	B

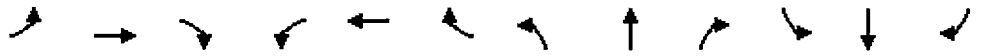
Intersection Summary			
Delay	10.8		
HCM Level of Service	B		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	50	95	145	15	180	5	200	70	20	5	65	65
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	103	158	16	196	5	217	76	22	5	71	71
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	742	649	106	848	674	87	141			98		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	742	649	106	848	674	87	141			98		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	64	69	83	90	39	99	85			100		
cM capacity (veh/h)	151	329	948	158	318	972	1442			1495		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	315	217	315	147
Volume Left	54	16	217	5
Volume Right	158	5	22	71
cSH	375	300	1442	1495
Volume to Capacity	0.84	0.72	0.15	0.00
Queue Length 95th (ft)	194	131	13	0
Control Delay (s)	49.0	43.0	5.9	0.3
Lane LOS	E	E	A	A
Approach Delay (s)	49.0	43.0	5.9	0.3
Approach LOS	E	E		

Intersection Summary				
Average Delay	26.8			
Intersection Capacity Utilization	63.2%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	55	15	50	10	20	5	105	110	10	5	90	75
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	16	54	11	22	5	114	120	11	5	98	82
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	519	508	139	565	543	125	179			130		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	519	508	139	565	543	125	179			130		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	96	94	97	95	99	92			100		
cM capacity (veh/h)	417	428	910	372	409	926	1396			1455		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	130	38	245	185
Volume Left	60	11	114	5
Volume Right	54	5	11	82
cSH	541	431	1396	1455
Volume to Capacity	0.24	0.09	0.08	0.00
Queue Length 95th (ft)	23	7	7	0
Control Delay (s)	13.8	14.2	4.0	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	13.8	14.2	4.0	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	5.6			
Intersection Capacity Utilization	43.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	95	145	15	180	5	200	70	20	5	65	65
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	103	158	16	196	5	217	76	22	5	71	71
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	742	649	106	848	674	87	141			98		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	742	649	106	848	674	87	141			98		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	64	69	83	90	39	99	85			100		
cM capacity (veh/h)	151	329	948	158	318	972	1442			1495		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	158	158	217	315	147
Volume Left	54	0	16	217	5
Volume Right	0	158	5	22	71
cSH	233	948	300	1442	1495
Volume to Capacity	0.68	0.17	0.72	0.15	0.00
Queue Length 95th (ft)	107	15	131	13	0
Control Delay (s)	47.5	9.6	43.0	5.9	0.3
Lane LOS	E	A	E	A	A
Approach Delay (s)	28.5		43.0	5.9	0.3
Approach LOS	D		E		

Intersection Summary				
Average Delay	20.3			
Intersection Capacity Utilization	55.3%	ICU Level of Service	B	
Analysis Period (min)	15			

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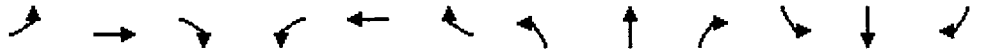

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	50	95	145	15	180	5	200	70	20	5	65	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	103	158	16	196	5	217	76	22	5	71	71

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	158	158	217	315	147
Volume Left (vph)	54	0	16	217	5
Volume Right (vph)	0	158	5	22	71
Hadj (s)	0.21	-0.67	0.03	0.13	-0.25
Departure Headway (s)	6.5	5.6	6.0	5.8	5.8
Degree Utilization, x	0.28	0.24	0.36	0.51	0.23
Capacity (veh/h)	519	599	553	582	554
Control Delay (s)	10.8	9.1	12.3	14.5	10.5
Approach Delay (s)	10.0		12.3	14.5	10.5
Approach LOS	A		B	B	B

Intersection Summary				
Delay	12.0			
HCM Level of Service	B			
Intersection Capacity Utilization	55.3%	ICU Level of Service		B
Analysis Period (min)	15			

APPENDIX H.

Preliminary Engineering and Drainage Report

PRELIMINARY

ENGINEERING STUDY

FOR THE

LANA'I CITY AFFORDABLE HOUSING PROJECT

PREPARED FOR:

COUNTY OF MAUI
DEPARTMENT OF HOUSING AND HUMAN CONCERNS
2200 MAIN STREET, SUITE 546
WAILUKU, HI 96793

PREPARED BY:

OKAHARA & ASSOCIATES, INC.
200 KOHOLA STREET
HILO, HI 96720-4323

DECEMBER 2009

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SECTION 1 - EXECUTIVE SUMMARY

The purpose of this study is to provide a conceptual look at the infrastructure needed to serve the proposed Lana'i City Affordable Housing Project, and to determine any potential problems that may occur. The following is a brief summary of the findings contained within this report.

The closest sewer line to the project site is a sewer line from the Waialua Annex Subdivision that traverses through the school property. It is at a higher elevation than the project site, therefore a sewer lift station will be required. The closest manhole along this line is on 5th Street, however, the eight-inch piping downstream of that manhole does not have the capacity to convey the design load of the proposed development. Therefore, the connecting manhole will be near the proposed 9th Street Extension, where the pipe size increases to 10-inches. An implementation plan may need to be developed for the expansion of the existing wastewater treatment plant, however, it cannot be determined if or when this would be needed.

Domestic water supply to Lana'i City is currently being distributed by the 2MG Lana'i City Reservoir, with the 0.75MG Koele Reservoir as a back-up. A PRV located along 9th Street, and an altitude valve located near the Cavendish Golf Course regulates the water pressure within Lana'i City. Currently, static pressures within the project area would range from 103 psi to 120 psi. The projected water demand for this project will be approximately 0.278 MGD.

