



STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION

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November 29, 2004

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Room 702
Honolulu, Hawaii 96813-2437

RECEIVED
04 NOV 30 P1:53
OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

Dear Ms. Salmonson:

Subject: LUC Docket No. A88-634/Alexander & Baldwin, Inc. (Maui Business Park Phase II)
Final Environmental Impact Statement (FEIS)
Kahului, Maui, Hawaii
Tax Map Key: 3-8-01: por. 2, 3-8-06: por. 4, and 3-8-79: 13

At its meeting on November 18, 2004, the Land Use Commission accepted the FEIS for the subject project. We respectfully request the publication of this acceptance in the next available issue of The Environmental Notice.

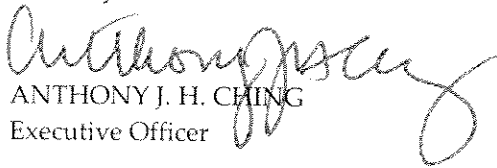
Enclosed please find the following:

- 1) OEQC Bulletin Publication Form
- 2) Project Summary Description (an electronic copy is also provided herein)
- 3) Completed FEIS Distribution Cover Letter to Participants
- 4) Completed FEIS Distribution List
- 5) Four Copies of the FEIS

A copy of the Commission's Order reflecting its action of November 18, 2004, will be provided to you under separate cover.

Please feel free to contact Bert Saruwatari of my office at 587-3822, should you require clarification or any further assistance.

Sincerely,


ANTHONY J. H. CHING
Executive Officer

Enclosures

c: Benjamin M. Matsubara, Esq. (w/o enclosures)
Tom Schnell (w/o enclosures)

2004-Maui- FEIS-
Maui Business Park

DEC - 8 2004

FILE COPY

Maui Business Park Phase II

Final Environmental Impact Statement



LAND USE COMMISSION
STATE OF HAWAII
NOV 23 P 3:22

Prepared for:

AB **A&B PROPERTIES, INC.**
A SUBSIDIARY OF ALEXANDER & BALDWIN, INC.

Prepared by:



December 2004

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DEPT. OF ENVIRONMENT/
QUALITY CONTROL



MAUI BUSINESS PARK

Maui Business Park Phase II

Final Environmental Impact Statement

TMK 3-8-01: 2 (portion), 3-8-06: 4 (portion), and 3-8-79: 13

This environmental impact statement is submitted pursuant to
Chapter 343, Hawaii Revised Statutes

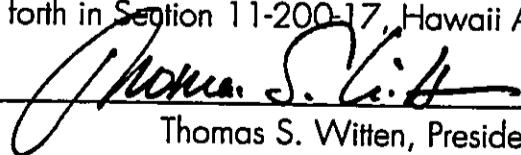
Prepared for:
Accepting Authority,
State of Hawaii Land Use Commission
&

AB A&B PROPERTIES, INC.
A SUBSIDIARY OF ALEXANDER & BALDWIN, INC.

Prepared by:



This final environmental impact statement and all ancillary documents were prepared under my direction or supervision and the information submitted, to the best of my knowledge, fully addresses document content requirements as set forth in Section 11-200-17, Hawaii Administrative Rules.



Thomas S. Witten, President
PBR HAWAII

December 2004

FINAL ENVIRONMENTAL IMPACT STATEMENT
MAUI BUSINESS PARK PHASE II

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MAUI BUSINESS PARK PHASE II**

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MAUI BUSINESS PARK PHASE II**

PREFACE

This ~~Draft~~ final environmental impact statement (EIS) is prepared pursuant to Chapter 343, Hawai'i Revised Statutes, and Title 11, Chapter 200, Administrative Rules, Department of Health, State of Hawai'i. Proposed is an applicant action by A&B Properties, Inc. for the development of the Maui Business Park Phase II light industrial project comprising approximately 179 acres located in Kahului, Maui, Hawai'i.

A portion of the proposed development requires approval by the State Land Use Commission (LUC) to incrementally reclassify a portion of the project from Incremental to the Urban district. As the proposed project may involve the use of State and/or County lands, the preparation of this EIS is being undertaken to address potential requirements under Chapter 343, Hawai'i Revised Statutes.

Use of State and/or County lands could include, but not be limited to, offsite infrastructure improvements relating to roadway, traffic, water, sewer, utility and drainage facilities affecting State and/or County roadways or other lands. While the specific nature of each improvement is not known at this time, the EIS is intended to address all current and future instances involving the use of State and/or County lands relating to the project.

**FINAL ENVIRONMENTAL IMPACT STATEMENT
MAUI BUSINESS PARK PHASE II**

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**FINAL ENVIRONMENTAL IMPACT STATEMENT
MAUI BUSINESS PARK PHASE II**

1.0 INTRODUCTION AND SUMMARY

This ~~draft~~ final environmental impact statement (EIS) is prepared pursuant to Chapter 343, Hawai'i Revised Statutes, and Title 11, Chapter 200, Administrative Rules, Department of Health, State of Hawai'i. Proposed is an applicant action by A&B Properties, Inc. for the development of the Maui Business Park Phase II light industrial project comprising approximately 179 acres located in Kahului, Maui, Hawai'i.

1.1 INTRODUCTION

1.1.1 Project Profile

Project Name:	Maui Business Park Phase II
Location:	Kahului, Maui, Hawai'i
Judicial District:	Wailuku
Applicant:	A&B Properties, Inc.
Recorded Fee Owner:	Alexander & Baldwin, Inc.
Tax Map Key:	3-8-01: 2 (portion) 3-8-06: 4 (portion) 3-8-79: 13
Total Area:	179 acres
Existing Use:	Sugar cultivation, fallow fields, agricultural processing, vehicle/equipment parking, surfboard repair
Proposed Action:	A&B Properties, Inc. proposes to develop the Maui Business Park Phase II light industrial project comprising approximately 179 acres located in Kahului, Maui, Hawai'i. The project is a continuation of A&B Properties, Inc.'s existing Maui Business Park Phase I. The project will provide light industrial and commercial space in Maui's central commercial and business district in close proximity to the Kahului Airport and Kahului Harbor. The development will include all necessary on-site and off-site infrastructure, including roadways, water, sewer, drainage, electrical, and communications systems.
State Land Use Districts:	Urban (145.47 acres) Incremental (33.53 acres)
County Zoning:	Agricultural (AG), Residential (R-1), and Heavy Industrial (M-2)

**FINAL ENVIRONMENTAL IMPACT STATEMENT
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Community Plan: Light Industrial

Special Management Area: A portion of TMK 3-8-79:13 is within the SMA

EIS Accepting Authority: State of Hawai'i Land Use Commission

Permits/Approvals Required: Chapter 343, HRS compliance
State Land Use District Amendment (Incremental to Urban)
Change in Zoning (Agricultural (AG), Residential (R-1) and Heavy Industrial (M-2) to Light Industrial)
Special Management Area (portion of property)
NPDES Permit
Subdivision Approval
Grading/Building Permit

1.1.2 Compliance with State of Hawai'i and County of Maui Environmental Laws

This document has been prepared in accordance with the provisions of *Hawai'i Revised Statutes* (HRS) Chapter 343 and *Hawai'i Administrative Rules* Title 11, Department of Health, Chapter 200, Environmental Impact Statement Rules. Section 343-5, HRS, establishes eight "triggers" that require compliance with these regulations.

As Maui Business Park Phase II may involve the use of State and/or County lands, the preparation of an EIS is being undertaken to address potential requirements under Chapter 343, HRS.

Use of State and/or County lands could include, but not be limited to, offsite infrastructure improvements relating to roadway, traffic, water, sewer, utility and drainage facilities affecting State and/or County roadways or other lands. While the specific nature of each improvement is not known at this time, the EIS is intended to address all current and future instances involving the use of State and/or County lands relating to the project.

This ~~draft~~ final EIS was preceded by the *Maui Business Park Phase II Environmental Impact Statement Preparation Notice* (EISPN) and the *Maui Business Park Phase II Draft Environmental Impact Statement*. The ~~Maui Business Park Phase II Environmental Impact Statement Preparation Notice~~ (EISPN) was submitted to the Office of Environmental Quality Control on June 8, 2004. Notice of the availability of the EISPN was published in the June 23, 2004 edition of the OEQC's *The Environmental Notice*. Copies of the EISPN were provided to appropriate government agencies and other organizations (See Chapter 12). The public comment period for the EISPN ended July 23, 2004. Comments on the EISPN ~~have been~~ were incorporated in ~~this~~ the draft EIS.

The draft EIS was submitted to the Office of Environmental Quality Control on August 11, 2004. Notice of the availability of the draft EIS was published in the August 23, 2004 edition of the OEQC's *The Environmental Notice*. Copies of the draft EIS were provided to appropriate

**FINAL ENVIRONMENTAL IMPACT STATEMENT
MAUI BUSINESS PARK PHASE II**

government agencies and other organizations (See Chapter 13). The public comment period for the draft EIS ended October 7, 2004. Comments on the draft EIS have been incorporated in this final EIS.

1.1.3 Identification of the Applicant

The applicant is A&B Properties, Inc.

Contact Person: Dan Yasui, AICP
A&B Properties, Inc.
822 Bishop Street
Honolulu, Hawai'i 96813
Telephone: (808) 525-6611
Fax: (808) 525-8447

1.1.4 Planning Consultant

A&B Properties, Inc.'s planning consultant for Maui Business Park Phase II is PBR HAWAII.

Contact Person: Tom Schnell, AICP
PBR HAWAII
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawai'i 96813
Telephone: (808) 521-5631
Fax: (808) 523-1402

1.1.5 Identification of the Accepting Authority

The State of Hawai'i Land Use Commission (LUC) is the accepting authority for the EIS. Determination of the LUC as the accepting authority is in accordance with Chapter 343, HRS, which states that privately initiated EIS documents must be accepted by the government agency empowered to issue permits for the project.

