Ming Chew Associates *Consulting Real Estate Economists*

MARKET ANALYSIS

for

LIHUE/PUHI PROJECT DISTRICT PLAN

Prepared for

Grove Farm Properties, Inc.

February 1989

EXHIBIT F-1

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Ming Chew Associates *Consulting Real Estate Economists*

February 27, 1989

Mr. Ed Kuniyoshi
Belt Collins & Associates
680 Ala Moana Boulevard, Suite 200
Honolulu, Hawaii 96813

Dear Ed:

We are pleased to transmit the results of our Market Analysis for the expansion component of the proposed Lihue/Puhi Project District Plan, located at the boundary of Lihue and Puhi, Island of Kauai, State of Hawaii.

Our conclusions are summarized in Chapter I. The research and analyses upon which they are based appear in the body of the report.

Briefly, Kauai's economy has expanded recently as a result of growth in both tourism and construction. New projects completed in the past few years and corresponding increased household income, have increased housing demand faster than the housing industry has been able to build units, causing a present undersupply. Moreover, projects expected to be completed during the next few years will create still more housing demand. Since most of the new demand is expected to occur in the Lihue area, the Lihue/Puhi Project District Plan area is well-positioned to accommodate both the current pent-up housing demand, and projected new demand. Additional household spending from other growth in the region, including the proposed expansion, would generate demands for a sizable amount of retail commercial land use.

It has been a pleasure working with you on this very interesting and challenging assignment. Please let us know if we can be of further assistance.

Very sincerely,

MING CHEW ASSOCIATES

J. Ming Chew

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TABLE OF CONTENTS

ILLUSTRATIONS

Qualifications of the Consultant and Firm

I. ASSIGNMENT AND SUMMARY

A. Assignment

Our assignment has been to prepare a market study for the expansion component of the proposed Lihue/Puhi Project District Plan, located at the boundary of Lihue and Puhi, Island of Kauai, State of Hawaii. The results of this analysis are to be used to assist in preparing a petition to the Hawaii State Land Use Commission for a State land use boundary change of selected lands.

B. Approach

Relevant economic and market forces affecting the subject expansion were analyzed and converted to projections of residential and retail commercial demand. The demand projections were compared to estimates of current and anticipated supplies of such land uses in order to arrive at marketability conclusions for the proposed expansion.

The approach employs the Regional Economic Model, which indicates that economic activity is the driving force behind other types of activity in a region, such as employment, population and land use. Economic forces result in activities which create jobs. Jobs represent employment positions which are filled by workers. These workers, plus the unemployed, constitute the labor force.

At the same time, labor force availability is a function of population. That is, the number of available workers is usually a function of the number of persons of working age, which in turn, can be related to total population and households.

Thus, the demand for land uses such as residential and commercial can be estimated from analyses of economic activity, the resulting jobs and the associated population and households.

In this analysis, we have related the number of new jobs directly to estimates of new households and associated demand for new housing units. Estimated retail commercial demand was based upon projected regional growth.

C. Summary

1. The economy of Kauai, driven mainly by growth both in tourism and construction, has expanded rapidly in recent years.

2. Tourism has become the primary economic driving force on Kauai, and is expected to continue being the fastest growing segment of the Island's basic economy for at least the next several years.

3. Lihue is a major population and residential center on Kauai, and serves as its seat of government, as well as a center for business, transportation, retail trade, commerce, tourism and education.

4. Although tourism-related jobs have occurred in different resort areas around Kauai, including Lihue, most of the new population-support jobs have been generated in or near Lihue.

5. The area covered by Grove Farm's Lihue/Puhi Project District Plan has evolved into a major new community to support the continuing economic growth on Kauai. Current uses in the Plan area include moderate- and market-priced residential subdivisions, parks, Kukui Grove Center (the only large regional shopping center on the Island), Kukui Grove Village (commercial center), neighborhood commercial and light industrial land uses. Moreover, it is in close proximity to a wide variety of employment centers, transportation, schools and shopping.

6. Recently completed projects have created a large number of new jobs on Kauai. These new jobs have resulted in additional income, and thus new purchasing power and spending, and have generated demands for the types of land uses included in the proposed Lihue/Puhi Project District Plan.

7. As a result of new economic activity, and corresponding new jobs and households, housing demand on Kauai in the last few years has increased more rapidly than the homebuilding industry has been able to construct new units. As a result, there presently is an undersupply of housing units on the island.

8. Major projects currently under construction or planned for the next few years are expected to increase even more the number of jobs and labor force requirements in the community. As a result, housing demand on Kauai is projected to increase by about 600 units in 1989, 1,000 units during both 1990 and 1991, and 600 units

per year from 1992 to 1995.

9. About 60 percent of the resulting new jobs will be located in the Lihue area. With the large amount of population-support as well as other secondary economic activities in Lihue, about 70 percent of new jobs created by the projects would likely be located in Lihue.

10. Historically, population settlements gravitate toward economic activity centers (job centers). Thus, most of the new housing demand generated by projects expected to be completed in the next few years, is projected to occur mainly in or near Lihue.

11. Household incomes at almost all levels have increased faster than the rate of inflation, and are projected to continue doing so for the near future.

12. Higher household incomes indicate increased housing affordability. Nonetheless, housing demand is projected to expand across a broad range of prices.

13. Based upon housing demand projected for the Lihue market area, the residential units and subdivision lots in the proposed subject expansion could be absorbed during the five-year period from 1990 to 1995.

14. Projected growth on Kauai, and associated increases in household spending would generate demand for an additional 26 acres of regional retail land use from 1990 to 1995, and another 26 acres from 1995 to 2000.

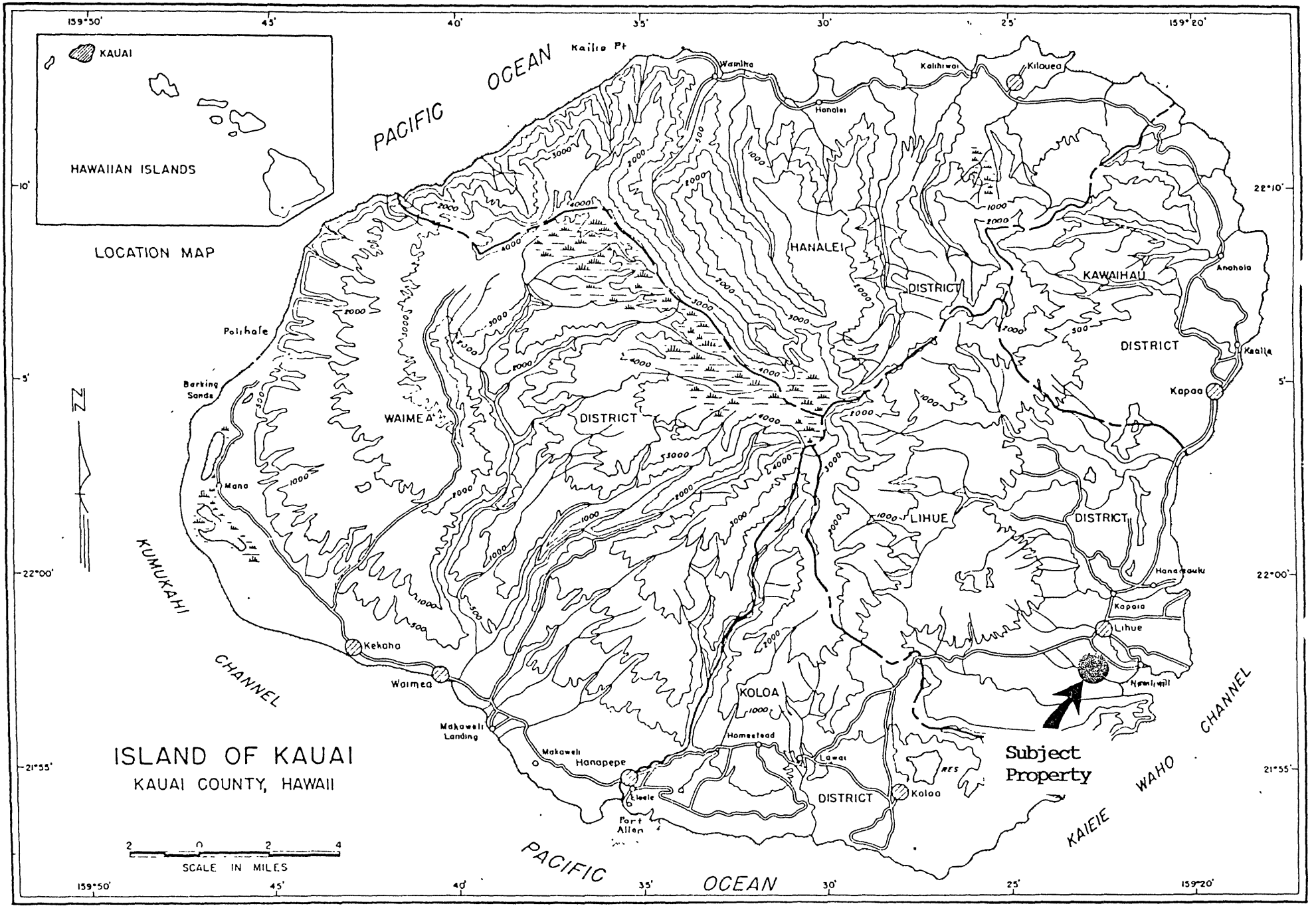

Figure 1. LOCATION MAP

II. DESCRIPTION OF THE REGION

Kauai, the Garden Isle, covers an area of approximately 549 square miles, making it the fourth largest island in the State of Hawaii. Roughly circular in shape, Kauai lies approximately 103 miles northwest of Oahu.

Kauai boasts a diverse range of weather conditions and vegetation. Mount Waialeale situated approximately in the center of the island, annually records rainfall in excess of 450 inches and is commonly referred to as "the wettest spot on earth." Conversely, portions of the island on the western or leeward side are typically dry. This wide variety of conditions has subsequently given rise to the growth and development of businesses and activities often tailored to the specific weather conditions of each particular area.