Development of this project will produce a 50-year peak hour runoff increase of 137.75 cfs. The 4.00 acres set aside for a retention pond will hold a six foot deep trapezoidal basin that will have the volume capacity to retain this increase. Existing on-site runoff exits the southeast portion of the site and eventually ends up in an area known as "Mississippi." Any overflow of the proposed retention basin will also be directed to the "Mississippi," therefore the drainage patterns in the area will be preserved.

SECTION 2 - INTRODUCTION

2.1 PURPOSE

The purpose of this Engineering Study is to provide support and guidelines for the eventual design of the domestic water, wastewater, and drainage systems for the proposed Lana'i City Affordable Housing Project. It is intended to provide a conceptual layout of the entire system at full build-out to ensure continuity with the existing infrastructure, as well as to provide coordination with other planned developments in the area.

2.2 DESCRIPTION

The proposed Lana'i City Affordable Housing Project is centrally located on the Island of Lana'i, near the northwest corner of Lana'i City. It is bounded to the east by future phases of the Department of Hawaiian Home Lands (DHHL) Lana'i Residence Lots Subdivision, and to the south and east by the proposed Lana'i High and Elementary School Expansion. Currently, this Project is within a portion of Tax Map Key (2) 4-09-002:058, however, this parcel is in the process of being subdivided into two separate parcels, with the Department of Education (DOE) receiving 42 acres for the school expansion, and the Lana'i City Affordable Housing Project comprising the remaining 73 acres. Also, due to the fact that the subject parcel is landlocked, either the extension of 5th Street (through DHHL lands), the extension of 9th Street (through Castle & Cooke lands), or both will need to be considered for access (see Figures 1 - 3).

The conceptual layout for this Project includes: 239 single family lots (29.15 total acres); 14.48 acres designated for multi-family units; 4.94 acres designated for public/quasi-public uses; 4.91 acres of park space; 4.00 acres for a retention basin; and approximately 15.52 acres for street right-of-ways (see Figure 4).

2.3 CLIMATE

The climate of the Island of Lana'i is greatly influenced by the topography of the land, which is dominated by Mount Lanaihale (3379 ft. summit elevation). Lana'i City has a mean annual rainfall of approximately 38.7 inches, and has temperatures ranging from a mean annual high of 75.7°F, to a mean annual low of 62.7°F (see Table 1).

2.4 TOPOGRAPHY

The eastern area of the site slopes in a westerly direction, and the western area of the site slopes in an easterly direction, creating a valley within the site, which slopes to the southeast. Onsite elevations range from a high of approximately 1,547 feet near the northeast corner,

to low of approximately 1,508 feet at the southern boundary, with localized grades ranging from 0 to 10%. The Iwiole Gulch lies to the north of the site (see Figure 5).

2.5 SCOPE AND LIMITATIONS

The following standards, documents, and limitations were used to define the parameters of this Engineering Study:

- "Design Standards of the Department of Wastewater Management, Volume I", Department of Wastewater Management, City and County of Honolulu, State of Hawaii, July 1993.
- An extensive study of the existing sewer system within Lana'i City is not a part of this report. However, the path from the Lana'i City Affordable Housing Project to the wastewater treatment plant will be examined.
- Information on the existing sewer system within Lana'i City was taken from "Construction Plans for Lanai Sewerage System, Lanai City, Lanai, Hawaii, Job No. 82-30, Federal Project No. C-150061-02", approved July 1982, and from "Construction Plans for Land Court Application, Waialua Annex Subdivision", by M & E Pacific, Inc, approved January 1992.
- SewerCAD® Version V5.6 by Bentley is the modeling software used for the analysis contained within this report.
- Although this is a private water system, the County of Maui Department of Water Supply Standards will be followed.
- An extensive study of the existing sewer system within Lana'i City is not a part of this report.
- The existing waterlines were taken from plans and drawings as supplied by Castle & Cooke, LLC, and represents the best information available to date.
- Existing water usage was taken from the Final Draft of the "Lanai Water Use and Development Plan" by R.M. Towill Corp. dated July 12, 2006.
- WaterCAD® Version V8 EX Edition by Bentley is the modeling software used for the analysis contained within this report.
- "Title MC-15, Department of Public Works and Waste Management, Subtitle 01, Chapter 4, Rules for the Design of Storm Drainage Facilities in the County of Maui"

SECTION 3 - WASTEWATER

3.1 EXISTING SEWER INFRASTRUCTURE

The existing sewer system within Lana'i City is comprised of vitrified clay, ductile iron and PVC pipes, ranging in size from eight- through fifteen-inches in diameter. The closest sewer line to the project site is a vitrified clay pipe servicing the Waialua Annex Subdivision, and Phases 1 and 2a of the Lana'i Residence Lots. This sewer line begins at sewer manhole SMH-A11, located along 5th Street, and heads in a southeasterly direction with an eight-inch diameter pipe for approximately 1,645 feet. The pipe is then increased to a ten-inch diameter pipe for approximately 1,020 feet, and increased again to a twelve-inch diameter pipe for approximately 340 feet before it connects to the main sewer trunk line which leads to the wastewater treatment plant.

Existing flows within this line was estimated by taking the hydraulic data from the Waialua Annex Subdivision Plans, and adding design flows values (350 gallons per day per dwelling) for the Lana'i Residence Lots Subdivision. The resultant peak flow at SMH-A11 was computed to be 0.332 million gallons per day (MGD), which puts the existing eight-inch sewer line at 45% of capacity. With only 165 single family units connected at this point, it is evident that the full build-out of the Lana'i City Affordable Housing Project will have to connect to this line when the line size increases to the ten-inch pipe (see Figure 6).