Contact Person: Anthony Ching, Executive Officer
State Land Use Commission
P.O. Box 2359
Honolulu, Hawai'i 96804
Telephone: (808) 587-3822
Fax: (808) 587-3827

1.2 EXECUTIVE SUMMARY

1.2.1 Maui Business Park Phase II Summary Description

Maui Business Park Phase II – a continuation of A&B Properties, Inc.'s existing Maui Business Park Phase I in Kahului – will provide light industrial space in Maui's central commercial and business district in close proximity to the Kahului Airport and Kahului Harbor (see Figure 1).

**FINAL ENVIRONMENTAL IMPACT STATEMENT
MAUI BUSINESS PARK PHASE II**

The Maui Business Park Phase II site is comprised of two noncontiguous properties totaling approximately 179 acres.

The South Project Area, which includes the incremental districted area, is approximately 140.783 acres and is identified by Tax Map Key Number 3-8-06:4 (portion) and Tax Map Key Number 3-8-01:2 (portion) (see Figure 2). This property is bound to the west by Pu'unē Avenue; to the north by Maui Business Park Phase IB, a large retention basin area, and the State-owned right-of-way for the proposed Kahului Airport Access Road; to the northeast by Hāna Highway; and to the southeast and the south by cane fields.

The North Project Area is approximately 38.217 acres and is identified by Tax Map Key Number 3-8-79:13 (see Figure 2). This property is bound to the west by Hāna Highway; to northwest by the parcels owned by K-Mart and Costco; to the north by Haleakalā Highway; and to the southeast and southwest by State-owned right-of-way for the proposed Kahului Airport Access Road.

The primary access to the South Project Area will be via Ho'okele Street, which currently runs between Pu'unē Avenue and Pakaula Street and will be extended to Hāna Highway. Primary access to the North Project Area will be via Haleakalā Highway.

Currently, the South and North Project Areas are predominately sugarcane fields or fallow fields. A portion of the North Project Area includes former sugar plantation buildings, a portion of which are used on a month-to-month basis by two tenants for vehicle/equipment parking and for surfboard repair. These tenants were apprised of the short term nature of their tenancy at this location. Also, a small portion of the North Project Area (approximately 6,000 s.f.) abutting the K-Mart store is used for overflow parking by K-Mart and will be incorporated into the planned Maui Business Park Phase II.

The topography gently slopes to the north, but is generally level. Elevations range from 15 to 50 feet above sea level.

Land uses within Maui Business Park Phase II will be consistent with the M-1 Light Industrial District (Chapter 19.24, Maui County Code) and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses. Both project areas will contain a variety of lot sizes to serve the needs of various types of businesses allowed within the Light Industrial District.

A&B Properties, Inc. will be the master developer of Maui Business Park Phase II. Pursuant to the Wailuku-Kahului Community Plan, the South Project Area of Maui Business Park Phase II will be developed in increments not greater than 70 acres. On-site and off-site infrastructure improvements are expected to be substantially completed within eight years following receipt of final project approvals. Sales and construction is expected to begun in 2008.

1.2.2 Summary of Potential Impacts and Proposed Mitigation Measures

Development of the Maui Business Park Phase II will transform fields that are currently fallow or used for sugar cultivation into a business park providing light industrial and commercial

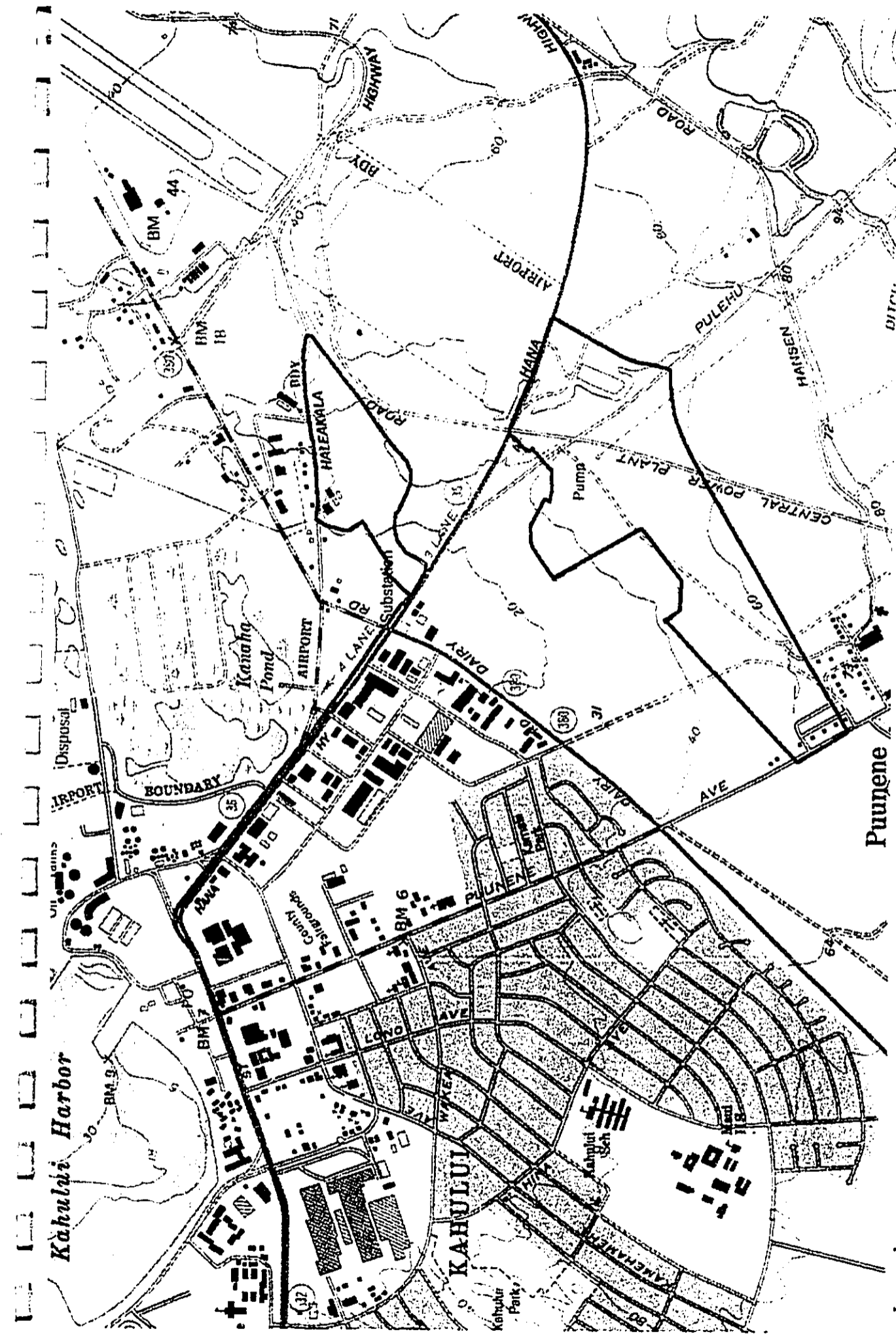


Figure 1
 Regional Location Map
Maui Business Park Phase II
 A & B Properties, Inc.
 Kahului, Maui



Legend
 Maui Business Park Phase II

Source: USGS Topographical Map

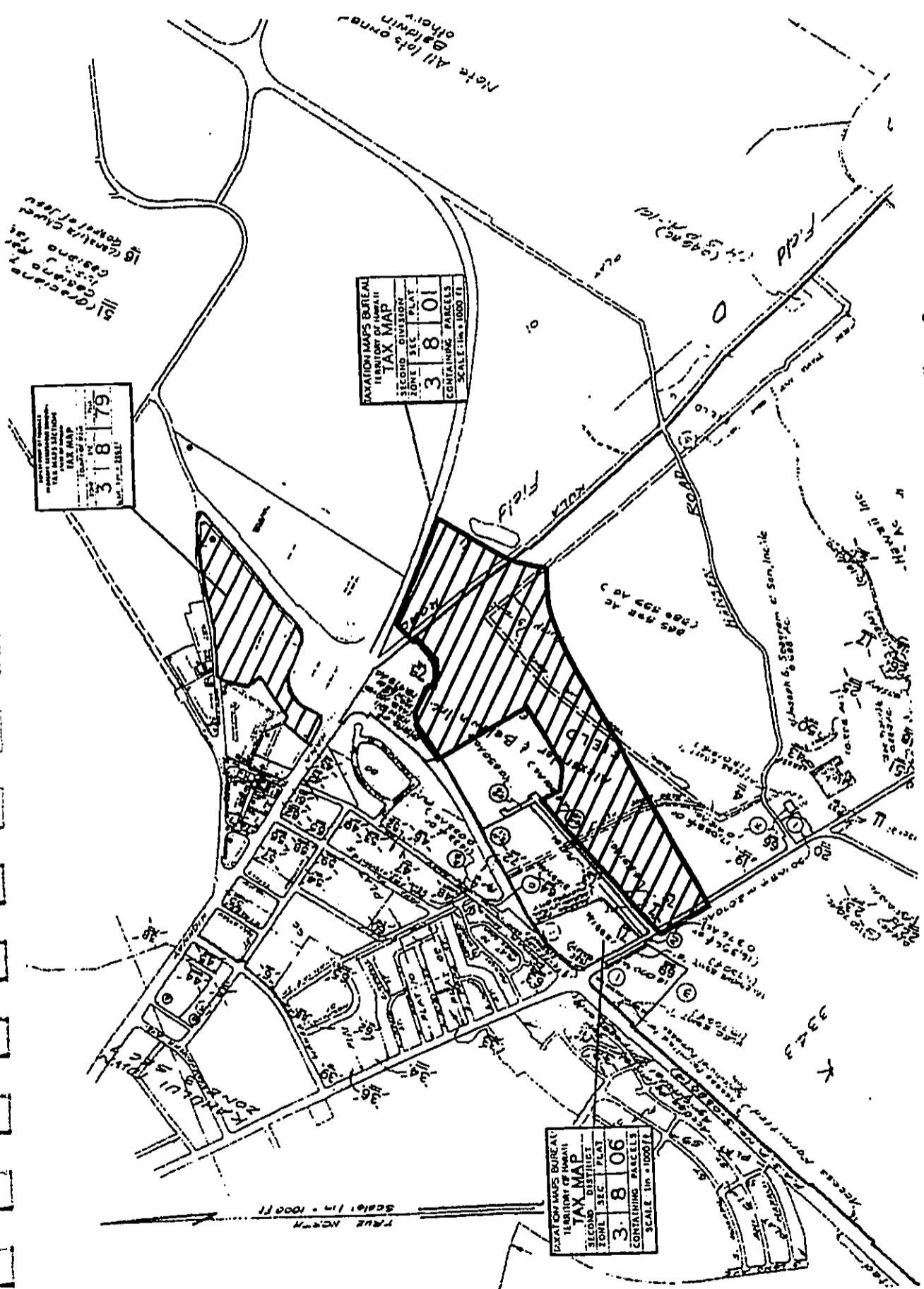



Figure 2
Tax Map Key
Maui Business Park Phase II
A & B Properties, Inc.
Kahului, Maui