In West Kauai, the clear weather and expansive ocean area are conducive to the research activities at the Pacific Missile Range Facility of the U.S. Navy, located at Barking Sands.

Much of the land in the southwestern coastal and the south-central areas of Kauai are used for the cultivation of sugar cane. Waimea Canyon, the "Grand Canyon of the Pacific" and a popular visitor attraction, is also located in this district.

Sunny conditions in these areas also extend to the southern coastal area of Poipu, which has long been a popular visitor destination area.

Lihue is located in the southeastern portion of the Island of Kauai, and serves as the County seat for the County of Kauai. Lihue is a major population center, and also the center of commercial, transportation and government activities on the Island. Although, much of the land surrounding Lihue is used for cultivating and processing sugar cane, tourism industry facilities have developed to the east at Kalapaki Beach near Nawiliwili Harbor and to the north near Hanamaulu. Kauai's major inter-island air terminal is located in Lihue, as well as Nawiliwili Harbor, Kauai's main port facility.

North of Lihue is the Kawaihau District which is a large residential center, and includes a major resort district from Wailua to Kapaa. Visitor attractions include the Fern Grotto, Wailua River, Opaekaa Falls and Sleeping Giant Mountain. This resort district has the largest concentration of visitor accommodations and activities on the Island. It is centrally located for visitors who want to sightsee in either North Shore or West Kauai.

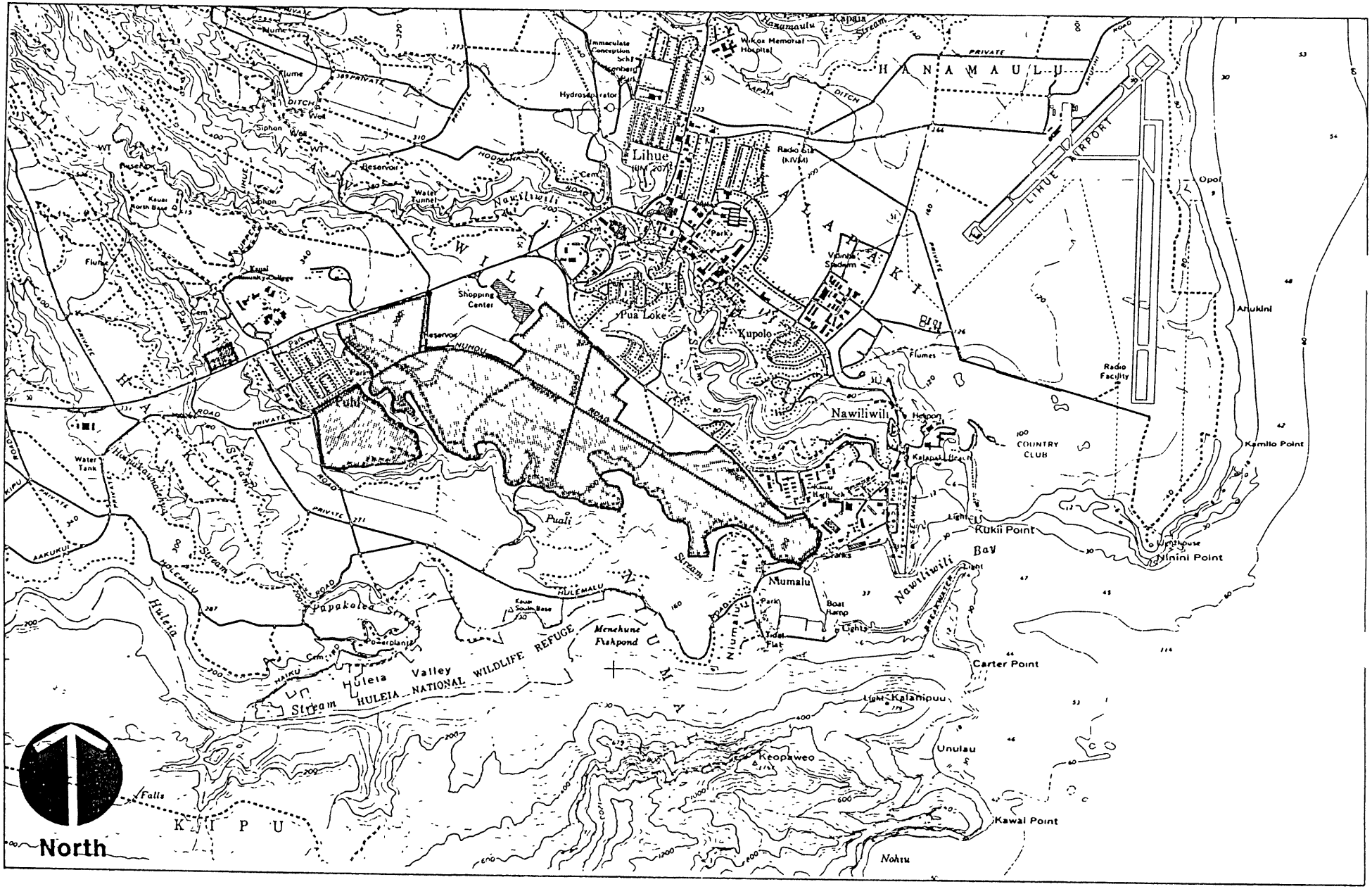

Figure 2.

ENVIRONS MAP

The greater rainfall of the North Shore is responsible for much of its scenic beauty and lush vegetation. The multi-shaded green taro patches in the Hanalei Valley, Lumahai Beach, the wet and dry caves at Haena and the Na Pali coast are a few of the attractions. Princeville, a residential resort community, is located in this region.

III. DESCRIPTION OF THE PROPERTY AND ENVIRONS

A. Property Description

The subject property is proposed to be developed as a component part of Grove Farm's more extensive and diversified Lihue/Puhi Project District Plan, shown in the facing illustrations.

It is bounded to the east by Nawiliwili Road and developed portions of the Lihue/Puhi Project District. To the north, the subject property is bounded generally by other developed portions of the Project District, and Kaumualii Highway, which is the primary east-west arterial in this part of Kauai connecting Lihue with Poipu and West Kauai. The southern boundary is a large, irregularly-shaped natural drainage basin.

In general, the property is gently sloping. A portion of the site is cut by a natural drainage channel. At present, the property is mainly in sugar cane cultivation and related uses.

Currently, the property is in the State Land Use Agriculture District. Most has been designated Urban Mixed Use in the Kauai General Plan. It is zoned Agriculture at present.

B. Environs

Grove Farm's Lihue/Puhi Project District Plan area has evolved into a major new community to support the continuing growth on Kauai. Current uses in the Plan area include moderate- and market-priced residential, parks, Kukui Grove Center (the only large regional shopping center on the Island), Kukui Grove Village (commercial center), light industrial and neighborhood commercial land uses.

The eastern boundary of the Project District is located about one-mile from central Lihue. Its southern boundary extends to Nawiliwili Harbor, and its western boundary encompasses Puhi. Grove Farm also has developed residential subdivisions just east of the Plan area, and donated the lands north of the Plan area on which Kauai Community College is now situated.

Development of Kukui Grove Center and Kukui Grove Village has shifted much of the retail and business activity out of central Lihue to the Lihue/Puhi Project District area. This trend should continue now that the acquisition of the Lihue Shopping

Center by the County of Kauai has occurred.

Thus, as land availability in Lihue declines, land use requirements to support Kauai's continued economic growth are expected to increase outside the central Lihue area.

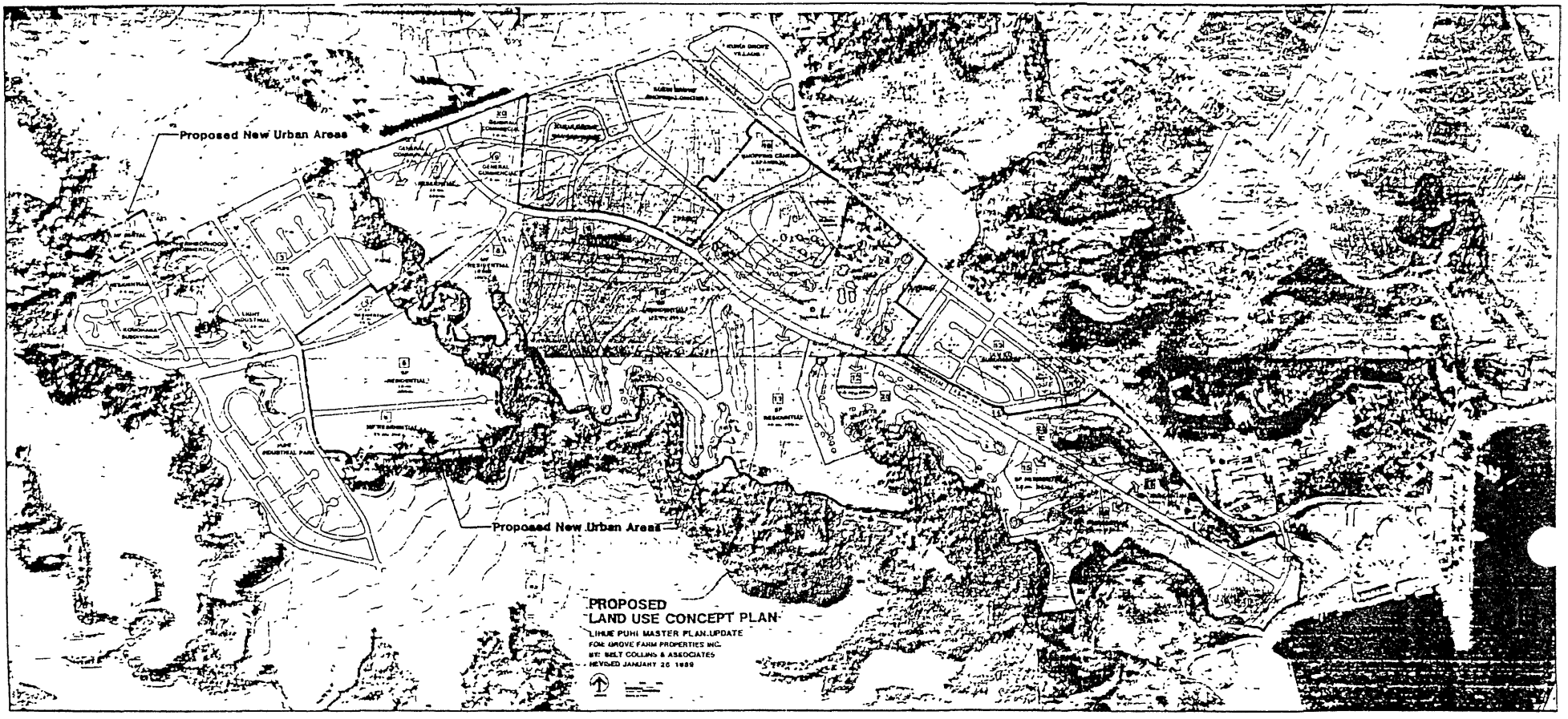

Figure 3. LIHUE/PUHI PROJECT DISTRICT PLAN

IV. DESCRIPTION OF THE PROPOSED PROJECT

The subject expansion proposed to complete the new community concept envisioned in the Lihue/Puhi Project District Plan. In addition to existing moderate- and market-priced residential, commercial and industrial land uses presently in the Plan area, the expansion would greatly increase residential use, add commercial use to accommodate anticipated regional economic and residential growth, and provide more recreational facilities in the form of a new 18-hole golf course and driving range.