3.2 ON-SITE SEWER

Per Maui County Standards, design sewer flows for a single family dwelling is 350 gallons per day, and design flows for a multi-family dwelling is 255 gallons per day. For the areas designated as multi-family, a density of twelve units per acre was used, which computed to a total of 174 multi-family units in addition to the 239 single family units. Therefore, at full build-out, the design average flow for this project will be approximately 0.135 MGD, and the design peak flow will be approximately 0.655 MGD. To accommodate these flows, eight to ten inch PVC pipes would probably be adequate depending on the slopes available.

As mentioned earlier, the on-site low point is at approximately 1,508 feet in elevation, while the invert of the existing sewer manhole adjacent to the nearest ten-inch pipe is at approximately 1548.7 feet. Therefore, a sewer lift station and associated force main will be required This force main will be approximately 3,200 feet in length, and will connect to manhole SMH-A5. The capacity of the ten-inch sewer line downstream of this manhole is approximately 2.126 MGD, therefore, even at full build-out, this sewer line will be utilized at 63% capacity.

3.3 OFF-SITE SEWER

The Lana'i High and Elementary School Expansion, as well as the future phases of the Lana'i Residence Lots Subdivision will face the same problems as the Lana'i City Affordable Housing Project in that both of those projects will also be at a lower elevation that the Waialua Annex Sewer Line. It may be beneficial to all parties involved to have one sewer lift station designed to service all three projects, but timing, cost, and other complications may make that difficult. Preliminary discussions have taken place, however, at this time it remains unresolved.

3.3 WASETWATER TREATMENT PLANT

The existing Lana'i City Wastewater Treatment Plant has a capacity of approximately 0.500 MGD, while the current usage is at approximately 0.297 MGD. County of Maui regulations state that when actual sewer usage exceeds 75% of the WTP's capacity, an implementation plan needs to be performed, and when the actual usage exceeds 90% of capacity, the plan needs to be initiated. The proposed 0.135 MGD generated by this project will theoretically bring the sewer usage to 0.432 MGD, or 86% of capacity, however, action needs to be taken only when actual usage exceeds the certain thresholds. The Lana'i City Affordable Housing Project is targeted to existing Lana'i City residents, in which case the system sewage load will remain relatively constant. Because of this, if or when these thresholds are passed cannot be determined.

SECTION 4 - DOMESTIC WATER

4.1 EXISTING WATER INFRASTRUCTURE

The existing water infrastructure on Lana'i is a private system owned by Lana'i Company, Inc. Although this is a private system, Maui County Standards will be followed wherever possible. Service to the Lana'i City area consists of two reservoirs: the Koele Reservoir (0.75 MG, spillway elevation of 2,057 feet), and the Lana'i City Reservoir (2.0MG, spillway elevation of 1,980 feet - see Figure 7).

4.1.1 Koele Reservoir

The existing Koele Reservoir is located just east of the Experience at Koele Golf Course. It is currently being fed by Well #8, and will be also fed by Well #3 when it gets back on line.

One leg of this system connects to Kaunaoa Drive and travels down the road serving the Villas at Koele along the way as well as residential dwellings along Kaunaoa Drive. This line then tees off at Ninth Street and connects to a pressure reducing valve (PRV) (elevation of 1,754 feet, 44 psi outlet setting). This PRV is normally closed and serves as an emergency backup for Lana'i City.

The other leg of this system travels down towards the Lalakoa Subdivision, and heads away from Lana'i City in a southeasterly direction. This waterline eventually hits a tee, with one leg servicing the Palawai Basin, and the other leg traveling to the Hii Reservoir (0.50 MG, spillway elevation of 1,823 feet). The Koele leg at this tee has a valve that is normally closed, and is used as an emergency backup for the Hii Reservoir.

4.1.2 Lana'i City Reservoir

The Lana'i City Reservoir is located near the eastern edge of the Koele Project District. It is currently being fed by Well #6.

This system provides service to the Lodge at Koele, and services Lana'i City through a PRV (assumed elevation of 1,670 feet, 50 psi outlet setting) located along 9th Street, and an altitude valve (elevation of 1,725 feet, 26 psi outlet setting) located near the Cavendish Golf Course. Under normal operating conditions, the Lana'i City Reservoir will provide service to the Lana'i City Affordable Housing Project, with the Koele Reservoir serving as a back-up water supply.

4.1.3 System Pressure

Maui County Water Supply Standards state that the maximum static pressure within the distribution system shall not exceed 125 psi. Using the PRV and altitude valve settings noted above, the pressure within the Lana'i City Affordable Housing Project

is expected to range from a low of 103 psi (at elevation 1,547 feet) to a high of 120 psi (at elevation 1,508 feet). While this is within the Maui County requirements, high pressure fittings or other mitigative measures should be considered. It is also possible to lower the settings of the PRV and altitude valve, however, this could have a negative effect to the residents of Lanai City, therefore, extreme care should be taken.

4.1.4 Existing Demand

The existing demand for the Lana'i City residential and commercial loads connected to the Koele and Lana'i City Reservoirs were taken from the Final Draft of the "Lanai Water Use and Development Plan" by R.M. Towill Corp. Dated July 12, 2006. The existing usage of this system contained within this report was estimated at 0.658 MGD.

4.2 ON-SITE DOMESTIC WATER

The Project will be serviced by connecting to the existing eight-inch water line within 5th Street. Maui County regulations require that any development greater than 100 parcels needs a second feed into the system. If this requirement is to be followed, the proposed 9th Street extension may need to be utilized as the second connection route. Also, all waterlines for this project will be potable.