LEGEND
 Maui Business Park Phase II



Source: Tax Map Key

FINAL ENVIRONMENTAL IMPACT STATEMENT
MAUI BUSINESS PARK PHASE II

space. For areas of environmental concern, appropriate mitigation measures have been planned as part of the project. For areas of particular concern, the following summarizes the associated mitigation measures that are either recommended or planned to ensure that potential adverse impacts are minimized or mitigated.

Botanical Resources

Botanical surveys of the Maui Business Park Phase II site found that the majority of the vegetation in the area is composed of introduced species. The only native species observed were the 'ilima (*Sida Fallax*), popolo (*Solanum americanum*), and 'uhaloa (*Waltheria indica*). These plants are indigenous, that is, they are native to Hawai'i and elsewhere; they do well in open, disturbed environments. None of the vegetation found on the site are considered threatened or endangered plant species or species of concern.

Design standards for the entire business park include a unified streetscape planting theme and program to ensure the appropriate use of landscaping. A landscaped median and landscaped berms along the primary collector road through Maui Business Park Phase II, Ho'okele Street, will be used to soften the visual impact of buildings from the road. Landscape plants will include drought tolerant plant species and xeriscaping, where appropriate. To provide visual screening and shading, open parking areas will include landscaping.

Wildlife Resources

Faunal surveys of the Maui Business Park Phase II site found birds and mammals typical of the Central Maui region. No threatened or endangered species were recorded. However, the larvae of the endangered Blackburn's sphinx moth are sometimes found on tree tobacco plants, which were identified on the site during the botanical survey. A&B Properties, Inc. in coordination with the U.S. Fish and Wildlife Service, has developed a program to remove the tree tobacco plants without harming any Blackburn's sphinx moths.

The development of the business park will involve clearing of sugar cane fields and scrub vegetation, which will alter existing habitats. New landscaping to be introduced along Ho'okele Street and throughout the project will provide new habitats. This may result in a change in the types of birds and their relative abundance at the site.

Agricultural Impact

Hawaiian Commercial & Sugar Company (HC&S), a subsidiary of Alexander & Baldwin, Inc., currently cultivates sugarcane on approximately 140 acres of the South Project Area. The majority of the North Project Area is fallow sugarcane fields, however, HC&S is growing an experimental crop of dryland taro on approximately five acres. Alexander & Baldwin, Inc. also has a license agreement with Maui Pineapple Company that allows Maui Pineapple Company to use approximately two acres within the North Project Area for a seed processing facility.

Development of Maui Business Park Phase II will require the withdrawal of the site from agricultural use. However, Maui Business Park Phase II will not contribute to a significant reduction in HC&S revenues or any reduction of sugar plantation employment, as in recent years technological improvements in sugar cultivation have resulted in greater yields per acre. In

**FINAL ENVIRONMENTAL IMPACT STATEMENT
MAUI BUSINESS PARK PHASE II**

addition, given the large supply of land in other areas on Maui available for agriculture due to the decline of plantation agriculture, use of the 179 acres for Maui Business Park Phase II will not affect the statewide growth of diversified agriculture.

Archaeological Resources

Historically, the majority of the lands of Maui Business Park Phase II have been used for sugar cane cultivation. This intensive agricultural activity, as well as previous grubbing and grading, has significantly altered the land so that it is unlikely that the site contains any archaeological resources. Based on past archaeological surveys of the site and the surrounding area and the historical use of the site for sugar cultivation, the State Historic Preservation Division determined that the Maui Business Parks Phase II site is not likely to contain archaeological resources and that an additional archaeological survey of the site is not necessary.

Although it is not anticipated that there are any archaeological or historic resources on the Maui Business Park Phase II site, should any sites be found during construction, A&B Properties, Inc. and its contractors will comply with all state and county laws and rules regarding the preservation of archaeological and historic sites.

Cultural Impacts

A cultural impact assessment, conducted for the site by Aki Sinoto Consulting, included researching historical records and interviewing individuals knowledgeable with the area. Based on these sources, the report concluded that Maui Business Park Phase II is not expected to affect cultural resources of the area. In fact, individuals interviewed felt that growth and expansion was necessary for Kahului.

Access and Trails

The site of Maui Business Park Phase II is not along the shoreline, nor does it provide primary access to the mountains. There are no known traditional trails through the property. Currently, access to the site is restricted due to ongoing agricultural operations. Relative to the existing agricultural use of the site, the establishment of Maui Business Park Phase II will make the area more accessible.

Traffic

The traffic impact analysis report prepared for Maui Business Park Phase II (see Section 5.4 and Appendix F G) concludes that with an equal proportion of light industrial/warehouse use and retail/office use within Maui Business Park Phase II, and with the recommended mitigation measures, the roadway network can accommodate traffic generated by Maui Business Park Phase II.

A&B Properties will extend Ho'okele Street, which currently runs between Pu'unē Avenue and Pakaula Street (the street between Wal-Mart and Home Depot), to Hāna Highway during the first phase of Maui Business Park Phase II construction. When extended, Ho'okele Street will run roughly parallel with Dairy Road, and will provide an alternative route between Hāna Highway and Pu'unē Avenue, so that people traveling to and from Pā'ia or Upcountry and

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Kīhei will have the option of bypassing Dairy Road via Ho'okele Street. Because of the alternative route created by the extension of Ho'okele Street, traffic conditions along Dairy Road between Pu'unē Avenue and Hāna Highway will improve with the Maui Business Park Phase II versus without Maui Business Park Phase II.

Population

Maui Business Park Phase II is not expected to contribute to a significant increase in population as it is anticipated that the majority of persons to be employed at Maui Business Park Phase II will be current Maui residents. These would include employees of existing businesses relocating to Maui Business Park Phase II as well as new business that would employ Maui residents.

Public Services

Because Maui Business Park Phase II is not expected to generate a significant increase in resident population, a minimal need for additional public services is anticipated. Tax revenues generated from Maui Business Park Phase II are expected to contribute to State and County revenues in excess of the public expenditures necessary to support the development. Net benefits (taxes minus costs) to the State of between \$44 to 51.4 million annually are anticipated. Similarly, net benefits to the County of between \$1.7 to \$3 million annually are projected.

Economic Impacts

Maui Business Park Phase II will provide opportunities for economic growth diversification to meet long-term community and regional needs relative to the present agricultural use of the property. Some of the economic benefits include:

- \$391 million in taxes for the State of Hawai'i and \$33.9 million in taxes for the County of Maui during the 15-year build out period.
- \$51.6 million annually in stabilized taxes for the State and approximately \$3.8 million annually for the County after the build out period.
- A net benefit (taxes minus costs) to the State of between \$44 to 51.4 million annually. A net benefit to the County of between \$1.7 to \$3 million annually.
- On a stabilized basis, at full build-out, 5,522 full-time equivalent jobs related to on-site activities.
- \$1.57 billion in total wages over the build out period.
- \$202.9 million in stabilized annual wages after the build out period.

Water

A&B Properties, Inc. will participate in the funding and construction of adequate water source, storage, and transmission facilities and improvements to accommodate water use generated by Maui Business Park Phase II. A&B has substantial rights to the surface water flowing in the

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Waihe'e and Spreckels Ditches. Sufficient flow from either or both ditches could be appropriately treated at an off-site surface water treatment plant and delivered to the County Department of Water Supply's (DWS) Central Maui System to produce a potable supply for Maui Business Park Phase II. Once in the Central Maui System, water could then be conveyed via existing transmission lines through Kahului to the site.

Any proposed surface water treatment plant is a separate project from Maui Business Park Phase II and will be subject to applicable provisions of the environmental impact statement law (Chapter 343, Hawaii Revised Statutes), once specifics are developed in coordination with the County.

Wastewater

The County of Maui's existing wastewater system services the Kahului industrial area. A&B Properties, Inc. will design and construct a sewage system in accordance with County of Maui standards to carry wastewater from the Maui Business Park Phase II site to the existing wastewater system. Sewage will eventually flow through a force main to the Wailuku-Kahului Wastewater Reclamation Facility (WWRF).

Solid Waste

To the extent practical, solid wastes will be minimized and recycled. It will be recommended to contractors that a job-site recycling plan should be developed and, as much as possible, construction and demolition waste should be recycled. Solid waste generated at Maui Business Park Phase II that cannot be recycled will be collected by private waste collection companies or by the County's Solid Waste Division and hauled to the Central Maui Landfill for disposal. Green waste from grubbing will either be chipped into mulch for use on site or will be taken to green waste recycling centers. Phasing of the project will minimize the amount of green waste generated at any one time.

Following construction, recycling will be encouraged, and architects for individual businesses will be encouraged to provide space for individual dumpsters to separate recyclable materials, such as cardboard, from municipal solid waste.