Residential plans include a wide range of housing by type, quality and price range. In general, higher density, lower-priced residential units would be located in or near Puhi. Higher-priced, including market-priced, housing would be situated around the golf course fairways and along the bluffs overlooking Niumalu and Nawiliwili Harbor.

Additional commercial uses would be an extension of the existing regional retail commercial facilities, and be needed to accommodate new household spending from expected economic growth in the region, including spending from the proposed residential component of the subject expansion.

Preliminary plans indicate that the proposed expansion would encompass about 600 acres, and provide almost 2,000 new housing units.

V. ECONOMIC OVERVIEW

A brief synopsis of national economic conditions is presented to provide a background for the overview of local economic conditions.

Following October 19, 1987, "Black Monday" on the New York Stock Exchange, a key question has been what the impact of such a sharp stock market decline would be. At that time, most forecasters lowered their estimates of U. S. economic growth, and many predicted a national recession. The Japanese economy had been experiencing only slight growth, and the outlook was for continued slow growth.

Since that time, uncertainty among economic forecasters has persisted.

Yet, the U.S. economy has continued to grow at a steady though relatively strong rate, the Japanese economy has rebound sharply, the U. S. trade and budget deficits are declining, the Tokyo Stock Exchange Nikkei average is setting new highs and the New York Stock Exchange Dow Jones Industrial Average just reached a "post-crash" high. Foreign currency exchange rates appear to be stabilizing. And, although still fluctuating slightly, long-term interest rates since early 1988, have been relatively stable.

There appears to have been no technical recession, and, except for recent drought-impact fears, inflation has been moderate.

In 1988, monetary activity and therefore short-term interest rates were somewhat volatile as the Federal Reserve Board responded to high inventory numbers at the first of the year, reduced Japanese investments in the U. S. capital markets, and then effects of the farm-belt drought and rising commodity prices. The Federal Reserve seems intent on reducing inflation, and appears to be directing its policies toward that end.

Given these factors, we are of the opinion that the outlook for the U. S. economy is very favorable.

A. State

Economic growth in the State has for many years been driven mainly by expansion of its visitor industry. This is expected to continue for the near future.

Tourism and travel generally are related, to the economic conditions in the source market areas.

Although overall conditions have been relatively good in the U. S., westbound visitor growth to Hawaii has slowed. This pattern has been most apparent since the October 1987 stock market drop. Overall in 1987, westbound visitor arrivals to the State declined one percent from the prior year.

On the other hand, eastbound arrivals, consisting primarily of Japanese visitors, increased a sizable 18 percent. Much of the increase in Japanese visitors has resulted from efforts by the Japanese government to expand outbound travel as a means of offsetting its large trade surplus. Further, due to favorable currency exchange rates, Japanese visitors appear to have increased their spending while in Hawaii, even in terms of yen. While total visitor arrivals in 1987 increased 3.4 percent, total visitor expenditures increased and estimated 20 percent.

This pattern continued in 1988. Westbound visitor arrivals have been reported down about one percent from 1987, while eastbound arrivals were up over 17 percent. Total visitor arrivals in 1988 increased an estimated 5.8 percent over 1987, and total visitor expenditures increased about 25 percent.

From October 1987 to October 1988, the number of non-agriculture wage and salary jobs in the State rose 1.3 percent. State General Excise Taxes are projected to have increased 13 percent in the fiscal year which ended June 30, 1988, after adjusting for extraordinary items.

Thus, mainly as a result of large gains in visitor spending as well as construction, State economic growth has been very strong.

B. Kauai

The economic structure of Kauai is typical of the State's neighbor island communities, which have evolved from a traditional agricultural base.

The agricultural industry has always been land-intensive with emphasis on field production. This necessitated rural locations for operations. On the other hand, the major corporate headquarters and managerial offices have operated mainly out of urban Honolulu with secondary offices staffed at the local level. In recent years, however, the Island's economic structure has evolved away from a dependence on agriculture into a more diversified mix of primary and secondary industries.

Generally following the pattern of the State, economic growth on Kauai has, since Statehood, shifted toward tourism. Its favorable climate, lush foliage and striking geologic features have made Kauai popular for sightseeing and relaxation.

In fact, tourism has been the predominant force driving the economies of each of the major neighbor islands.

However, neighbor island activity has resulted mainly from visitations by westbound travelers. As mentioned earlier, the mix of State visitors has changed within about the last year or so. Although total State tourism activity has increased, the decline in westbound arrivals has slowed economic growth on the neighbor islands.

Nonetheless, from November 1987 to November 1988, the number of non-agriculture wage and salary jobs on Kauai increased 4.5 percent, or faster than the State as a whole. This has been due mainly to opening of the Kauai Lagoons resort and the Westin Kauai.

Meanwhile, the number of jobs in Hawaii County increased 7.0 percent, largely as a result of opening the Hyatt Regency Waikoloa. On Maui, the number of jobs actually declined 2.3 percent as no new major projects were completed.

Notwithstanding the current economic conditions on Kauai, an influx of new activity appears imminent. This new activity, discussed in the next Chapter, will provide additional market support for housing development for the next few years.

VI. PROJECTED ECONOMIC ACTIVITIES

The Methodology section pointed out that economic activity is the underlying basis for land use demand. Rather than using a generalized analysis of overall economic or job growth on Kauai, we identified a number of projects that would generate economic activity. The number of jobs associated with each project was then estimated. These results, in turn, are used in the next chapter to estimate households and housing demand.

A. Projected Activities

In order to simplify this analysis, only relatively large projects have been included. It is not possible, to identify every small operation or the expansions and contractions of others. Without the effects of such small projects, our estimates of economic growth are probably conservative.

A variety of sources, as well as our own knowledge of local activity, were used to compile a list of projects on the island. These were categorized by general type, and then estimates made of when construction and operations would commence, and their corresponding impacts on jobs.

The results are summarized in the Appendix.

The list includes resort, office, industrial, public works, retail and residential projects. A number of the projects are under construction, or about to begin shortly. Thus, within the next few years, the projects would create both construction and operating jobs.

B. Projected Jobs

The methodology for estimating jobs also considered only the impacts of major projects.

Usually, when doing regional economic analysis of this type, the number of "primary" jobs is first estimated. These are the number of jobs associated with economic activities that bring income, and thus, additional wealth, into the region. Much of this initial income is re-spent within the region. For example, workers holding "primary" jobs receive wages and salaries, a portion of which are then used to purchase food, clothing, housing and so on. This spending, in turn, creates even more jobs. And, increased local tax payments usually result in more government jobs. Thus, additional secondary

Table 1. **ESTIMATED JOBS FOR KAUAI MAJOR PROJECTS**

Type	1988	1989	1990	1991	1992
Resort					
Construction	120	500	800	820	200
Operating	420	300	950	1,190	400
Subtotal	540	800	1,870	2,010	600
Office					
Construction	30	50			
Operating		160			
Subtotal	30	210			
Industrial					
Construction		30	130	50	50
Operating			200	200	150
Subtotal		30	330	250	200
Public Works					
Construction	20				
Operating					
Subtotal	20				
Retail					
Construction	120	190	120	70	40
Operating		340	300	300	50
Subtotal	120	530	420	370	90
Residential					
Construction	100	230	280	230	210
Operating					
Subtotal	100	230	280	230	210
TOTAL					
CONSTRUCTION	390	1,000	1,450	1,170	500
OPERATING	420	800	1,450	1,690	600
GRAND TOTAL	**810**	**1,800**	**2,900**	**2,860**	**1,100**

Source: Ming Chew Associates

jobs are created as the "primary" income is re-spent. Applying a regional multiplier factor to the number of "primary" jobs, results in estimated total jobs created.

Projects shown in the Appendix are in various stages of completion. Some actually were completed and began operations in 1987, some are under construction currently, and others are expected to start construction soon.

Project jobs consist of those generated during the construction phase, as well as those during the operations phase. Jobs for operations, generally, are net new jobs. On the other hand, not all of the construction jobs are.

In order to estimate the total new jobs added by the new projects, we estimated when construction would start, when construction would be completed, and when regular operations would begin. Then, job factors were applied to each projects for each phase. Estimates were also made of the approximate year in which the jobs would occur.

The results are shown in Table 1. In it, estimated jobs are delineated by year, by type of jobs and by general category of project.

As mentioned earlier, though, not all construction jobs are net additions, since construction workers move among many projects. Therefore, we assumed that only one-fourth of the indicated construction jobs would be net new jobs. Then, the effective number of new jobs were re-estimated after deflating the number of construction jobs.

We estimate that the total number of new jobs created just by the major projects after adjusting for the net effect of construction jobs, will increase from about 420 in 1988, to about 950 in 1989, 1,560 in 1990, 1,620 in 1991 before dropping to about 430 in 1992.