4.2.1 Estimated Water Demand

For planned developments, the County of Maui requires the use of certain consumption values depending on the projected land use of the development. For this project, the pertinent values are: 600 gpd per single family unit; 560 gpd per multi-family unit; 6,000 gallons per acre for commercial developments; and 1,700 gallons per acre for parks. As mentioned previously, the conceptual arrangement of this project includes 239 single family units, 174 multifamily units, 4.94 acres of commercial space (public/quasi public area), and 4.91 acres of park space. Therefore, the estimated water demand will be approximately 0.278 MGD.

4.2.2 Other Developments

The Lana'i High and Elementary School Expansion, as well as the future phases of the Lana'i Residence Lots Subdivision will probably connect to this future waterline at some point. These developments are still in the planning stage, therefore, actual demand values are not available. However, using Maui County consumption guidelines (3,000 gallons per acre for single family developments, and 1,700 gallons per acre for schools), estimated values of 0.150 MGD (50 acres of single family units) and 0.072 MGD (42 acres of school area) were obtained. When combined with the Lana'i Affordable Housing Project demand, the total conceptual water requirement for this area will be 0.500 MGD. Design and sizing of the waterline will need to take these other developments into consideration to ensure adequate pressures and velocities are maintained within the system.

SECTION 5 - DRAINAGE

5.1 ON-SITE DRAINAGE

The existing Lana'i City Affordable Housing Project is situated such that there is a low valley running through the approximate middle of the site. The topography of the area indicates that nearly all of the on-site runoff generated collects at this valley and exits the site in a southeasterly direction. The runoff then flows past the wastewater treatment plant, and collects in an area known as "Mississippi," which acts as a natural retention basin. Iwiole Gulch is located just to the north of the project site, however, very little runoff is directed to that location. Therefore, in the effort to keep the drainage patterns in the area constant, the site shall be designed and graded to discharge a vast majority of the runoff to the southeast.

5.1.1 Drainage Calculations

Maui County Standards dictate the method used to calculate runoff according to the area the project encompasses. The lana'i City Affordable Housing Project covers well under 100 acres, therefore, the Rational Method was used where:

$$Q = C\ I\ A\ ; \quad \text{where}$$

Q = Runoff (cfs)
C = Runoff Coefficient
I = Rainfall Intensity (in/hr)
A = Area (acres)

The runoff coefficient is determined by the imperviousness of the ground, and ranges from zero (totally pervious) to one (totally impervious). The rainfall intensity is determined from a combination of rainfall isopluvial maps for the various occurrence intervals and the time of concentration (the time it takes for the entire drainage area to reach the outfall point).

5.1.1a Runoff Coefficient (C)

The soil types found on the existing site as determined by the Soil Conservation Service's "Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii" are the Lahaina Series and Waihuna Series.

The Lahaina Series (LaA, LaB, LaC), which covers approximately forty-five percent (45%) of the project area, developed from materials weathered from igneous rock. A typical section of this soil type shows a 15-inch layer of medium acidic dark reddish-brown silty clay, followed by 45-inches of slightly acidic silty clay and silty clay loam, over soft weathered igneous rock. This soil is moderately permeable, with a slight erosion hazard and slow runoff.

The Waihuna Series (WoA), which covers approximately thirty-four percent

(34%) of the project area, formed in old fine-textured alluvium A typical section of this soil type shows an 18-inch layer of medium acidic dark brown sticky and plastic clay, followed by 45-inches of dark brown sticky and plastic clay and silty clay, over soft weathered pebbles and stones. This soil is moderately permeable, with a slight erosion hazard and slow runoff.

The natural ground surface was assumed to be of heavy soil with grades averaging two (2%) to seven (7%) percent, which gives an existing runoff coefficient of 0.22.

A post-development runoff coefficient value of 0.518 was determined using the, the following built-up values:

Single Family Lots	0.50
Multi-Family Areas	0.75
Public/Quasi-Public Area	0.70
Open Space	0.25
Pavement	0.95

Both the 5th Street and 9th Street Extensions were included.

5.1.1b Rainfall Intensity (I)

Isopluvial maps for 10-, and 50-year 1-hour rainfall were used. Table 4 of the Maui County Drainage Standards were used to approximate the time of concentration, which equated to approximately one hour for the existing condition, and twenty minutes for the post development condition, which resulted in the following:

Existing I_{10}	2.10
Post-Dev I_{10}	3.45
Existing I_{50}	2.75
Post Dev I_{50}	4.50

5.1.1c Runoff (Q)

Taking the runoff coefficient and rainfall intensity values from above, along with a project area of 79.89 acres (which includes the 5th and 9th Street extensions), the following runoff quantities are produced:

Existing Q_{10}	36.91 cfs
Post-Dev Q_{10}	142.66 cfs
ΔQ_{10}	105.76 cfs
Existing Q_{50}	48.33 cfs
Post Dev Q_{50}	186.08 cfs
ΔQ_{50}	137.75 cfs

5.1.2 Retention Basin

Maui County Standards require that the excess runoff generated by any development be retained on-site. Because this project is less than 100 acres, the 50-year one-hour

recurrence interval was used as the design storm. In this case, the excess runoff value is 137.75 cfs, which equates to a one hour volume of 496,000 cubic feet. Therefore, the retention basin needs to be able to hold a volume of 496,000 cubic feet of runoff, with no credit given for percolation into the ground. A six foot deep trapezoidal basin with a top area of 3.26 acres and 2H:1V side slopes will fit in the 4.00 acres allotted for the retention basin, and will be able to hold the required volume including two feet of freeboard. The total volume of this basin is actually 800,000 cubic feet. An overflow pipe will be provided to allow any runoff exceeding this volume to discharge to the natural outfall point.