Drainage

A&B Properties, Inc. has already constructed two drainage basins on approximately 33 acres of land adjacent to Maui Business Park Phase II. These drainage basins currently serve Maui Business Park Phase IB and have the capacity to also serve the South Project Area of Maui Business Park Phase II. Additional improvements will be made to ensure that Maui Business Park Phase II complies with all County drainage requirements and standards.

1.2.3 Relationship to Land Use Policies

State Land Use Law, Chapter 205, Hawai'i Revised Statutes. The majority of the Maui Business Park Phase II site is within the Urban District. A portion of the site (33.530 acres) requires approval by the State Land Use Commission (LUC) for reclassification from Incremental to the

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Urban District. The proposed light industrial uses within Maui Business Park Phase II are consistent with uses allowed in the Urban District.

Coastal Zone Management Act, Chapter 205A, Hawai'i Revised Statutes. The Coastal Zone Management Area as defined in Chapter 205A, HRS, includes all the lands of the state. As such, Maui Business Park Phase II is within the Coastal Zone Management Area, however, it is not located along a shoreline.

A portion of the North Project Area is within the Special Management Area. Although established in the Coastal Zone Management Law (Chapter 205A, HRS), Special Management Areas are under the jurisdiction of the counties. A Special Management Area Use Permit from the County of Maui will be required for development within the Special Management Area.

Hawai'i State Plan, Chapter 226, Hawai'i Revised Statutes. The Hawai'i State Plan (Chapter 226, HRS), establishes a set of goals, objectives and policies that serve as long-range guidelines for the growth and development of the State. As proposed, Maui Business Park Phase II is relevant to many of goals, objectives, and policies set forth by the State Plan. Conformance with specific elements of the State Plan is discussed in detail in Section 6.1.4.

State Functional Plans. The Hawai'i State Plan directs State agencies to prepare functional plans for their respective program areas. There are 13 state functional plans that serve as the primary implementing vehicle for the goals, objectives, and policies of the Hawai'i State Plan. The functional plans applicable to Maui Business Park Phase II, along with each plan's applicable objectives, policies, and actions are discussed in Section 6.1.5.

Maui County Zoning. The Maui Business Park Phase II site is currently zoned Agricultural (AG), Residential (R-1), and Heavy Industrial (M-2). A&B Properties, Inc. is seeking a change in zoning for the entire site to Light Industrial (M-1).

Wailuku-Kahului Community Plan. The Maui Business Park Phase II site is located within the Wailuku-Kahului community plan region. The *Wailuku-Kahului Community Plan (2002)* designates the entire area of Maui Business Park Phase II as "Light Industrial." Therefore, Maui Business Park Phase II is in conformance with and implements the *Community Plan*.

1.2.4 Required Permits and Approvals

A preliminary list of permits and approvals required for Maui Business Park Phase II is presented below.

Permit/Approval	Responsible Agency
Chapter 343, HRS compliance	State Land Use Commission Office of Environmental Quality Control
State Land Use District Boundary Amendment (Incremental to Urban for approximately 33.53 acres)	State Land Use Commission
Change in Zoning	County of Maui Planning Department Maui Planning Commission Maui County Council

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Special Management Area Use Permit (North Project Area)	Maui Planning Commission
NPDES Permit	State Department of Health
Subdivision Approval	County of Maui Department of Public Works and Environmental Management
Grading/Building Permits	County of Maui Department of Public Works & Waste Management

1.2.5 Alternatives to the Proposed Action

The alternatives that have been considered are:

- 1) No action;
- 2) Other uses of the site;
- 3) Alternative project location; and
- 4) Postponing action pending further study.

None of these alternatives meet all of the project objectives to: 1) provide an appropriate and sensitive use of the land in context with Maui's environmental, social, and economic needs, and consistent with the County's Wailuku-Kahului Community Plan; 2) provide for the logical and long-planned expansion of the Maui Business Park; and 3) develop high-quality light industrial and commercial space to meet existing and future demand.

The alternatives considered and the reasons for their rejection are fully described in Section 7.0.

1.2.6 Probable Adverse Environmental Effects That Cannot Be Avoided

Potential adverse environmental effects that cannot be avoided include changes to the visual appearance of the site, impacts from traffic, increases in solid waste generated, increases in electrical power consumed, and short-term impacts to air quality and noise levels due to construction. These impacts are more fully discussed in Section 8.4 and in individual sections throughout this document.

1.2.7 Cumulative and Secondary Impacts

To assess the cumulative and secondary impacts of Maui Business Park Phase II in context with other projects, the *Wailuku-Kahului Community Plan* was used as the basis of reasonably anticipated development in the area. The anticipated projects are discussed in Section 8.2. Cumulative and secondary impacts resulting from these projects, along with Maui Business Park Phase II, may include increased traffic and greater demands on public infrastructure. However, considering the amount of proposed acreage, the types of proposed development and the dispersal of the projects throughout the Wailuku-Kahului area, anticipated impacts may be adequately addressed with proper mitigation measures.

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1.2.8 Rational for Proceeding with Maui Business Park Phase II Notwithstanding Unavoidable Effects

In light of the above mentioned unavoidable effects, the implementation of plans for Maui Business Park Phase II should proceed because the relatively minor negative impacts of the business park will be offset by substantial positive impacts, including: 1) compliance with the *Wailuku-Kahului Community Plan*, which designates the site for light industrial uses; 2) meeting significant existing and future demand for light industrial space; 3) the wages, taxes, and overall positive economic impacts of the business park; and 4) the productive use of the land.

1.2.9 Unresolved Issues

Unresolved issues include: 1) agreements with the County of Maui regarding the treatment of surface water; 2) completion of a sewer impact study; 3) a schedule for completion from the State Department of Transportation regarding the completion of the Airport Access Road from Hāna Highway to Kahului Airport; 4) the status of the Kahului Airport Runway Extension. See Section 8.5 for discussion of these unresolved issues.

**FINAL ENVIRONMENTAL IMPACT STATEMENT
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FINAL ENVIRONMENTAL IMPACT STATEMENT
MAUI BUSINESS PARK PHASE II

2.0 PROJECT DESCRIPTION

This section provides background information and a general description of the proposed Maui Business Park Phase II, and discusses the development timetable and preliminary development costs.

2.1 BACKGROUND INFORMATION

2.1.1 Location

The Maui Business Park Phase II site is located within Kahului in the central region of Maui. A location map identifying the site, adjacent roadways, and identifying landmarks is shown in Figure 1.

The Maui Business Park Phase II site is comprised of two noncontiguous properties totaling approximately 179 acres. Figure 4 contains the project's conceptual master plan. Figure 2 contains a map of the Tax Map Key (TMK) parcels that comprise the Maui Business Park Phase II site.

The South Project Area is approximately 140.783 acres and is identified by Tax Map Key 3-8-06: 4 (portion) and Tax Map Key Number 3-8-01: 2 (portion) (Figure 2). This property is bound to the west by Pu'unē Avenue; to the north by Maui Business Park Phase IB, a large retention basin area, and the State-owned right-of-way for the proposed Kahului Airport Access Road; to the northeast by Hāna Highway; and to the southeast and the south by cane fields.

The North Project Area is approximately 38.217 acres and is identified by Tax Map Key Number 3-8-79: 13 (Figure 2). This property is bound to the west by Hāna Highway; to northwest by the parcels owned by K-Mart and Costco, to the north by Haleakalā Highway; and to the southeast and southwest by the State-owned right-of-way for the proposed Kahului Airport Access Road.

The primary access to the South Project Area will be via Ho'okele Street, which currently runs between Pu'unē Avenue and Pakaula Street and will be extended to Hāna Highway. Primary access to the North Project Area will be via Haleakalā Highway.

2.1.2 Ownership

Alexander & Baldwin, Inc. is the recorded fee owner of the parcels identified as TMK 3-8-01:2 (portion), 3-8-06: 4 (portion), and 3-8-79:13 (Figure 2).

2.1.3 Surrounding Uses

With its central Maui location, Maui Business Park Phase II is situated adjacent to existing urban uses. The properties are in close proximity to Maui's primary airport and harbor facilities, business centers, the existing Maui Business Park Phase I, and the Kahului industrial area.

The South Project Area is contiguous to Maui Business Park Phase IB. Nearby is the First Assembly of God Church. The South Project Area also borders a portion of the Airport Access Road right-of-way, which separates it from Maui Business Park Phase IA. Approximately 33

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acres adjacent to the South Project Area is in use as a drainage basin. This drainage basin is not part of Maui Business Park Phase II. Lands to the south of the South Project area are cultivated in sugar cane.

The North Project Area is contiguous to other urban uses including K-Mart and Costco to the north. To the south, it borders the Airport Access Road right-of-way. Beyond the Airport Access Road right-of-way are fallow sugar cane fields.

The North Project Area is situated near the Kahului Airport (and surrounding Kahului Airport Master Plan Area). Included within the Kahului Airport Master Plan Area is the Kanahā Pond State Wildlife Refuge. The Refuge is home to two endangered species, the Hawaiian Stilt and the Hawaiian Coot, as well as providing sanctuary to many migrant shorebirds and waterfowl.

2.1.4 Description of the Property

The Maui Business Park Phase II site is comprised of two noncontiguous properties totaling approximately 179 acres. The topography of the entire area gently slopes to the north, but is generally level, with slopes ranging from 0.30 to 1.70 percent. Elevations range from 15 to 50 feet above sea level. Photographs of the site are shown in Figure 3.

Currently, Hawaiian Commercial & Sugar Company (HC&S), a subsidiary of Alexander & Baldwin, Inc., is cultivating sugarcane on approximately 140 acres of the South Project Area. The majority of the North Project Area is fallow sugarcane fields, however, HC&S is growing an experimental crop of dryland taro on approximately five acres.

Alexander & Baldwin, Inc., also has a license agreement with Maui Pineapple Company that allows Maui Pineapple Company to use approximately two acres within the North Project Area for a seed processing facility. The original lease agreement began in 1986 and expired on November 30, 2001, however, the agreement currently continues on a month-to-month basis.