In its report, **The Economic Impact of Tourism in Hawaii: 1970 to 1980**, the State Department of Planning and Economic Development (now the State Department of Business and Economic Development, DBED), estimated that the total in-state job multiplier is 2.7 for direct construction jobs and 1.9 for resort jobs. Since many of the secondary jobs are located on Oahu, we estimate that the on-island multipliers would be 2.0 for construction jobs, and 1.5 for resort jobs.

As mentioned, some of the proposed projects would consist of secondary activities. To provide for such secondary jobs already being included, the effective on-island job multiplier for the projects identified was lowered to 1.25.

Applying this factor to the project jobs estimated earlier, results in a forecast of 520 new jobs in 1988, 1,190 in 1989, 1,950 in 1990, and 2,020 in 1991.

Although our analysis of major new projects shows a slowdown in new jobs in 1992, we believe that actual growth on Kauai will be at a pace more in line with its recent growth. For example, the State Department of Labor and Industrial Relations (DLIR) reported that the number of wage and salary jobs on Kauai for July 1988 (approximating the average for 1988) was 20,800. Adding an estimated 3,700 non-wage and salary jobs would yield a total 24,500. This is an increase of 1,530 jobs per year from 1985. Including our estimate of new jobs for 1989 and 1990 would result in an average of 1,550 new jobs per year from 1985 to 1990.

Thus, in view of these relatively large job gains from 1985 to 1990, and our estimated 2,020 jobs in 1991, we have projected that the number of jobs on Kauai would increase by about 1,200 per year from 1992 to 1995.

II. HOUSING MARKET ANALYSIS

Recent subdivision sales activity on Kauai was analyzed for indications of current house sales rates and prices. Housing demand estimates were based upon projected jobs and households. Household incomes were estimated, and used to project the most marketable range of housing prices. Finally, estimates of marketability were made after assessing housing supply.

A. Current Residential Activity

Data were collected for selected Kauai subdivisions in the locations listed in Table 2. In general, the locations were chosen to reflect residential activity in a variety of geographic areas. Where possible, the subdivisions were selected in each town or residential district. Lihue was delineated between the Grove Farm subdivisions in or adjacent to the Lihue/Puhi Project District, and the others developed around central Lihue.

Our results showed sales activity for both homes and houselots. As such, we delineated our analysis into these two types of properties.

1. Housing Unit Sales

Table 3 shows the rate of sales and the average sales prices of houses by selected location. The number of sales generally declined from 1987 to 1988. Although the data for 1988 consist of recordings only through September, even if the 1988 rate is projected for the full year, it would appear that total sales still declined in 1988.

Two price patterns can be seen.

The first is that sales prices of single-family housing increased **sharply** from 1987 to 1988. Higher prices could have caused the slower sales rate in 1988. Sharply rising prices also indicate relatively strong housing demand compared to the available supply.

The other pattern is a price gradient based upon geographic location. For almost each of the time periods, the average sales prices for single-family units were higher in the resort region of Poipu and Princeville. Subdivisions developed in Lihue by Grove Farm achieved the next highest prices. Finally, when resort

Table 2. LOCATIONS OF SELECTED RESIDENTIAL SUBDIVISIONS

1. Eleele
2. Kalaheo/Lawai
3. Poipu
4. Puhi
5. Lihue (Grove Farm)
6. Lihue (Other)
7. Hanamaulu
8. Wailua
9. Kapaa
10. Kilauea
11. Princeville

Source: Ming Chew Associates

Table 3. **ANALYSIS OF KAUAI RESIDENTIAL SALES**

		1987		1988(1)	
		No.	Ave. Price	No.	Ave. Price
1.	Eleele	2	$ 93,100	2	$127,500
2.	Kalaheo/Lawai	24	129,700	13	155,300
3.	Poipu	7	258,700	9	297,900
4.	Puhi	2	110,500	3	124,700
5.	Lihue (Gr.Farm)	6	166,800	6	161,700
6.	Lihue (Other)	15	119,100	6	143,000
7.	Hanamaulu	12	78,600	0	-
8.	Wailua	68	129,300	32	145,400
9.	Kapaa	34	94,200	17	108,200
10.	Kilauea	12	101,200	9	145,800
11.	Princeville	27	217,200	24	268,300

(1) Through September 1988.

Source: Ming Chew Associates

properties are excluded, prices for housing located farther from Lihue generally are lower than those closer to and in Lihue.

This latter pattern suggests a perceived relative quality and desirability among different residential areas on Kauai. More particularly, we believe that it reflects the desire of residents to live closer to their jobs, shopping, businesses, and supporting services, and especially, the desire to avoid the increasingly heavy commuter traffic.

2. Houselot Sales

Table 4 shows Kauai houselot transaction data for the same 1987-to-1988 period. Again, 1988 data are through September only.

Houselot sales also declined from 1987 to 1988, even after adjusting for partial data for 1988. The drop would have been even more if Grove Farm's Ulu Ko subdivision had not become available.

Houselot prices also were **sharply** higher from 1987 to 1988. However, in contrast to the relatively clear geographic price pattern observed for housing units, excepting the resort properties, price differentials among the various areas for houselots were not nearly as great.

B. Housing Availability

The Kauai Board of Realtors publishes the Multiple Listing Service, which lists real estate properties for sale through its member realtors. Although not always complete, it does provide a good indication of available properties. This was used to compile a list of residential properties being offered on Kauai, with corresponding prices. Table 5 shows properties that were available in September 1988 in the same subdivisions in which the previous sales data were compiled.

Despite the sharp increases in sales prices from 1987 to 1988 shown earlier, **current offering prices are even more sharply higher!** Such higher asking prices probably reflect a broad awareness of the current lack of housing supply on Kauai.

If resort properties are excluded, the number of housing units listed represent a five-month supply

Table 4. **ANALYSIS OF KAUAI HOUSELOT SALES**

		1987		1988(1)	
		No.	Ave. Price	No.	Ave. Price
1.	Eleele	16	$ 54,400	9	$ 55,700
2.	Kalaheo/Lawai	41	57,400	9	85,600
3.	Poipu	46	96,500	41	118,200
4.	Puhi	3	47,400	2	52,500
5.	Lihue (Gr.Farm)	42	54,700	76	62,000
6.	Lihue (Other)	14	49,500	4	85,500
7.	Hanamaulu	4	56,600	2	54,700
8.	Wailua	70	49,500	30	58,700
9.	Kapaa	38	40,200	6	50,700
10.	Kilauea	29	46,700	8	48,100
11.	Princeville	73	69,200	60	75,100

(1) Through September 1988.

Source: Ming Chew Associates

Table 5. **ANALYSIS OF KAUAI HOUSING AVAILABILITY**

		Houses		Houselots	
		No.	Ave. Price	No.	Ave. Price
1.	Eleele	1	$195,000	0	-
2.	Kalaheo/Lawai	8	201,600	5	$ 80,900
3.	Poipu	8	415,600	17	216,800
4.	Puhi	2	140,800	0	-
5.	Lihue (Gr.Farm)	10	208,000	6	90,200
6.	Lihue (Other)	7	264,800	0	-
7.	Hanamaulu	4	221,000	0	-
8.	Wailua	29	208,000	6	71,400
9.	Kapaa	12	134,200	1	55,000
10.	Kilauea	4	183,400	1	109,000
11.	Princeville	49	306,900	53	116,900

Source: Ming Chew Associates

based upon 1987 full-year sales, and the number of houselots listed represent only a one-month supply based on 1987 sales. Thus, the slowdown in sales activity indicated earlier, could have been caused both by high prices, and lack of supply.

These levels of inventory, relative to estimated demands, are indicative of tight market conditions.

C. Projected Housing Demand

Major determinants of housing demand are growth in the number of households, income and employment patterns, financial conditions, and finally, space, convenience and style preferences.

Nonetheless, the main determinant of demand is growth in the number of households. This, in turn, results from growth in the population, demographic changes, household income, and to some degree, social changes.

Net household change is a function of employment opportunities. If jobs are plentiful, households tend to remain in the area, and population growth occurs from natural increase, the net of births over deaths. High levels of job opportunities also attract immigrant workers from other areas who form new households by themselves, with their families or with unrelated individuals. Job opportunities are important since they provide the financial means for households to purchase or rent housing, pay for basic needs, and raise living standards.

Job opportunities depend upon the economic forces bearing on a particular locality, as well as the whole region. However, labor markets are not 100 percent efficient. Usually, some unemployment also exists, since some workers are in the process of finding employment, some are in transit from one job to another, and so forth. Thus, it is the size of the labor force, and not just the number of persons who are employed, that is the effective determinant of housing demand.

We simplified our analysis by estimating the job impacts of only major projects currently underway or scheduled to begin soon. The preceding Chapter indicated that the major projects, after adjusting construction employment to reflect only net new jobs, result in an estimated 520 new jobs in 1988, 1,190 in 1989, 1,950 in 1990, 2,020 in 1991, and 1,200 per year from 1992 to 1995.

Our estimate of housing market demand is probably low. First, it does not include demand created by minor projects or by future growth of existing economic activities. Second, it does not include increments for in-migration which are not related to the economy such as retirees, for second-homes, housing vacancies, or for unemployed householders.

The U. S. Bureau of the Census reported that in 1980, there were 1.5 employed persons per household on Kauai. In fact, in relatively new growth areas, where economic activity has generally exceeded housing development, this ratio usually is higher than normal. Thus, as housing conditions tighten on Kauai, we have projected that the ratio for new housing demand could get as high as 2.0.

Applying this ratio to the number of projected new jobs indicates that about 300 new households were formed in 1988, about 600 would be formed in 1989, 1,000 in 1990 and 1991, and 600 per year from 1992 to 1995.

A household is the group of people which occupies a housing unit. Thus, new households represent the quantitative demand for housing units.

Most of the new projects are in East Kauai, mainly in Lihue. Since preferences for housing location generally gravitate toward the same geographic location where jobholders work, most of the new housing demand is expected to occur in the Lihue market area. Also, there could be overflow demand if other job centers do not have enough nearby resident housing available.