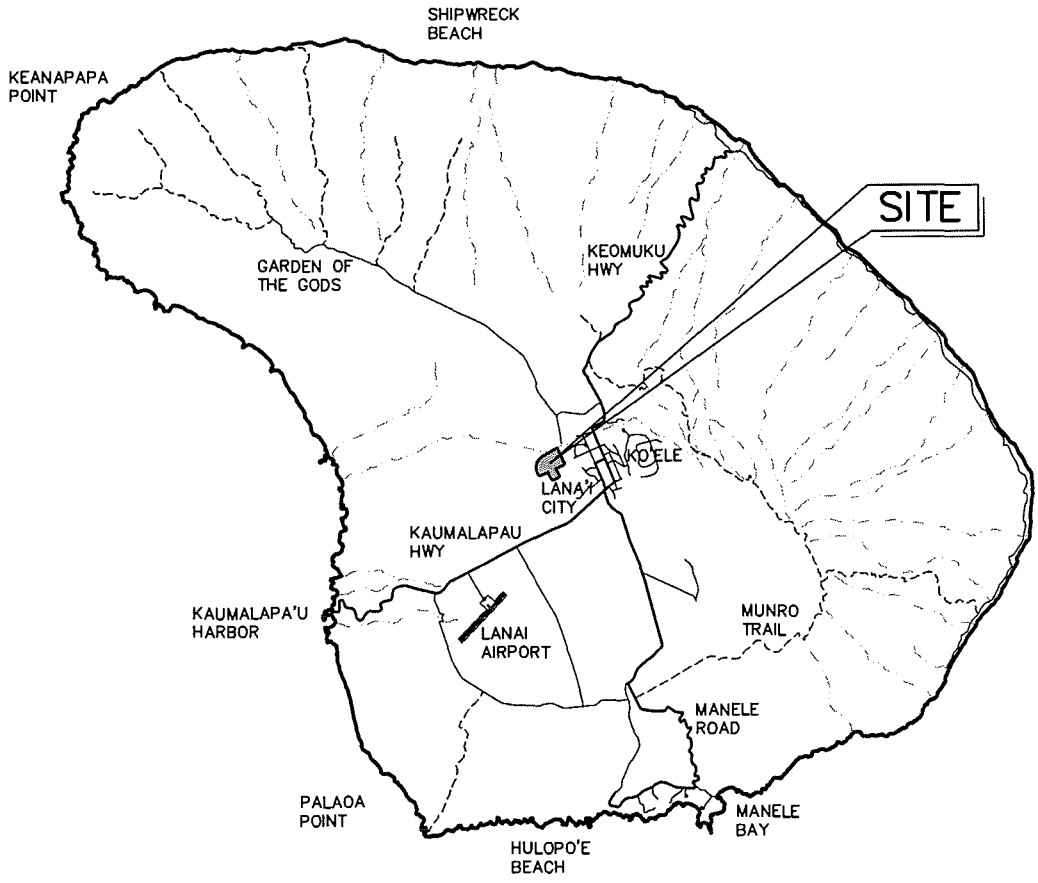
5.2 OFF-SITE DRAINAGE

Currently, off-site runoff is entering the project site from the proposed Lana'i Residence Lots and the Lana'i High and Elementary School Extension parcels. As each project is developed, the runoff entering the site should be diminished, however, in the interim, mitigative measures may need to be implemented in the case that either or both projects are delayed.

Using the Rational Method as described above, it was calculated that the 50-year runoff currently entering the site from the Lana'i Residence Lots and the Lana'i High and Elementary School Expansion parcels are approximately 24 cfs and 14 cfs respectively. While these are not extremely large quantities, it could cause roadway flooding and place extra burden on the on-site drainage structures. Therefore, ditches, berms, culverts, or a combination of these should be considered to direct this runoff away from the site, or allow it to pass through safely and effectively.