A portion of the North Project Area includes former sugar plantation buildings, a portion of which are used on a month-to-month basis by two tenants for vehicle/equipment parking and for surfboard repair. These tenants were apprised of the short term nature of their tenancy at this location. Also, a small portion of the North Project Area (approximately 6,000 s.f.) abutting the K-Mart store is used for overflow parking by K-Mart and will be incorporated into the planned Maui Business Park Phase II.

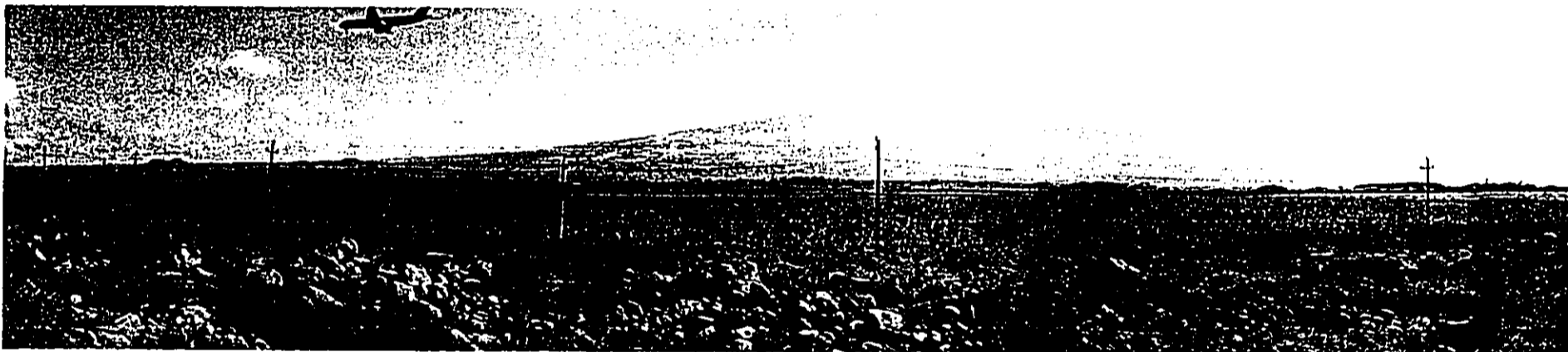
Located in the Central Maui region, the lands of Maui Business Park Phase II are in an area that receives ample sunshine year-round. Average rainfall is approximately 20 inches per year. Average daily temperatures range from lows of 67.4 degrees Fahrenheit to highs of 83.7 degrees Fahrenheit.

2.1.5 Historical Land Uses

Historically, HC&S has grown sugarcane on the majority of the lands of the Maui Business Park Phase II site and surrounding areas. As mentioned above, a portion of the North Project Area contains a seed processing facility and former sugar plantation structures.



1. A view of the South Project Area from the approximate location of the extended Ho'okele Street. The existing drainage basins are seen in the foreground and Wal-Mart in the distance. The back of Maui Market Place is to the right of Wal-Mart. Maui Business Park Phase 1A is on the far right. The Haleakalā Mill is seen in the background on the left.

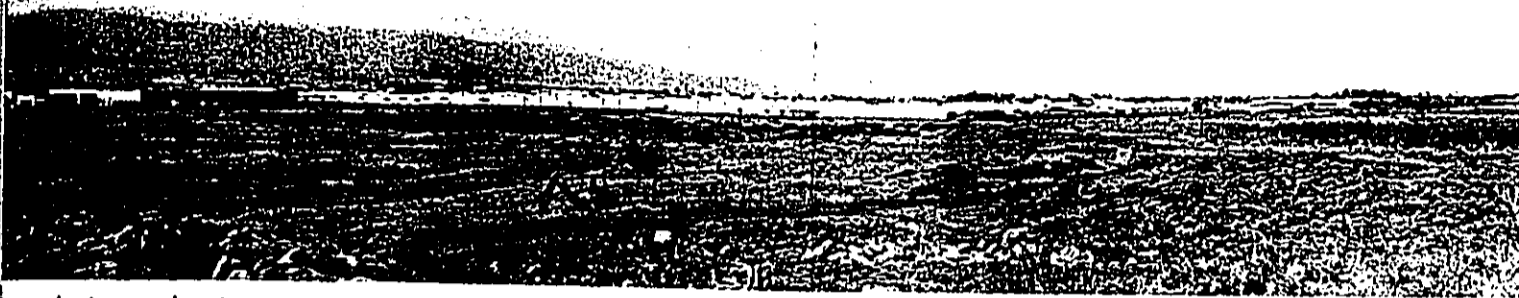


2. The South Project Area as seen from the edge of the existing drainage basins. Haleakalā is in the distance.

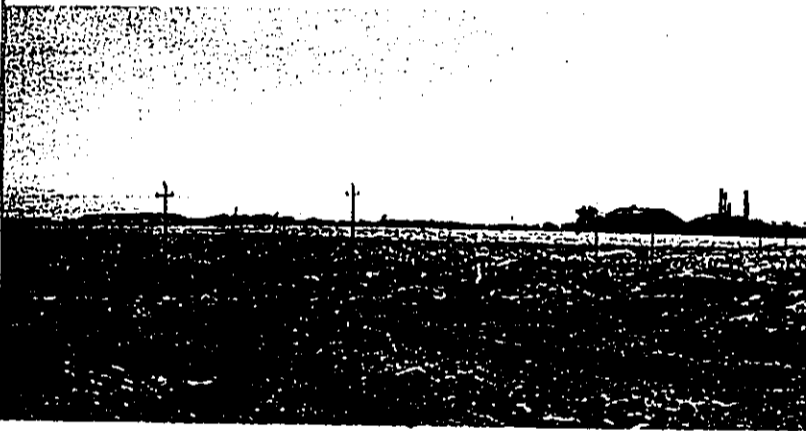


3. Looking toward the South Project Area from Pakaula Street. Haleakalā is in the distance. Home Depot is on the right. The Wal-Mart is on the left.

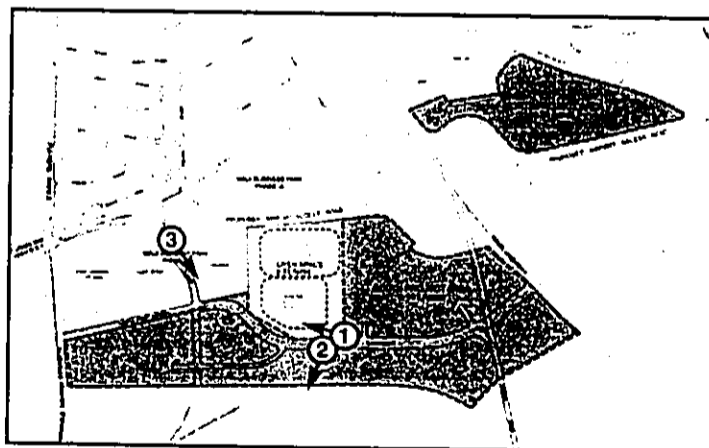
All photos taken in January 2004.



ing drainage basins are seen in the center with Home Depot Phase 1A is on the far right. The HC&S Pu'unēnē Sugar



the right. The Wal-Mart parking lot is on the left.