D. Projected Housing Prices

Housing prices in a market area depend mainly on supply and demand factors, development costs, alternatives available and affordability. The last factor, affordability, is mostly a function of household income and financing.

Our analysis indicates that the average annual family income for Kauai in 1988 was about $36,800. This is based upon data from the U. S. Census of 1970 and 1980, which showed that the median family income on Kauai increased at the rate of 7.7 percent per year from 1969 to 1979. Meanwhile, the Honolulu Consumer Price Index (CPI) increased only at the rate of 6.5 percent per year. Thus, median family income increased 1.2 percent per year faster than the Honolulu CPI.

From 1979 to 1988, the Honolulu CPI grew at the rate of 5.5 percent per year. We estimate that family incomes increased at 1.0 percent per year more, or at the rate of 6.5 percent per year. Escalating the Kauai 1979 median family income at 6.5 percent per year results in our estimate of $36,800 in 1988.

Median family income then was projected to 1995 assuming that it would continue to increase in constant dollars at the rate of 1.0 percent per year. Thus, in 1995, median family income on Kauai is estimated to be $39,500 in 1988 dollars.

Also, family income distribution was estimated for 1988, and projected to 1995, using techniques employed by the U. S. Department of Housing and Urban Development (**FHA Techniques of Housing Market Analysis, 1970**). The results are shown in Table 6.

As mentioned, real median income of families on Kauai is projected to continue rising. This occurs generally as a result of increasing incomes among most, if not all, income groups. Table 6 shows that there is a gradual upward shift in the portion of families in the higher income categories. At the same time, there is a gradual decline in the portion of families in the lower income groups.

At the lower end, say under $20,000, the percent of families declines from 22 percent in 1980, to 17 percent in 1995. The largest segment of families, those with incomes from $20,000 to $50,000, is also forecast to decline, from 63 percent in 1980, to 55 percent by 1995. All of the gains are expected to occur in the $50,000-and-over category, which is projected to increase from 15 percent of families in 1980, to 28 percent by 1995.

Generally, under today's financing conditions, the housing affordability factor is estimated to be about 3.3 times annual income. Table 7 shows the resulting range of housing price affordability for selected income categories.

Within the local market, housing target groups are generally designated by how their incomes relate to the estimated median family income. For Kauai, in 1988, the local office of the U. S. Department of Housing and Urban Development (HUD) set $31,500 as the median income for a family of four.

Table 6. **ESTIMATED KAUAI FAMILY INCOME DISTRIBUTION 1980-1995**

Income Category(1)	1980	1988	1995
Under $10,000	9%	8%	6%
$10,000-$19,999	13	11	11
$20,000-$29,999	19	16	15
$30,000-$39,999	26	23	19
$40,000-$49,999	18	20	21
$50,000-$59,999	9	12	14
$60,000-$69,999	4	5	7
$70,000+	2	5	7
Total	**100%**	**100%**	**100%**
Median	$33,700	$36,800	$39,500

(1) Income figures in constant 1988 dollars.

Source: Ming Chew Associates

Table 7. **ESTIMATED HOUSING AFFORDABILITY BY INCOME CATEGORY**

Income Category	Estimated Housing Affordability(1)
Under $10,000	Under $33,000
$10,000-$19,999	$33,000 - $66,000
$20,000-$29,999	66,000 - 99,000
$30,000-$39,999	99,000 - 132,000
$40,000-$49,999	132,000 - 165,000
$50,000-$59,999	165,000 - 198,000
$60,000-$69,999	198,000 - 231,000
$70,000+	231,000+

(1) Affordability estimated to be 3.3 times annual income.

Source: Ming Chew Associates

HUD then defines "market" housing as housing for groups having incomes more than 140 percent of the median that it sets. "Affordable" housing targets families having 140 percent or less of the area's designated median.

Based upon an analysis by the Kauai County Housing Agency (**Assessment Report on Kauai's Housing Needs, October 1987**), the Agency has estimated, using a number of assumptions including a 9 percent home mortgage loan rate, that "market" housing in 1988 would be priced at over $154,000. Housing priced at $154,000 or less, would be "affordable" units.

This threshold price delineating "affordable" and "market" housing will change over time, as changes occur in the median family income established by HUD, or as other factors, such as mortgage loan rates, change. Historically, the threshold price has increased over time.

Earlier, in Table 3, it was seen that, except for sales in resort areas, most of the 1987 and 1988 residential sales were in the "affordable" range. The exceptions were sales in subdivisions developed by Grove Farm, in which the average sales prices were slightly above the threshold price for the "market" housing units. Although the Grove Farm projects were in the "affordable" range initially, market forces have driven the prices upward. Similarly, average sales price in Kalaheo/Lawai rose from "affordable" in 1987, into the "market" housing price range in 1988.

Further, Table 5 shows that, except for Puhi and Kapaa, recent average asking prices for houses offered for sale, have now escalated out of the "affordable" price range into the "market" price range. For our own purposes, we consider houses on Kauai to be in the "luxury" category currently if they are priced above about $200,000. Thus, Table 5 also shows that, except for Puhi, Kapaa and Kilauea, "luxury" prices now are being asked for available houses.

On the other hand, the data in Tables 6 and 7 show that in 1988, most of the families on Kauai were in the income categories that placed them in the "affordable" target group.

Excluding the "low" income target group, with incomes of about $25,000 or less for a family of four (qualifying for houses priced at about $82,000 or less) because this group usually needs special

governmental assistance, we estimate that in 1988, the "affordable" target group comprised 56 percent, and the "market" group 44 percent of the "non-assisted" target groups. By 1995, we estimate that the "affordable" target group would drop to about 50 percent, and the "market" group would increase to 50 percent of the local market potential, not including the "government-assisted" target group.

This analysis indicates that the relative high prices prevailing in the Kauai housing market are due more to the current lack of housing supply, than to extraordinarily rapid increases in family incomes. In fact, the rapidly increasing housing prices probability mean that many families in the "affordable" target group have been excluded from the current housing market because of the prices.

Therefore, the current high prices being achieved in the local housing market probably do not reflect accurately, the current market needs. It is very likely that large increments of demand exist for housing priced in the "affordable" range.

Nonetheless, housing affordability is increasing, as indicated by constantly rising family incomes. Further, our projected distribution of family incomes indicates that the higher income groups, particularly the "luxury" group, would achieve the fastest growth rate from 1988 to 1995.

Thus, in addition to broad demands, including current pent-up demands for housing priced in the "affordable" range, we project increasing demands for "market" housing, including rapidly growing demands for product in the "luxury" category.

E. Anticipated Residential Supply

Table 8 lists proposed major residential projects and estimated units in each, not including those proposed in the subject expansion. The table also shows the approximate timing of the projects.

Waialeale Estates, is being developed by Waialeale Partners, and would have house and lot packages available beginning in 1989. Most of the others are projected to begin offering housing products in about 1990 and 1991.

In the immediate Lihue market area, 180 multi-family units have been built in Phase 2 of Kalapaki Villas in central Lihue, and about 210 units are to be built at Hanamaulu by the Charles River group.

Table 8. PROPOSED MAJOR RESIDENTIAL PROJECTS ON KAUAI

Projects(1)	Number and Type of Units	Estimated Completion
Hanapepe Heights - Housing Fin. and Dev. Corp.	300 SF house&lot	1992-1993
Kukuiula - A & B	500 MF 740 SF lots	1991-1995
Komohana - Kauai County Housing Agency	13 SF house&lot	1990
Kalapaki Villas (Lihue)	180 MF	1989
Molokoa - Amfac/JMB	560 SF lots	1991-1995
Hanamaulu - Amfac/JMB	330 SF lots	1991-1993
Hanamaulu - Charles River	210 MF	1990
Kapaa - Waialeale Partners	240 SF house&lot	1989-1991
Kilauea - Kilauea Realty	90 SF lots	1990

(1) Does not include Grove Farm Properties projects in the proposed subject expansion.

Source: Ming Chew Associates.

Also, two projects that would provide a large number of single-family subdivision lots are planned in the immediate Lihue market area. Both had been proposed by Amfac, Inc., before its merger with JMB Realty Corporation to form Amfac/JMB Hawaii, Inc. Their development schedules were uncertain before the merger, and still seem to be. Nonetheless, at present, the estimated completion dates shown are considered reasonable.

Two "government-assisted" housing projects are a small 13-unit project at Komohana by the Kauai County Housing Agency, and a 300 house-and-lot project at Hanapepe to be developed by the State of Hawaii Housing Finance and Development Corporation.

In Poipu, Alexander & Baldwin is preparing to build the first phase of its Kukuiula project. It would contain 500 multi-family units to be sold to Kauai residents, and another 500 multi-family units that would be marketed to visitors for resort use. This phase would also include about 740 single-family subdivision lots, which would be offered first to Kauai residents.

F. Estimated Marketability

Our analysis of housing demand and supply for the past few years, particularly the very rapid housing price increases recently, indicates a undersupply of housing, and thus a current pent-up demand for housing, on Kauai at present. Since most of the recent economic activity has occurred in or near Lihue, we estimate that much of the unfilled demand would be for housing in the Lihue market area. Such backlog would enhance marketability of the proposed subject expansion of the Lihue/Puhi Project District.

In addition, other market forces provide strong support for the proposed expansion.

The analysis of anticipated economic activity shows that about 60 percent of the new jobs forecast to be created by planned major projects would be located in, or adjacent to Lihue. With associated secondary jobs, and secondary jobs resulting from growth of currently existing economic activities, we project that at least 70 percent of total new Kauai jobs in the next several years would be in the Lihue market area.

Residents generally prefer to live close to their place of work. Since most of the projected new

jobs would be in Lihue, and since Lihue has a wide range of population-support services, we believe that most of the persons filling the new jobs would want to live in Lihue.