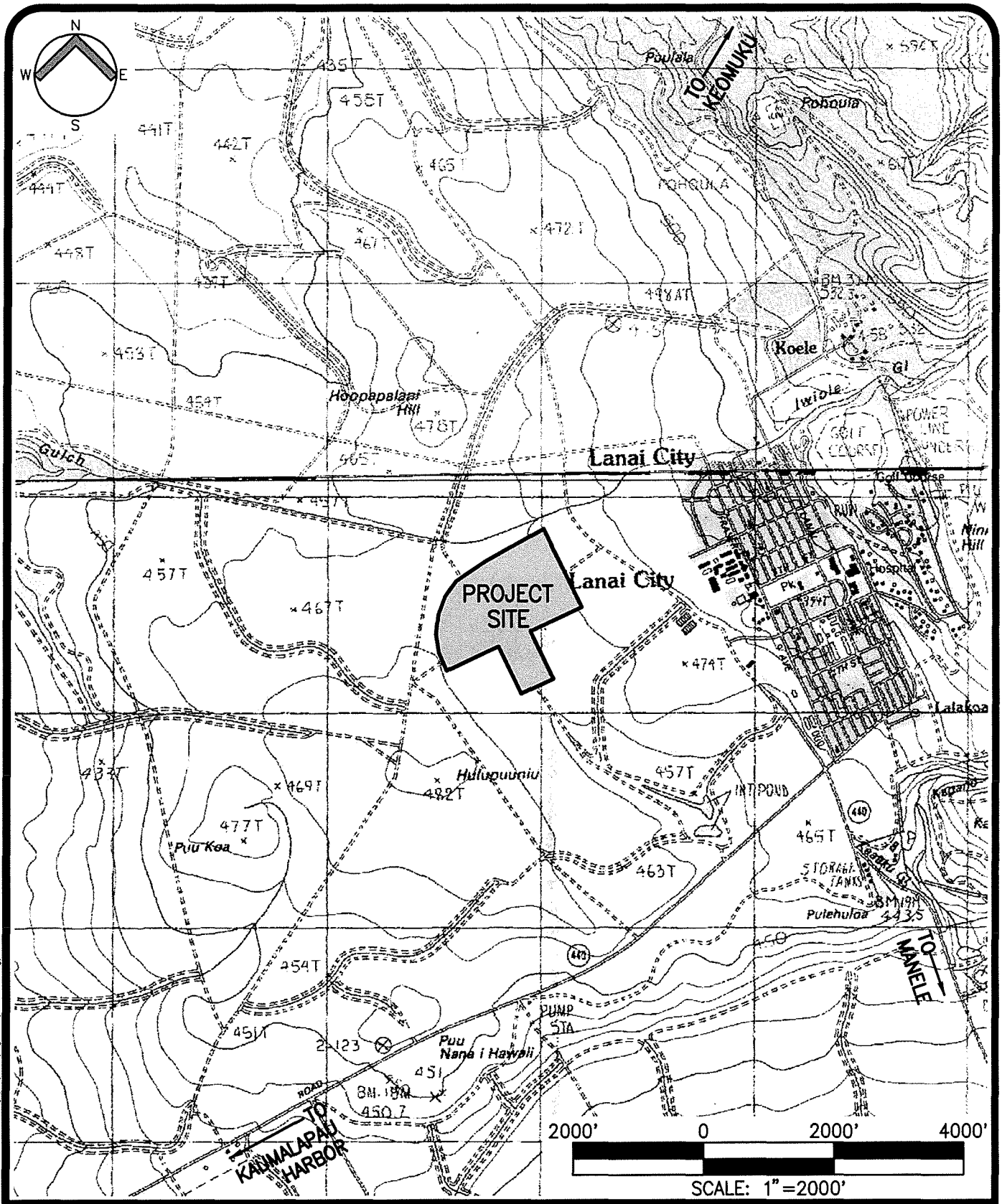
APPENDIX:

FIGURES AND TABLES



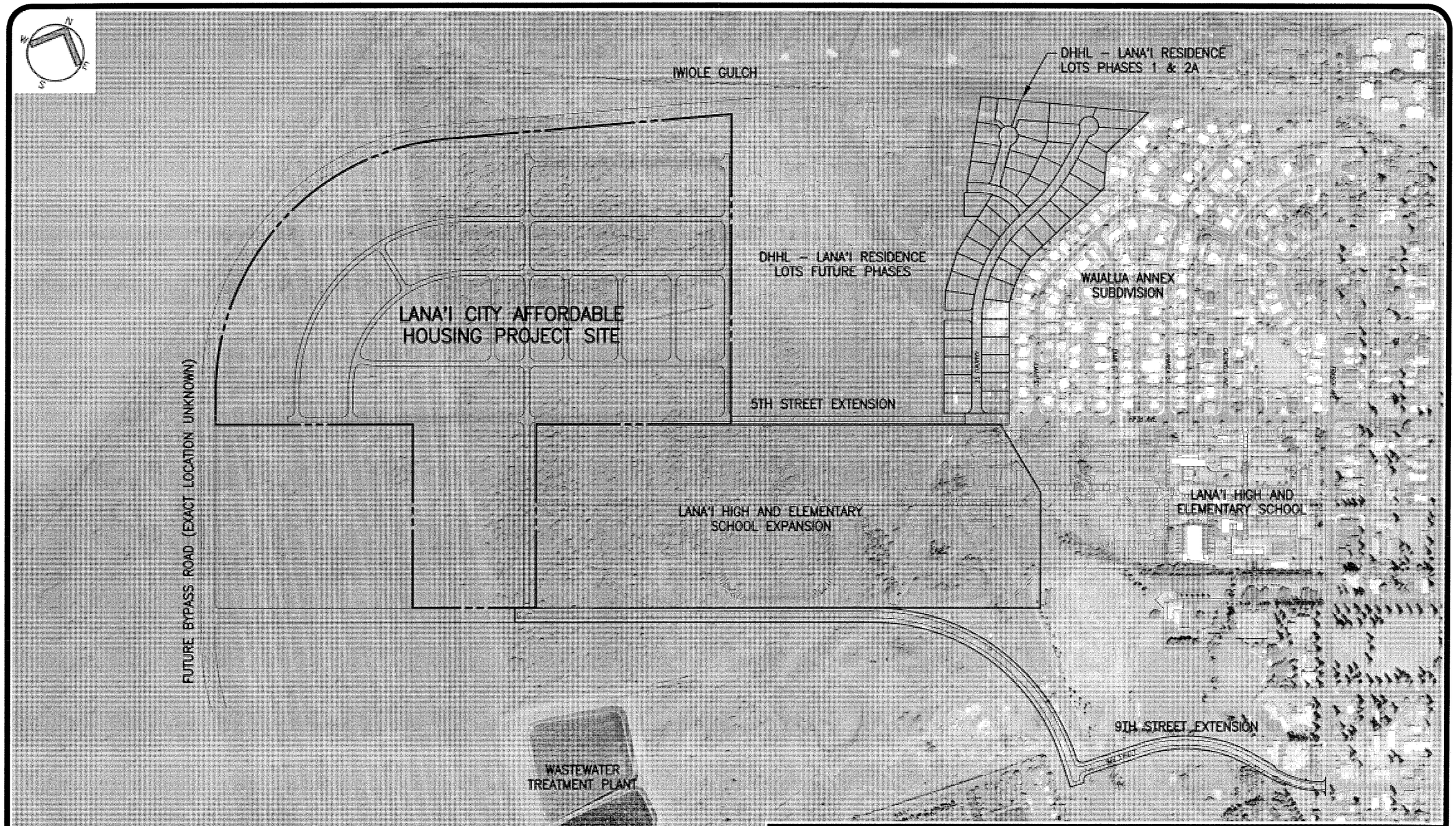
TITLE	**ISLAND MAP** NOT TO SCALE	FIGURE **1**
PROJECT	ENGINEERING REPORT – LANA'I CITY AFFORDABLE HOUSING PROJECT LANAI, HAWAII	DATE 7/2009