Key Map

Figure 3a
Site Photographs - (Sheet 1 of 3)
MAUI BUSINESS PARK - PHASE II

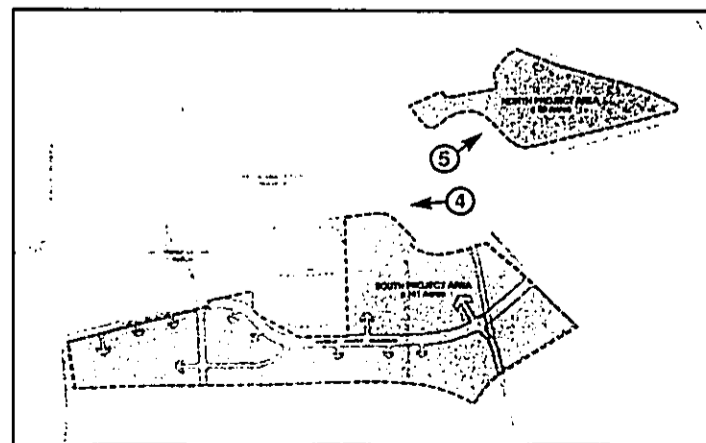




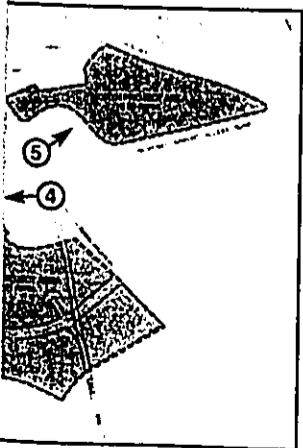
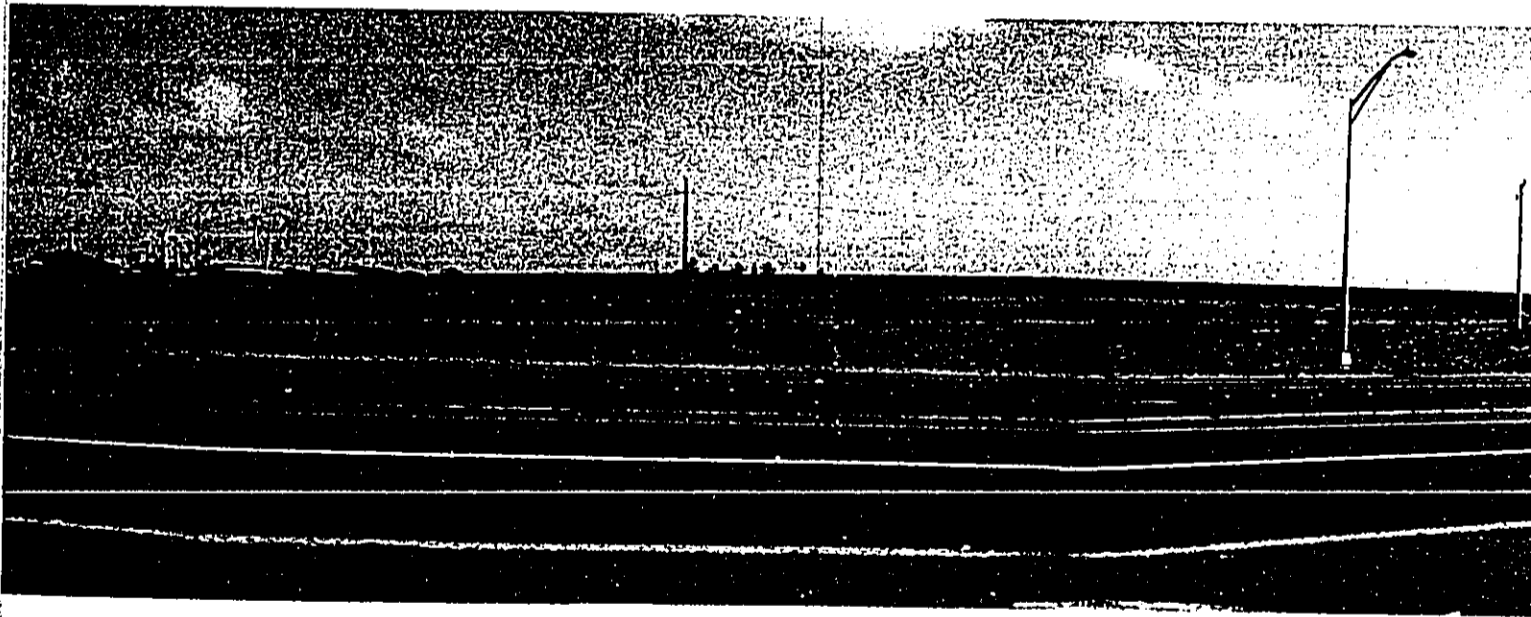
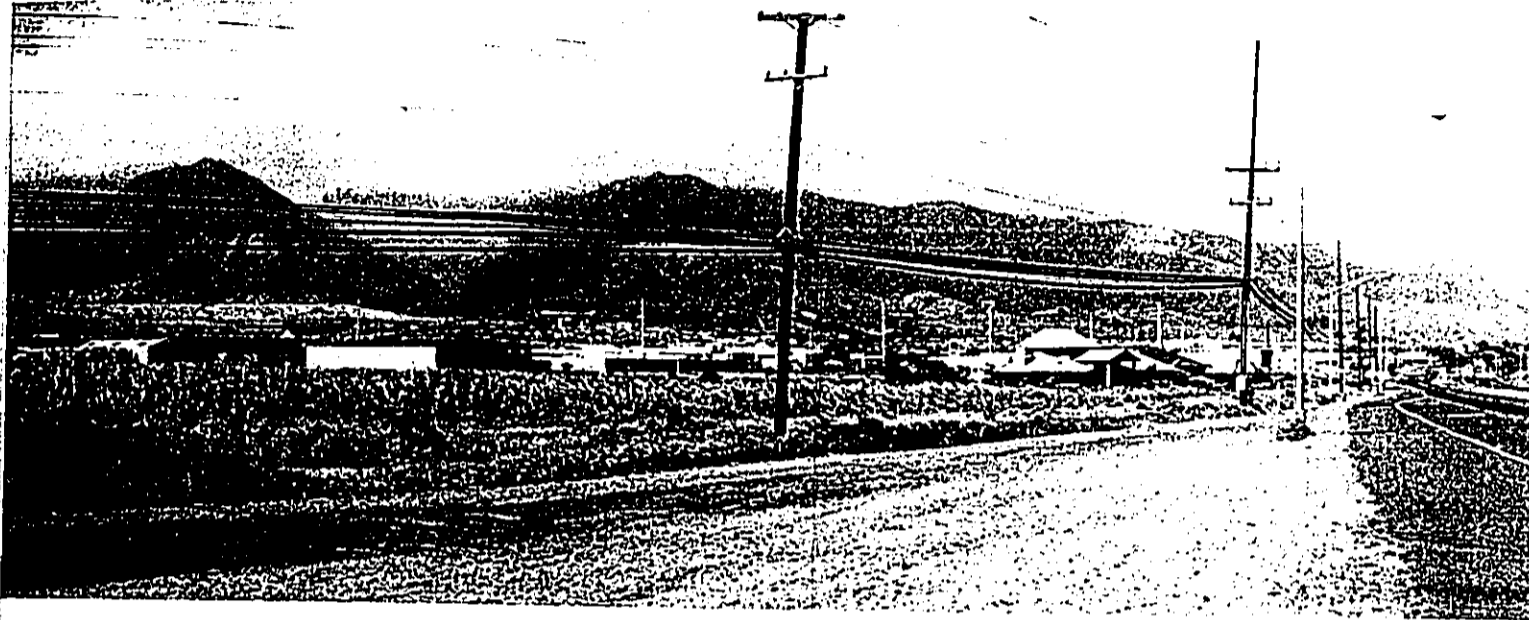
4. The South Project Area from Hāna Highway. Maui Business Park IA is in the distance.



5. The North Project Area from across Hāna Highway.



Key Map



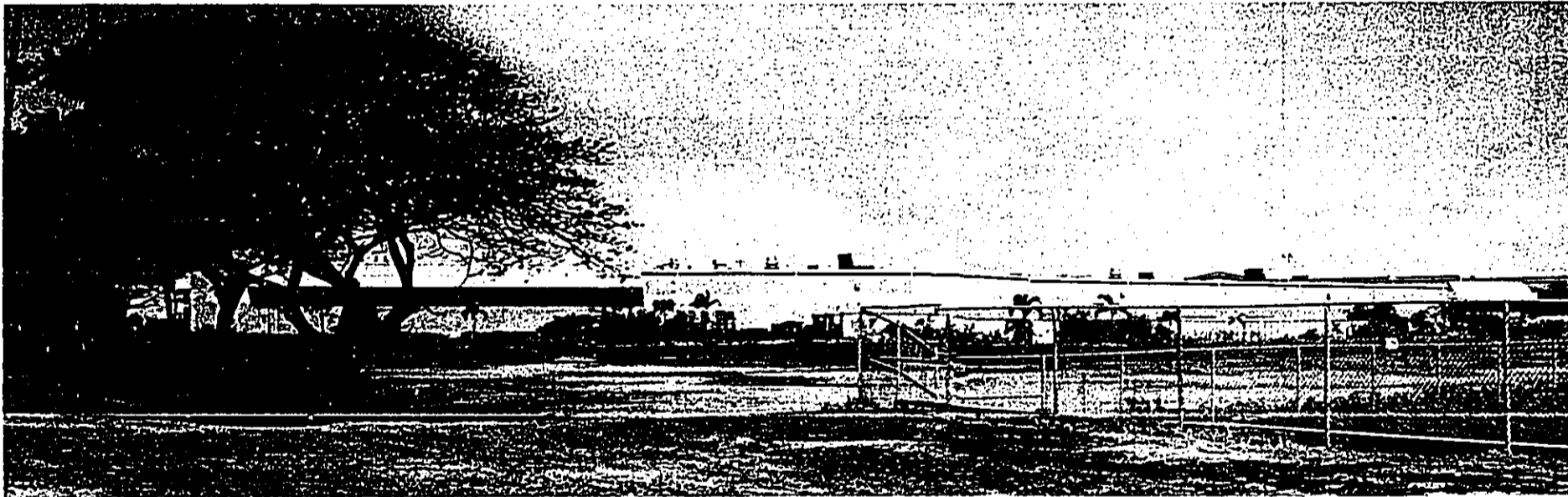
Key Map

Figure 3b
Site Photographs - (Sheet 2 of 3)
MAUI BUSINESS PARK - PHASE II

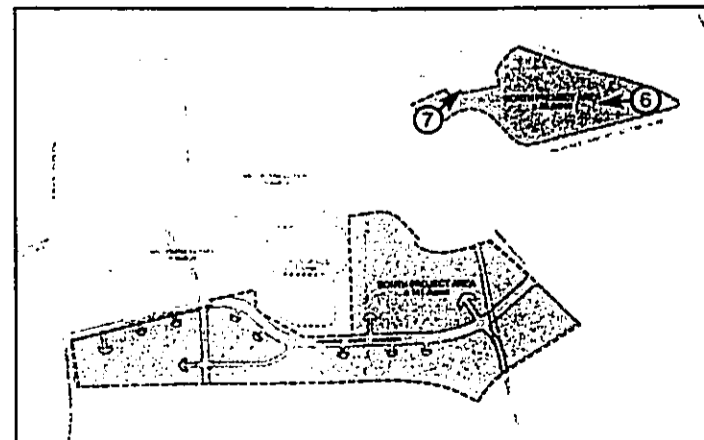




6. The North Project Area from near Haleakalā Highway. The South Project Area and Maui Business Park Phase IA are shown in the d