Another component of housing demand will be from current residents who wish to upgrade the quality of their homes. This occurs when better quality housing or projects with more desirable amenities are made available. Further, incomes are rising and affordability is increasing. Upgrading already has occurred in existing Grove Farm projects, as previous owners in the Puhi and Komohana projects have sought to upgrade their residences by buying in the Ulu Ko project. When the proposed golf course is built, upgrade demand from local residents for fairway lots is certain to occur.

In a prior section, we indicated that estimated housing demand generated by major new projects on Kauai was about 300 units in 1988, 600 in 1989, 1,000 per year for 1990 and 1991, and 600 per year for 1992, 1993, and 1994. This totals 4,700 from 1988 through 1994 (1988 to 1995). A factor of 70 percent was applied to the Kauai total to get an potential demand estimate of 3,290 units for the Lihue market area. This includes any increment of pent-up demand that also exists.

From Table 6, which shows estimated family income distributions, about 41 percent of all families were in the "affordable" target group in 1988, and 37 percent were in 1995. About 32 percent were in the "market" group in 1988, and by 1995, 38 percent were. As a rough approximation of the proportion of new demand attributable to each category, we averaged the associated percentages for 1988 and 1995. That is, we estimated that the "affordable" group would comprise 39 percent of the new demand from 1988 to 1995, and the "market" group would be 35 percent.

Applying these percentages to the Lihue demand from 1988 to 1995, results in a projected need for 1,280 new "affordable" units, and 1,150 "market" units.

"Affordable" units may be in the greatest demand, relative to supply, on the whole island. If such units were made available in the Lihue/Puhi Project District, actual demand for the units could exceed the preceding forecast.

No major new residential projects were developed in Lihue during 1988, or so far in 1989. Only Grove

Farm's 164-lot Ulu Ko Subdivision, completed and essentially sold-out in 1987, has been available to accommodate the housing demands generated during 1988 and 1989.

Thus, housing supply continues to lag demand in the Lihue market area.

Of the housing projects in the Lihue area, the 180-unit Phase 2 of Kalapaki Villas has been completed, and start of the 210-unit project at Hanamaulu appears imminent. Both are multi-family projects.

Although our housing demand figures are based upon the need for completed units, houselot projects do not produce completed houses immediately. Some purchasers will buy in order to build immediately or in anticipation of building in the future. Some buy in desired areas when lots become available. Others buy because they believe that prices will increase before they, their children, or their relatives are ready to build. Many buy when they can afford a lot, but before they can afford to build a house; then, pay off the lot, and use their equity in the land to finance construction of their houses later. Still others may buy for investment purposes.

Research that we have conducted indicates that house construction can occur many years after the houselots are made available or purchased (**Analysis of Local Residential Market Potential, Princeville Phase Two, July 1983, Ming Chew Associates**, exhibit to Princeville Development Corporation petition to the State of Hawaii Land Use Commission, Docket No. A83-533). This study found that even if houselots sell quickly, the experience of many projects in the State was an average build-out rate of 25 percent within the first five years, and a 50 build-out after about ten to 15 years.

As such, most subdivision houselot projects usually sell within their first five years, an average of <u>four times</u> as many lots as there are houses built.

This is partly reflected by data on recent Kauai transactions contained in Tables 3 and 4, which show that houselots have outpaced house sales by almost two-to-one. Even though sales, that is, demand, for houselots has been greater than for houses, Table 5 shows that the number of houselots offered through the Kauai Multiple Listing Service is less than the number of houses offered.

Grove Farm's Ulu Ko project has achieved a faster pace of house construction. The project sold quickly when offered in the late Summer of 1987. By the end of 1988, house construction had either been completed, or at least begun, on almost half of the houselots. The faster build-out rate is attributable to Grove Farm recognizing the tight market conditions that existed, and therefore stipulating a relatively rapid building requirement in the lot sales contracts.

Thus, houselot marketability is projected to exceed the sales of completed housing units. Once balance is achieved between housing demand and supply, we estimate, conservatively, that houses would be completed on about half of the houselots that could be sold within the same general time period. This means, conversely, that **twice** the number of lots as housing units could be marketed during the same period of time.

At present, schedules for the two single-family subdivision houselot projects by Amfac/JMB are not certain. Optimistically, these projects might be completed within the period from 1990 to 1995. If so, of the total 890 planned lots, 450 new housing units might be built during this period.

With the anticipated new housing supply becoming available, we would expect that the rapid building pace experienced in Ulu Ko subdivision would not be achieved in all new projects. Nonetheless, we have projected that the proposed new projects in the subject expansion could easily sell houselots at twice the rate that houses are likely to be built.

Our marketability estimates are shown in Table 9.

In it, we show the projected Lihue market area housing demand discussed earlier. Estimated market area supply was subtracted to arrive at potential unfilled demand. As seen, projected houselot sales were divided by two, to reflect estimated single-family housing units completions.

Unfilled demand in Lihue from 1988 to 1995, after adjustments and deducting projected supply, is projected to be 790 units of "market" housing, and 800 units of "affordable" housing, or a total of 1,590 housing units.

Then, the potential demand was compared to the number of units proposed in the subject expansion.

Table 9. **MARKETABILITY ANALYSIS - 1988 -1995**

Proposed Lihue/Puhi Project District Expansion

Housing Type	Estimated 1988-1995 Lihue Demand	Supply Excluding Proposed Subject Expansion	Estimated Unfilled 1988-1995 Lihue Demand	Proposed Subject Expansion
				(1)
"Market"				
MF units		180		225
(SF lots)		(355)		(644)
SF units (2)		180		322
Total units	1,150	360	790	547
"Affordable"				
MF units		210		596
(SF lots)		(535)		(296)
SF units		270		148
Total units	1,280	480	800	744
Combined				
MF units		390		821
(SF lots)		(890)		(940)
SF units		450		470
(Total, with lots)		**(1,280)**		**(1,761)**
TOTAL UNITS	**2,430**	**840**	**1,590**	**1,291**

MF - multi-family
SF - single-family

(1) Excludes 200 low-income MF rental units.
(2) SF **units** equal to 50% of projected **lot sales**.

Source: Ming Chew Associates.

Our housing analysis has been limited to estimated demands for "market" and "affordable" housing, and not "government-assisted" housing for low-income households. Yet, the proposed subject expansion includes plans for a 200-unit multi-family project with relatively low rental rates. It is more characteristic of housing for low-income tenants. As such, it responds to demands for "assisted" housing, and is not included in the proposed new supply of "market" and "affordable" housing.

Without this project, the proposed Lihue/Puhi Project District expansion would include 821 multi-family units, and 940 single-family subdivision lots. After adjusting houselot sales to reflect anticipated housing unit completions, we estimate that the expansion would provide 547 "market" units and 744 "affordable" housing units, or a total of 1,291 units by 1995.

Aggregate unfilled Lihue demand of 1,590 units by 1995, would exceed the 1,291 units in the subject expansion by about 300, or a factor of 1.2. This results from the sizable demand of 790 units of "market" housing units relative to the 547 units of proposed supply. The demand-to-supply factor for "market" housing would be 1.4.

Estimated demand for "affordable" housing would also exceed the amount that would be supplied by the proposed subject expansion. This excess would be only 1.1 times the proposed supply, and still does not account for potential increments of pent-up demand.

Our marketability analysis indicates that by 1995, projected housing demands in the Lihue market area would exceed the number of units likely to be built in the proposed subject expansion of the Lihue/Puhi Project District. Also, market forces affecting houselots sales indicate that all of the planned houselots could be marketed by 1995, even though houses are not likely to be built on all of them by 1995. Nonetheless, such lots would likely have houses constructed on them shortly thereafter.

Thus, the subject proposed expansion not only would alleviate rising housing market pressures which have caused a rapid rise in Kauai housing prices, it would mitigate future market imbalances by continuing to have lots available to respond to demands beyond 1995.

VIII. RETAIL MARKET ANALYSIS

Retail market activity on Kauai is influenced both by resident spending and by visitor spending. Resident spending is normally delineated into convenience goods, such as groceries and other daily needs, and shoppers goods, such as "big-ticket" and specialty items. Local residents usually shop for convenience goods close to where they live. For shoppers goods, residents are willing to drive farther from their homes and do more comparative pricing. Visitors usually do most of their shopping close to where they stay, or at resort centers and specialty stores.

However, these normal patterns are not strictly observed on Kauai because of other influences.

The primary force has been development of Kukui Grove Center as the largest retail complex on Kauai, and the only true regional shopping center on the island. This center has broad attraction to all residential parts of Kauai. Its retail outreach is enhanced further by being convenient to the large number of residents who commute to the large number of job centers and activities in Lihue. Thus, many residents who may reside far away, appear to do a large amount of their shopping in Lihue, while they are in Lihue for work or other purposes. As much of their shopping, even for convenience items, is done at Kukui Grove Center, the center's regional market penetration among residents is high.

Regarding the visitor market, Kauai is renown for its spectacular scenery. Therefore, sightseeing is one of the most popular visitor activities on Kauai. Earlier, we mentioned in the description of the region, that some of the most popular attractions are in West Kauai around Waimea, in East Kauai near the Wailua River, and in the North Shore around Hanalei. As such, most visitors to Kauai, in the course of their sightseeing, travel past Kukui Grove Center. Also, many visitors prefer to shop where local residents do, thinking that the prices are more favorable. Thus, the Center is in an excellent position to attract a relatively large share of visitor expenditures.

A. Resident Retail

Forecasts of retail demand were determined by estimating who makes retail purchases in a market area, how much they spent for retail items and what sales volume is likely to be made per unit area of retail space.

We used projections made by DBED (**Population and**

Economic Projections for the State of Hawaii to 2010 (Series M-K), November 1988, Table 7, Page 12) to estimate new expansion demand for the existing regional retail complex in the Lihue/Puhi Project District.

Projections of total personal income on Kauai which DBED had prepared in 1982 dollars were converted to 1988 dollars using changes in the Honolulu CPI.

Estimates of the proportion of retail expenditures to total income based upon data compiled by the U. S. Bureau of Labor Statistics (**The State of Hawaii Data Book, 1987, Table 441, Page 418**) were applied to the projected increase in total personal income.