2008\208-028 Lana'i Affordable Housing\Report\Figures\FIG-01.dwg/1:1



TITLE	**U.S.G.S. MAP** SCALE: 1" = 2000'	FIGURE **2**
PROJECT	ENGINEERING REPORT – LANA'I CITY AFFORDABLE HOUSING PROJECT LANAI, HAWAII	DATE 7/2009

2008\208-028 Lana'i Affordable Housing\Report\Figures\FIG-02.dwg/1:1

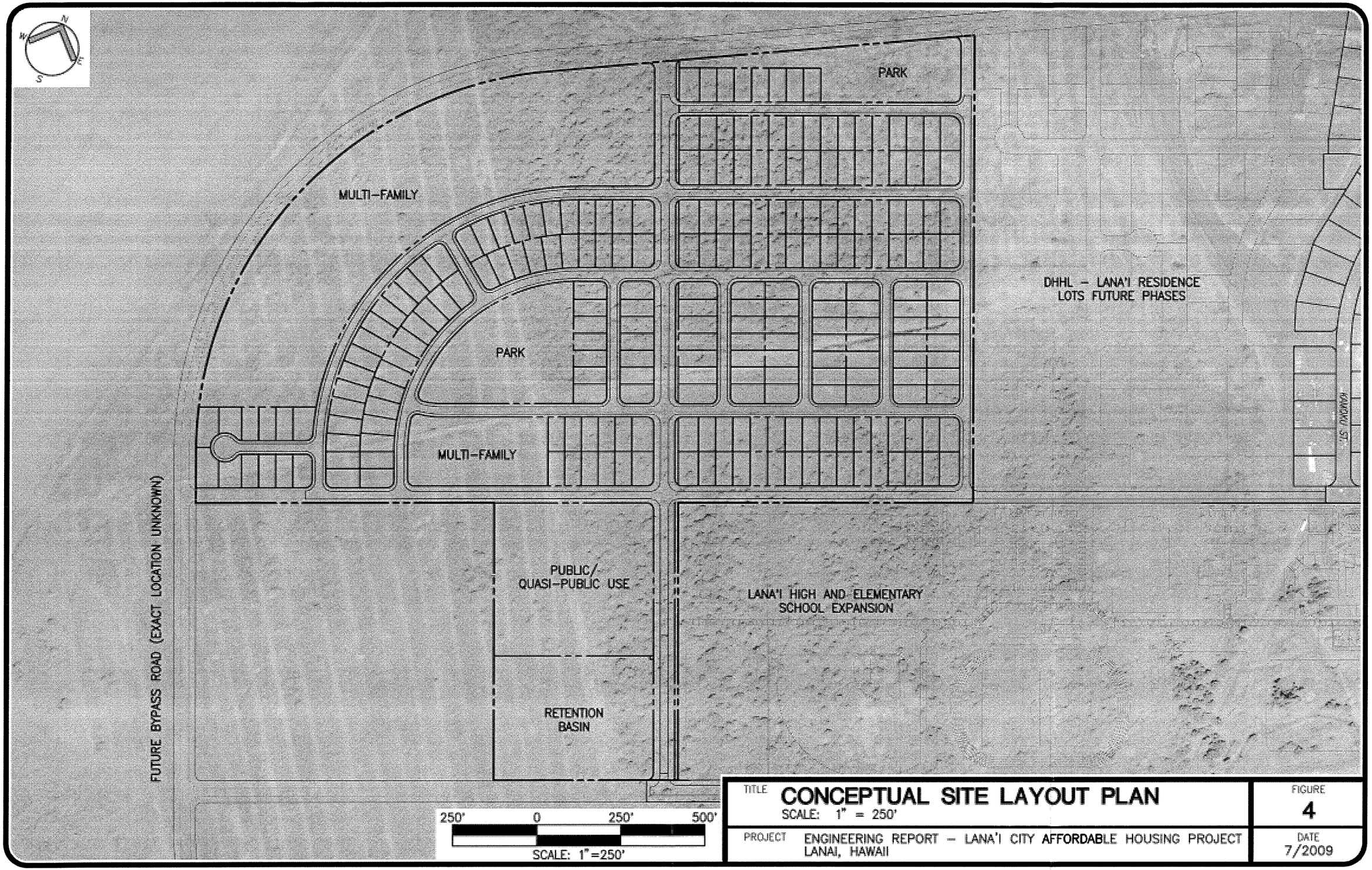


TITLE **VICINITY MAP**
SCALE: 1" = 400'