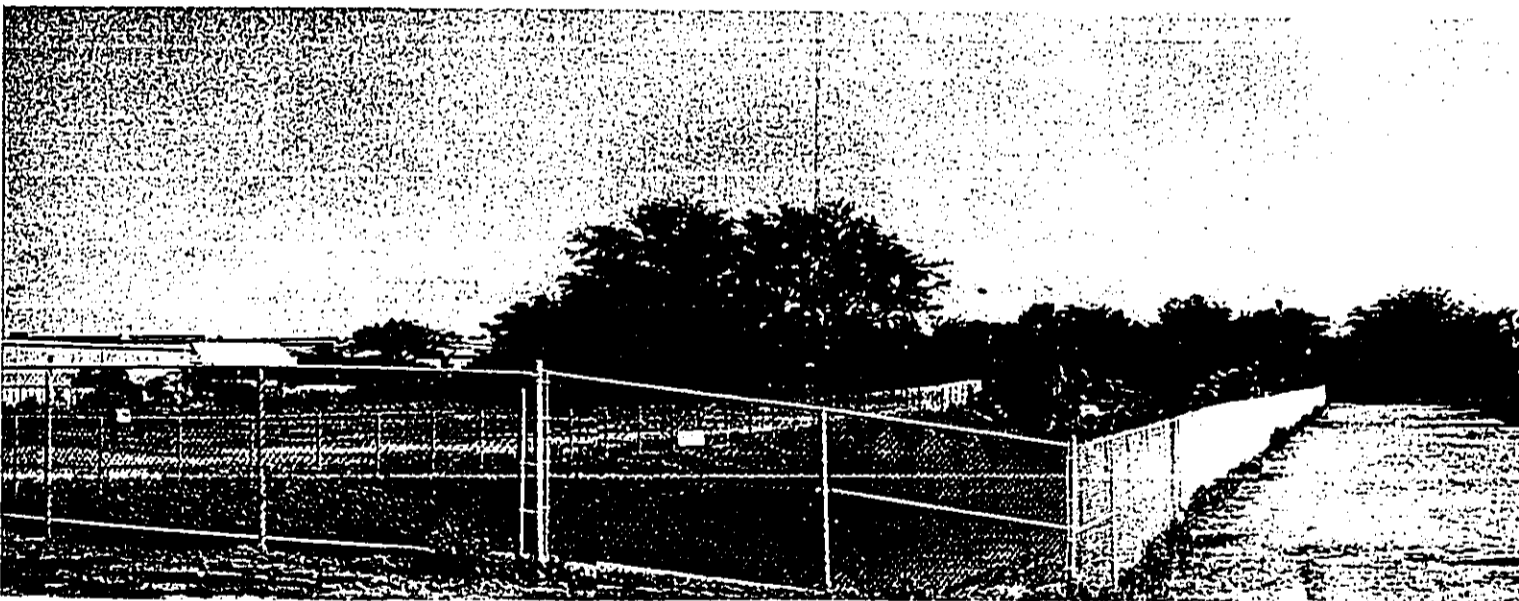


7. A portion of the North Project Area and the existing drainage canal. The building shown is the back of K-Mart.

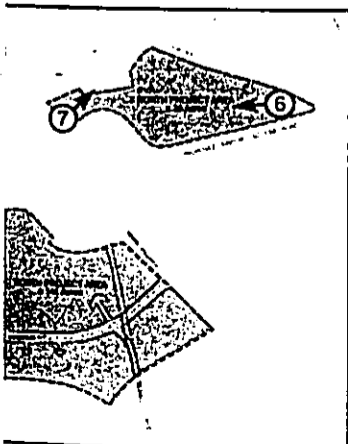




se IA are shown in the distance.



Part.



Key Map

Figure 3c
Site Plan (sheet 3 of 3)
MAUI BUSINESS PARK - PHASE II



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2.1.6 Maui Business Park History

In December of 1988, to support the growing demand for light industrial and retail space on Maui, Alexander & Baldwin, Inc., filed a petition with the LUC (Docket Number A88-634) to reclassify land in Kahului south of Dairy Road from the Agricultural District to the Urban District to develop Maui Business Park.

In 1990 the LUC approved the reclassification of approximately 76.006 acres for the development of Maui Business Park Phases IA and IB. At the same time the LUC also approved incremental reclassification from the Agricultural District to the Urban District for approximately 52.695¹ acres of adjacent land for Phase II of Maui Business Park.

In the 14 years since the reclassification of the land for Phases IA and IB, Alexander & Baldwin, Inc., has complied with all conditions of the LUC reclassification and has completed all required off-site and on-site improvements necessary for Phases IA and IB. As of ~~July~~ October 2004, ~~approximately 96 percent of all properties in Phases IA and IB have either been sold or are under contract to a variety of industrial and retail users; a total of 2.8 acres remain available for sale.~~

With Phases IA and IB nearly sold out, and with increasing demand for light industrial space on Maui, A&B Properties, Inc. now seeks to develop Maui Business Park Phase II on 179 acres adjacent to Phases IA and IB as the logical addition to the business park. The 179 acres include: 1) approximately 33.530 acres of the incremental districted land, 2) approximately 138.158 acres reclassified from the Agricultural to the Urban District by the LUC in 2004 under Docket Number A03-739, and 3) approximately 7.3 acres previously classified Urban. Appendix A contains the LUC Findings of Fact, Conclusions of Law, and Decision and Order on Docket No. A03-739.

2.2 STATEMENT OF PURPOSE AND NEED

A market study prepared for Maui Business Park Phase II (Hallstrom 2003) forecasts a shortfall of light industrial acreage on Maui within one to two years. The study also forecasts that over the next two decades, there will be demand for approximately 290 acres of new light industrial areas, including retail, office, warehouse and light industrial uses in Central Maui. This demand for additional light industrial land is based on uses allowed under the Light Industrial (M-1) District as defined in Chapter 19.24 of Title 19 of the Maui County Code. The uses forecast in the market study are allowed in the M-1 zoning district.

In Central Maui, there are currently less than 20 acres of available industrial land, much of it in older, less desirable subdivisions. Not including Maui Business Park Phase II, only about 80 acres of additional light industrial development is currently being proposed in Central Maui.

The market study projects an approximately 50/50 split between light industrial uses and commercial/retail uses. This is generally consistent with other light industrial subdivisions on Maui. It is also consistent with the State Land Use Commission's (LUC) Decision and Order (Docket No. A03-739) reclassifying a majority of the Maui Business Park Phase II site to the Urban district.

¹ Note: As a result of a subsequent land use district boundary interpretation, the incremental districted area was modified to 52.664 acres, a reduction of 0.031 acre.

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A&B Properties, Inc. has developed nearly all of the industrial areas in the Kahului area, including the Kahului Industrial Area and Maui Business Park Phase I. Because of Kahului's central location and its proximity to the island's main airport and harbor, many of the businesses in the existing Kahului industrial areas support the island's primary industries. With these existing industrial areas nearing build-out and the continuing growth of Maui's economy, the market study concludes that additional light industrial areas are needed in close proximity to Kahului Airport and Kahului Harbor. The Maui Business Park Phase II site is perhaps the best-located area in Central Maui to meet the industrial sector demand. The site abuts similar land uses, is close to vital port facilities, is situated at the hub of the islandwide highway system, is proximate to the largest population center on Maui, and possesses superior access and exposure characteristics.

2.3 GENERAL DESCRIPTION OF MAUI BUSINESS PARK PHASE II

2.3.1 Statement of Objectives

The objectives of Maui Business Park Phase II are based on the desire to provide the best possible use of land to meet the economic and social needs of the community. As such, the objectives of Maui Business Park Phase II are to:

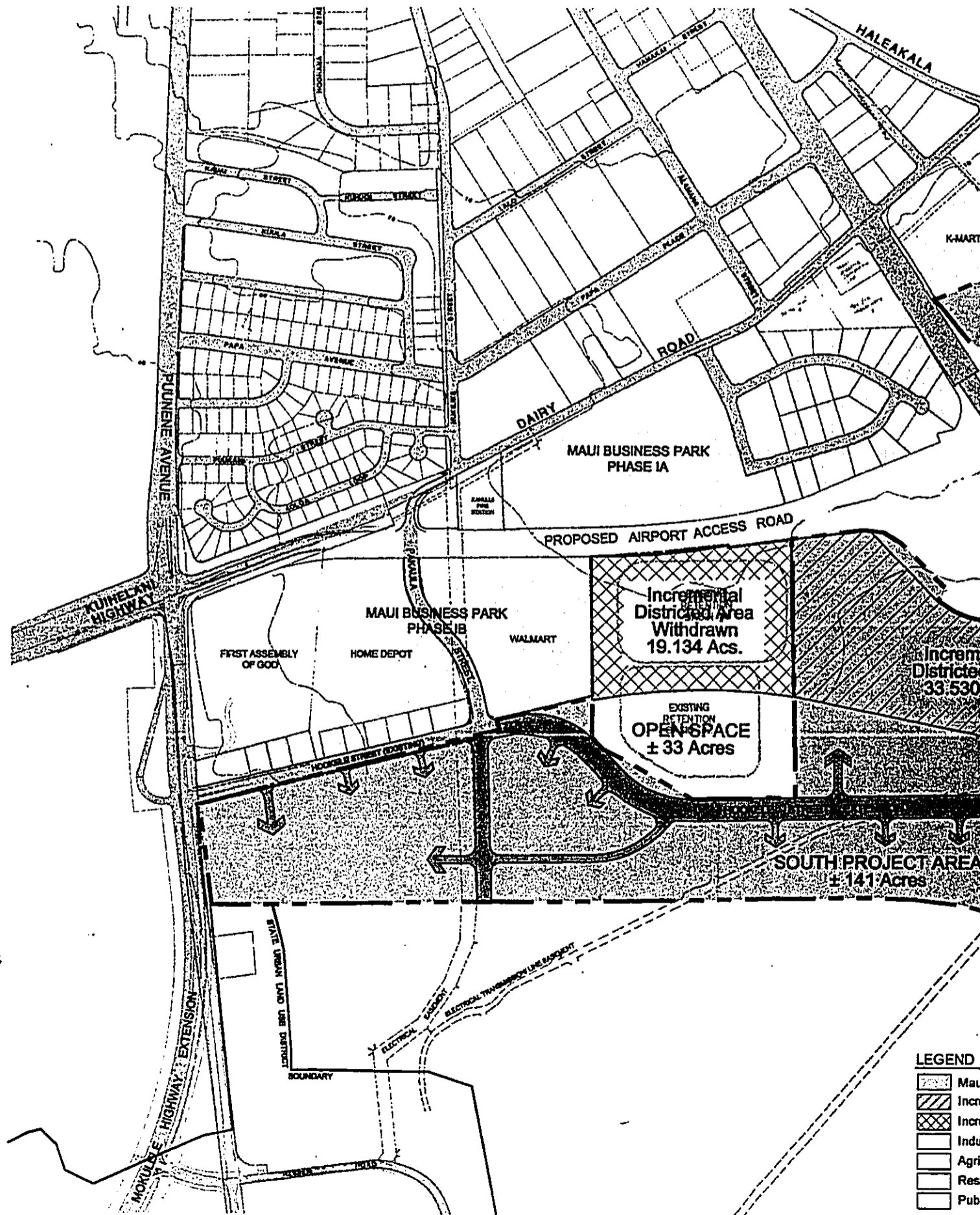
- Provide an appropriate and sensitive use of the land in context with Maui's environmental, social, and economic needs, and consistent with the County's Wailuku-Kahului Community Plan;
- Provide for the logical expansion of Maui Business Park at a location in close proximity to existing infrastructure and contiguous with existing industrial development; and
- Develop high-quality light industrial and commercial space to meet current and future demand on the island of Maui.