Estimated gains in total resident retail spending were converted to estimates of retail space demand using a sales generation factor which we estimate to be $250 per square feet at present for local resident retail expenditures.

Current site coverage at Kukui Grove Center is estimated to be about 21 percent, which we consider to be slightly high by industry standards. Kukui Grove Village is lower density with site coverage amounting to about 13 percent. Retail growth is expected to require expansion of both the shopping center and the types of uses in the commercial village. In addition, a number of other relatively low density needs, such as automotive sales and other free-standing uses, can be expected. Thus, we project that a site coverage factor of 15 percent would be reasonable for future retail expansion around Kukui Grove Center.

At present, we estimate that the Kukui Grove Center achieves about a 50 percent penetration in the local resident retail market. We expect that at least this much of projected new local retail sales growth could also be captured in the subject expansion.

Table 10 shows the results of our resident retail analysis. From 1990 to 1995, retail land use demand is projected to require 20 more acres. From 1995 to 2000, we forecast the need for still another 20 acres.

B. Visitor Retail

Retail land use demand attributable to growth in visitor retail expenditures was estimated in a similar fashion.

Table 10. **ESTIMATED KAUAI RESIDENT RETAIL DEMAND 1990-2000**

	1990	1995	2000
Projected Personal Income			
Millions of 1982 Dollars	$630	$790	$945
Millions of 1988 Dollars	$791	$992	$1,186
Increase from Prior Period (millions of 1988 $)		$201	$194
% Retail Expenditures		33%	33%
Estimated Retail Expend. (millions of 1988 $)		$66	$64
Estimated Retail Space, Sq. Ft. @$250/Sq. Ft.		264,000	256,000
Land Area @ 15% coverage, Acres		40 Ac.	39 Ac.
Estimated Capture at Lihue/Puhi Project Dist.		50%	50%
Estimated Land Use Demand, Lihue/Puhi Project Dist.		29 Ac.	20 Ac.

Source: Ming Chew Associates

DBED's report also included projections of the average daily visitor census for Kauai. Presently, most of the visitors staying overnight on Kauai are westbound visitors. Westbound visitors spend less than eastbound visitors, although we suspect that most of the eastbound visitor expenditures are spent on Oahu. For our calculations, we assumed that visitor retail expenditures would be made by westbound visitors only. Thus, our estimates could prove to be very conservative if the Kauai visitor industry is successful in attracting a larger share of the eastbound visitors than at present.

Using the DBED projections, we estimated the gain in average daily visitor census from 1990 to 1995, and from 1995 to 2000.

Preliminary westbound visitor expenditure data for the first three quarters of 1988, averaged $116.37 per day per visitor. In 1987, the average daily expenditure for westbound visitors during the first three quarters, approximated the annual average. In light of this, the 1988 figure seemed to be a reasonable estimate for the whole year average.

Visitor expenditures surveys conducted by the Hawaii Visitors Bureau indicate that about 25 percent of westbound visitor expenditures are for retail items.

Resort retail space usually achieve higher sales per selling area than do those oriented toward local resident spending. Currently, we estimate that the sales generation rate for resort retail is about $350 per square foot of retail space.

As with resident retail space, we estimate that the site coverage ratio would be 15 percent.

Although Kukui Grove Center is mainly a regional retail center for residents, it's location and size also attracts spending from visitors. Current estimates place visitor spending in the Center at about 20 percent of total sales. This represents about 25 percent of estimated visitor-oriented retail supply. Even though new resort retail space is being built, and planned, we estimate that the proposed expanded retail complex around Kukui Grove Center could continue to attract about 25 percent of net new visitor spending.

Table 11 shows the results of our visitor retail demand analysis. Six acres of retail land use

Table 11. **ESTIMATED KAUAI VISITOR RETAIL DEMAND 1990-2000**

	1990	1995	2000
Projected Average Daily Visitor Census	16,700	21,400	26,800
Increase from Prior Period		4,700	5,400
Annual Expenditures @$116.37 per day (millions of 1988 $)		$200	$229
% Retail Expenditures		25%	25%
Estimated Retail Expend. (millions of 1988 $)		$50	$57
Estimated Retail Space, Sq. Ft. @$350/Sq. Ft.		143,000	163,000
Land Area @ 15% coverage, Acres		22 Ac.	25 Ac.
Estimated Capture at Lihue/Puhi Project Dist.		25%	25%
Estimated Land Use Demand, Lihue/Puhi Project Dist.		6 Ac.	6 Ac.

Source: Ming Chew Associates

demand is projected for the Lihue/Puhi Project District from 1990 to 1995, and another six acres for the period from 1995 to 2000.

C. Estimated Total Retail Demand

Tables 10 and 11 show that combined retail land use demand for the Lihue/Puhi Project District proposed expansion is projected to be 26 acres from 1990 to 1995, and another 26 acres from 1995 to 2000.

IX. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

Our analysis indicates that anticipated economic growth, along with its associated construction activity, is very favorable for generating housing demand in the Lihue market area. New household formations increased in 1987 and 1988 with the completion of the Kauai Lagoons and Westin Kauai. As a result, additional pressures have been placed on both the local labor force and housing market.

Recent sales of houses indicate that prices are rising rapidly, as the local homebuilding industry has not been able to meet the increasing demand.

Workers tend to prefer residential locations close to their places of employment. Since most of the new projects are located in the Lihue area, most of the new housing demand is expected to occur there, too. Housing demand in this market area will be generated also by persons employed outside the market area, but who can't find or afford housing in, say, Poipu.

Residents tend to seek housing in communities with established neighborhoods and resident-support services such as shopping, business and medical services, schools, nearby recreational facilities, and so forth. Lihue qualifies in this respect. It is convenient to existing and projected jobs, and is accessible from other major employment centers.

Thus, we conclude that overall demand for housing in Lihue will be very strong.

On the other hand, housing marketability in Lihue, as elsewhere, will depend on households being able to match housing preferences with affordability.

As in most residential markets, preference is mainly for single-family houses. In the case of Lihue, where we estimate an increasingly young labor force in the prime household and family formation ages is moving into the region for the expanding number of jobs, we suspect the desire for single-family houses is even greater.

Households that cannot afford the existing single-family housing prices usually are currently renting a house, living in an apartment or commuting a long distance from a community where housing costs are lower. We anticipate that Lihue market conditions

will tighten as new workers enter the region. At such time, current renters will see their rents raised. In some cases, renters may find that their unit has been sold and that they must relocate. Affected households might seek to purchase housing in an effort to stabilize and control their housing costs. This could increase market pressures on purchase housing even more.

Our demand analysis indicated that major projects on Kauai have resulted in 300 new households in 1988, and would generate demand for about 600 housing units in 1989, 1,000 units in both 1990 and 1991, and about 600 units per year from 1992 to 1995. A total of 4,700 housing units is projected to be needed between 1988 and 1995.

About 60 percent of the jobs created by major new projects would be located in the Lihue area. After including secondary impacts we estimate that at least 70 percent of the new Kauai housing demand could be attracted to the Lihue area. Thus, we project that housing unit demand for Lihue would amount to about 3,290 from 1988 to 1995.

Slightly more of the new housing demand would be for "affordable" units. However, demand for "market" housing is almost as great. Even so, we estimate that the effective housing demand will be weighted toward the lower end of the pricing scale.

Our analysis also indicate a strong market for unimproved houselots. This demand overlaps with the indicated housing unit demand. Part of the demand results from purchasers buying to build immediately or in anticipation of building in the future. Some buy in desired areas when the lots become available. Others buy because they believe prices will move upward before they, or their children, are ready to build. Many buy before they can afford to build, pay off the lot, and then use their equity in the land to finance construction of their houses later. Some buy to build their first home, while others seek to upgrade their residents when more desirable properties become available.

Some buy for investment or speculation. However, Grove Farm Properties usually includes a building stipulation in its sales agreements to deter such speculation as a purchase motive.

Because of the many motives for purchasing, demand for houselots generally exceeds the demand for housing units. Based upon the experience of other

subdivision projects, we estimate that houselots could be marketed at twice the rate as the demand for houses.

After adjusting the housing unit demand forecast to reflect houselot sales, we estimate the proposed subject expansion could be absorbed by 1995.

In light of the current undersupply of housing in the Kauai market and, consequently, rapidly rising housing prices, there is an overwhelming need for new housing supply. The proposed expansion of the Lihue/Puhi Project District is well-positioned to accommodate projected housing demands, and to aid in mitigating sharp price increases during the next several years.

B. Recommendations

Considering the acute need for housing supply now and for the next few years, we recommend that the proposed expansion of the Lihue/Puhi Project District move forward as quickly as possible. The subject expansion would accommodate rising demand pressures for housing. It would expand the mix of housing products in a location which is close to job centers and population-support activities and services. Thus, it could alleviate the need for workers to commute on already congested arterials.

A wide range of housing should be provided to meet the widening range of demands. Product should include both single-family and multi-family housing products. Quality and prices should respond to the "affordable" and "market" target groups. Moreover, since family incomes are increasing, new products with a golf course setting and ambience should also be provided in response to the upscale market.

In order to discourage houselot purchases for speculative purposes, building stipulations should be included in the sales contracts for houselots. Normally, a required build-out period of five to seven, or ten, years would be reasonable.

Because the Kukui Grove Center is increasing its penetration into the regional retail market, land for future commercial expansion should be reserved to accommodate retail demands that will continue to increase beyond 1995.