FIGURE **3**

PROJECT ENGINEERING REPORT – LANA'I CITY AFFORDABLE HOUSING PROJECT
LANAI, HAWAII

DATE 7/2009

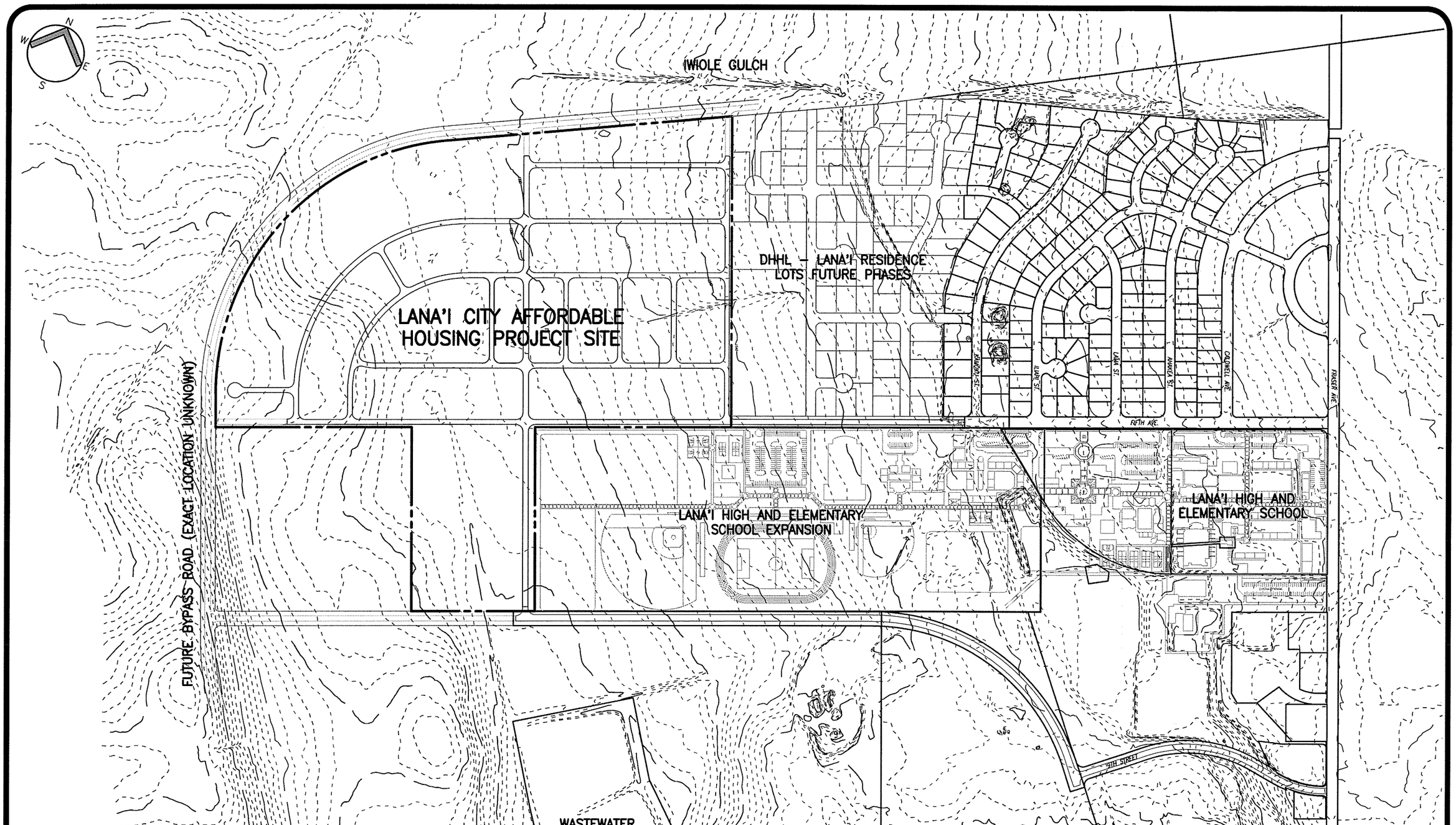


TITLE **CONCEPTUAL SITE LAYOUT PLAN**
SCALE: 1" = 250'

FIGURE **4**

PROJECT ENGINEERING REPORT – LANA'I CITY AFFORDABLE HOUSING PROJECT
LANAI, HAWAII

DATE 7/2009



TITLE	**TOPOGRAPHIC MAP** SCALE: 1" = 400'	FIGURE **5**
PROJECT	ENGINEERING REPORT – LANA'I CITY AFFORDABLE HOUSING PROJECT LANAI, HAWAII	DATE 7/2009

TABLE 1
SUMMARY OF CLIMATOLOGICAL DATA AT LANA'I CITY (1961-1990)

Month	Temperature (F)			Rainfall (in)		
	Average	Average Maximum	Average Minimum	Average	Maximum	Average Minimum
January	66.2	72.7	59.7	6.11	16.90	0.43
February	66.4	73.2	59.4	4.09	13.66	0.56
March	67.0	73.6	60.3	3.73	12.77	0.16
April	67.8	74.3	61.4	3.49	14.31	0.27
May	68.9	75.3	62.4	2.94	10.07	0.30
June	70.4	76.7	64.1	1.35	6.44	0.05
July	71.4	77.3	65.4	1.98	7.45	0.22
August	72.1	78.3	66.0	1.50	4.15	0.17
September	72.2	78.8	65.4	2.16	8.85	0.24
October	71.4	78.1	64.5	2.81	11.44	0.07
November	69.7	76.4	63.0	3.84	16.53	0.16
December	67.3	73.8	60.7	4.65	10.40	0.19
ANNUAL	**69.2**	**75.7**	**62.7**	**38.65**	**66.87**	**17.06**