APPENDIX

APPENDIX. PLANNED KAUAI PROJECTS

PROJECTS	DESCRIPTION	ESTIMATED COMPLETION
RESORT		
Kauai Lagoons I	850 rooms	completed
Kauai Lagoons II/III	golf courses, lagoons shopping	approx. 80%
Kauai Lagoons IV	750 rooms	1991
Kauai Lagoons V	golf course, Golf Academy, club	1991
Hyatt Regency Kauai	600 rooms	1990
Hanalei Plantation	200 units	1991
Mirage Golf Course	18 holes	1989
Sheraton renovation		1990
Coconut Plantation Embassy Suites	300 rooms	1991
Coconut Plantation Hotel	500 rooms	1992
OFFICE		
Kauai Medical Group	48,000 sq. ft.	1989
INDUSTRIAL		
Puhi Light Industrial	60 acres, 90 lots	1990
Hanamalu Light Indus.	13 acres	1990
PUBLIC WORKS		
Kapule Hwy. Extension	Bypass road	1988

PROJECTS	DESCRIPTION	ESTIMATED COMPLETION
RETAIL		
Kauai Village	115,000 sq. ft.	1990
Koloa Plantation Marketplace	51,000 sq. ft.	1989
Anchor Shopping Ctr.	22,000 sq. ft.	1989
Kukui Grove West	30 acres, 47 lots	1989
Mirage Princeville Sh. Ctr. Expansion	100,000 sq. ft.	1991
RESIDENTIAL(1)		
Kapaa-Waialeale Ptnrs.	240 SF units	1989-1991
Kilauea-Kilauea Rlty.	90 SF houselots	1990
Hanamalu-Charles River	210 MF units	1990
Lihue-Kalapaki Villas	180 MF units	1990
Puhi-Kauai County	13 SF units	1990
Kukuiula-A & B	740 SF units/lots	1991-1995+
Kukuiula-A & B	500 MF units	1991-1995
Hanamalu-JMB/Amfac	330 SF houselots	1991-1993
Molokoa-JMB/Amfac	560 SF houselots	1991-1995+
Hanapepe Heights-State of Hawaii	300 SF units	1992-1993

(1) Excludes Grove Farm Properties projects.

Industrial Firms

Dillingham Corporation
Lone Star Hawaii, Inc.

Other Clients

Aotani & Associates
Architects Hawaii
Ashford & Wriston
Belt, Collins and Associates
Chun, Kerr & Dodd
Damon, Key, Char & Bocken
Duty Free Shoppers Limited
EDAW, Inc.
Ezra, O'Connor, Moon & Lawhn
Kobayashi, Watanabe, Sugita & Kawashima
Kuakini Hospital
Walter Lum Associates
People for Sensible Growth
Real Estate Research Corporation
Charles R. Sutton and Associates, Inc.
Donald Wolbrink & Associates, Inc.
Wanket Smith & Hosoda
Wong & Wong Associates, Inc.

SELECTED STUDIES CONDUCTED

Economic and Community Analyses

Economic, Demographic and Selected Land Use Forecasts
Maui Community Development Plans

Economic Projections Element
State Tourism Study

Economic and Market Analysis
Hilo Community Development and Downtown Plans

Market Analysis of Transient Accommodations
Development Plan for North and South Kona

Economic and Market Analysis
Proposed Title VII New Community
New Orleans, Louisiana and Atlanta, Georgia

Residential

Market and Marketability Analysis
Various Condominium and Residential Projects
Hawaii, Maui, Oahu

Housing Market Development Strategy Study
Oahu, Hawaii

Comparative Analysis
Selected Hawaii Kai and Waikiki Condominiums

Housing Demand Analysis
Kukui Redevelopment Area

Housing Master Plan for Kauai
Kauai, Hawaii

Housing and Houselot Price Analysis
Oahu, Hawaii

Resort and Recreation

Economic, Market and Marketability Analysis
Kapalua, Kuilima, Mahukona, Mauna Lani, Princeville, Waikoloa and Wailea Resort Communities

Buyer Characteristics and Attitudes
Maui Resort Property Owners Survey

Market Analysis
Proposed Cultural Park Project, Honolulu, Hawaii

Visitor Potential Analysis
Proposed Beijing Hotel, People's Republic of China

Hotel Market Analysis
Hong Kong USA Project, Oakland, California

Office

Market, Marketability and Financial Analysis
Downtown Honolulu and Non-Downtown Honolulu Office Buildings

Marketability and Financial Analysis
Honolulu Condominium Office Building

Market Analysis
Proposed Lihue Office Building

Retail

Development Strategy Analysis
Ala Moana Commercial Properties

Kauai Retail Market Analysis

Lahaina Retail Market Analysis
Maui, Hawaii

Market and Financial Analysis
Waikiki Retail and Office Project

Industrial

Industrial Market Analysis
Oahu, Hawaii

Industrial Diversification Potential
Kenosha, Wisconsin

Manufacturing Plant Location Analysis
Los Angeles Area, California

Mini-Warehouse Market Analysis
Houston, Texas

Other Studies

Real Estate Strategy Study
Dillingham Corporation

Analysis of Household Income Growth
Honolulu, Hawaii

Analysis of Interest Rate Effects on Ranch Land Marketability
Houston, Texas

Economic and Social Impact Analysis
Downtown Denver Peripheral Parking System
Center City Transportation Project
(U.S. Department of Transportation)

Forecasts of Intra-City Demographic Patterns for School Facilities Planning
City of Chicago, Department of Education

Analysis of Fuel Shortage Impact on the Hawaii Tourist Industry

Market and Feasibility Analysis
Proposed Hawaii World Trade Center
Aloha Tower Complex, Honolulu, Hawaii

Station Area Impact Analysis
Honolulu Area Rapid Transit

Analysis of Real Estate Market Opportunities
Island of Maui, Hawaii

Analysis of Proposed Development Plans
Oahu, Hawaii

Expert Witness

Various State Land Use Commission Petitions
Various General Plan, Rezoning and Special Management Area Permit Hearings
U.S. Bankruptcy Court

PROFESSIONAL QUALIFICATIONS OF J. MING CHEW

BUSINESS BACKGROUND

Principal, Ming Chew Associates, Honolulu, Hawaii
Executive Vice President, Hastings, Martin, Chew & Associates, Ltd., Honolulu, Hawaii
Senior Economic Consultant, Real Estate Research Corporation, San Francisco, California
Economic and Project Analyst, Humble Oil and Refining Company, Baytown, Texas

EDUCATION

M.B.A. (Economics and Finance) 1967 Stanford University
B.S. (Chemical Engineering) 1957 Georgia Institute of Technology

PROFESSIONAL MEMBERSHIPS

American Real Estate and Urban Economics Association
Hawaii Economic Association
Pacific Area Travel Association

Member, Past-Chairman, Hawaii Visitors Bureau (HVB) Research Committee, Honolulu, Hawaii
Member, HVB Long-Range Planning Committee, Honolulu, Hawaii
Member, Council on Revenues, State of Hawaii
Member, Editorial Board, Tourism Research Publications, University of Hawaii at Manoa

Former Member, Pacific Area Travel Association (PATA) Research Authority, San Francisco, California
Past President, Hawaii Society of Corporate Planners
Former Member, Technical Advisory Committee to the Honolulu City Council Planning and Zoning Committee
Former Commissioner, Environmental Quality Commission, State of Hawaii

TYPICAL CLIENTS

Financial Institutions

First National Bank of Chicago
Pioneer Federal Savings & Loan Association
Standard Finance Company, Ltd.

Investors and Investment Groups

Morgan Stanley & Co., Inc.
Salomon Brothers
Waiehu Heights Associates

Government Agencies

U.S. Development of Commerce
(Economic Development Administration)
U.S. Fish and Wildlife Service
U.S. Department of Transportation
(Urban Mass Transportation Administration)
State of Hawaii Department of Planning
and Economic Development
City and County of Oahu, Department of
Transportation Services
County of Hawaii
County of Kauai Public Housing Agency
Marianas Public Land Corporation
Maui Redevelopment Agency
City of Chicago, Board of Education

Individuals and Estates

Kamehameha Schools/Bernice P. Bishop Estate
The Estate of James Campbell
Arthur Summerfield, Jr.

Mortgage Bankers/Brokers

Brooks, Harvey & Co., Inc.
G.L. Thoele Company, Ltd.

Builders and Developers

American Towa Corporation
Amfac Financial Corporation
Asahi Development Corporation
Boise Cascade-Waikoloa
Cooke Land Company, Inc.
Dillingham Land Corporation
GO Development Corporation
DWA Investment Co.
Grove Farm Company, Ltd.
Haleakala Ranch Co.
Hawaii Takenaka International, Ltd.
Hawaiian Land Company
Herbert K. Horita
Home Properties, Inc.
Sheridan C.F. Ing
George Issacs
Kalua Koi Corp.
Kamehameha Investment Corporation
Kapalua Land Company, Inc.
Lokahi Pacific
Mahukona Properties, Inc.
Maui 100 Partners
Maui Land and Pineapple Company, Inc.
Mauna Kea Properties, Inc.
Mauna Lani Resort, Inc.
Ohbayashi Hawaii Corporation
Pankow Development, Inc.
Princeville Development Corporation
Prudential Life Insurance Company of America
Bruce C. Stark
Transcontinental Corporation
Wailea Land Corporation
John Michael White

Ming Chew Associates

Consulting Real Estate Economists

Specializing in research, analysis and counseling to identify Hawaii and Pacific Area real estate opportunities.

Professional Services:

REGIONAL ECONOMIC ANALYSIS
Determination of economic, labor and demographic forces creating demands for real estate and land uses.

TOURISM RESEARCH AND ANALYSIS
Evaluation of economic development and employment potential of tourism, resort and recreation supply and demand analysis, competitive market strategies and tourism impact analysis.

REAL ESTATE MARKET AND FEASIBILITY ANALYSIS
Measurement of real estate supply and demand factors for primary and recreational housing, retail, office and industrial markets.

REAL ESTATE STRATEGIES
Identification of ways to profit from real estate market opportunities and means to minimize risks.

LAND USE POLICY
Formulation of alternatives supported by economic and market conditions to accomplish public policy goals and objectives regarding land use.

ECONOMIC AND COMMUNITY IMPACT ANALYSIS
Estimation of land use demands and community impacts of projects for governmental permit processing.

DEVELOPMENT AND INVESTMENT COUNSELING
Interpretation of highest and best use, including selection of synergistic land and space uses and optimum timing.

EXPERT TESTIMONY
Qualified expert witness on regional economic issues, real estate markets and marketability, and community and land use impacts.

REAL ESTATE INVESTMENT PORTFOLIO ANALYSIS
Selection of investment projects, and responsive mix and timing decisions.

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