2.3.2 Business Park Description

Maui Business Park Phase II will provide approximately 179 acres of light industrial space in Maui's central commercial and business district in close proximity to the island's primary airport and harbor. Figure 4 contains the project conceptual master plan.

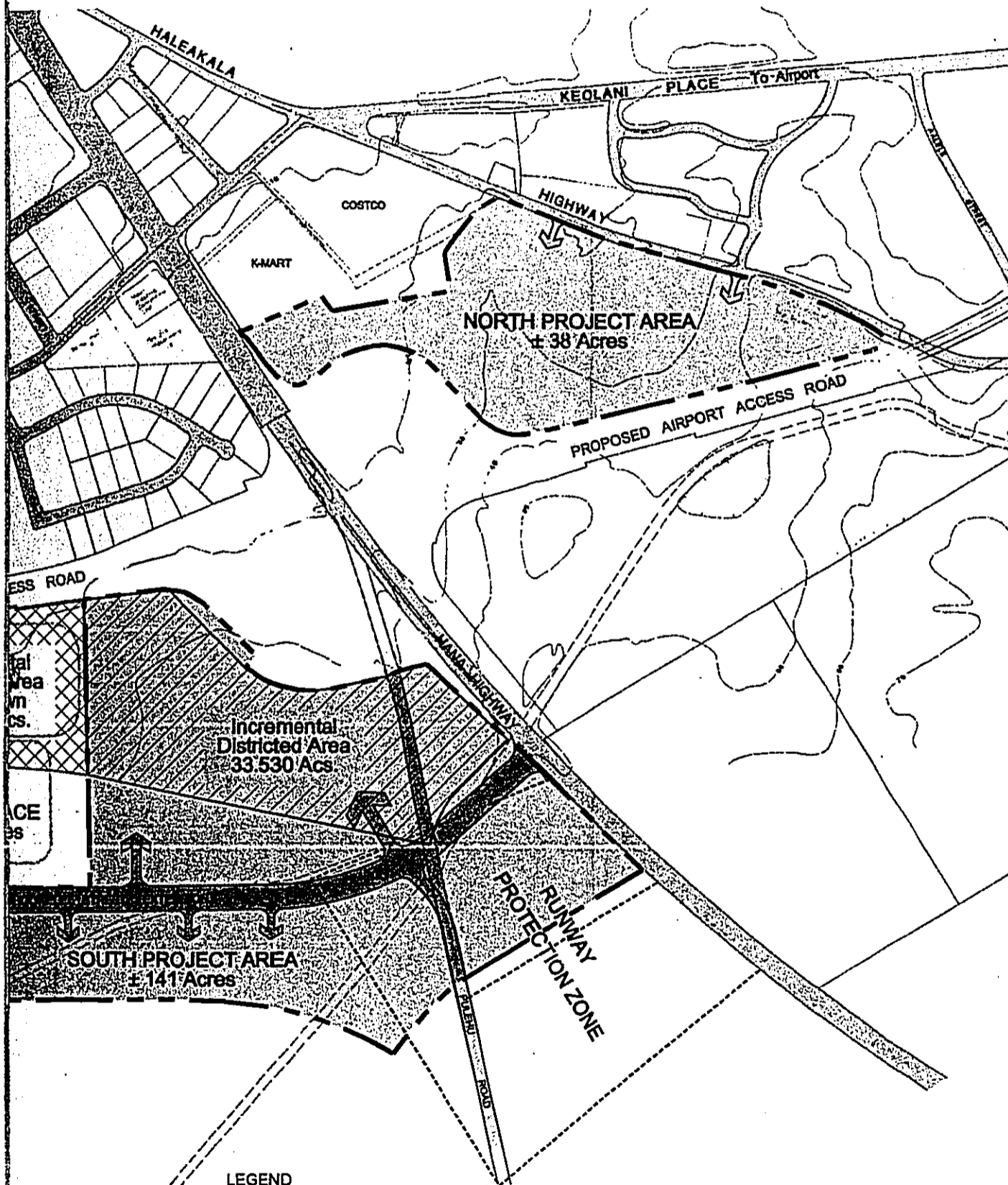
A detailed subdivision plan, and subsequently the internal roadway system, has not been developed however, all streets within Maui Business Park Phase II will be designed per the design requirements of Chapter 18.16, Maui County Code (MCC). All parking requirements will be in conformance with Chapter 19.36, MCC.

Land uses within Maui Business Park Phase II will be consistent with the M-1 Light Industrial District (Chapter 19.24, Maui County Code) and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses. Both project areas will contain a variety of lot sizes to serve the needs of various types of businesses allowed within the Light Industrial District. In March 2004, the LUC under Docket



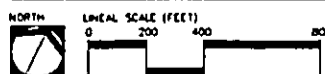
LEGEND

[Stippled Box]	Maui Business Park
[Diagonal Lines Box]	Incremental Districted Area
[Cross-hatched Box]	Incremental Districted Area Withdrawn
[White Box]	Industrial
[White Box]	Agriculture
[White Box]	Residential
[White Box]	Public



- LEGEND**
- Maui Business Park Phase II
 - Incremental Area
 - Incremental Area Withdrawn
 - Industrial / Urban
 - Agricultural
 - Residential / Urban
 - Public Facilities / Urban

Figure 4
Conceptual Master Plan
Maui Business Park - Phase II



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No. A03-739 indicated a preference for light industrial development at Maui Business Park Phase II by requiring that at least fifty percent of the Project be developed for non-retail, light industrial use. A&B Properties, Inc. is seeking a Change in Zoning for the Maui Business Park Phase II site to the M-1 Light Industrial District (Chapter 19.24 Maui County Code).

The *Wailuku-Kahului Community Plan (2002)* designates the area of Maui Business Park Phase II as "Light Industrial." Approximately 33 acres adjacent to the South Project Area is in use as a drainage basin. The community plan designates this drainage basin area as "Open Space." This drainage basin is not part of Maui Business Park Phase II.

The visual quality of Maui Business Park Phase II will be enhanced and maintained by the establishment of design standards. Standards will include a unified streetscape planting theme and program, underground utilities, and low-impact lighting. In addition, alternative energy will be used where practical, including the use of solar energy to heat water.

The right-of-way for the proposed Kahului Airport Access Road, while not part of Maui Business Park Phase II, borders the north boundary of the South Project Area and the south boundary of the North Project Area. It also borders the completed Maui Business Park Phase I to the south. As such, both phases of Maui Business Park are adjacent to the proposed Kahului Airport Access Road and will include landscaped buffer areas to mitigate the visual impact of buildings along the road. There are no planned access points to either phase of Maui Business Park from the proposed Kahului Airport Access Road, with the exception of the existing intersection of Dairy Road and Pakaula Street.

South Project Area

Lots within the South Project Area, which includes the incremental districted area, will typically range from one-third of an acre to one acre in size, with larger lots available depending on market demand (see Table 1). In accordance with the *Wailuku-Kahului Community Plan (2002)*, the South Project Area will be developed in increments not greater than 70 acres.

Ho'okele Street, which currently runs between Pu'unē Avenue and Pakaula Street (the street between Wal-Mart and Home Depot), will be extended to Hāna Highway during the first increment of Maui Business Park Phase II construction and will serve as the primary collector road through the South Project Area. It will also provide the primary access via intersections with Pu'unē Ave and Hāna Highway. When extended, Ho'okele Street will run roughly parallel with Dairy Road, and will provide an alternative route between Hāna Highway and Pu'unē Avenue, so that people traveling to and from Pā'ia or Upcountry and Kīhei will have the option of bypassing Dairy Road via Ho'okele Street.

The extended Ho'okele Street will include a landscaped berm with trees and shrubbery to soften the visual impact of the buildings along the road, except where required for ingress/egress or as mandated by engineering safety standards. To the extent practical, the alignment of Ho'okele Street will maintain a view corridor toward Haleakalā. Signalized intersections along Ho'okele Street will be minimized and will be installed when warranted by standard traffic engineering requirements.

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In March 2004, the LUC under Docket No. A03-739 imposed restrictions concerning development of the South Project Area. Approximately 25 acres of the South Project Area abutting Hāna Highway are restricted in use due to its potential designation as a runway protection zone (RPZ) (see Figure 4) by the State Department of Transportation (DOT). This RPZ is a requirement of the proposed extension of the Kahului Airport runway to 9,600 feet in length. Uses in this area are restricted to those which do not entail the congregation of people and as may be approved by the Federal Aviation Administration. The DOT has further indicated the possibility of acquiring the RPZ area from A&B Properties, Inc.

North Project Area

Lots within the North Project Area will typically range from one-third of an acre to two acres (see Table 1). Some larger lots may be available depending on demand. Primary access will be provided via two intersections with Haleakalā Highway. A third access point is proposed via an intersection with Hāna Highway, however this access is being provided as a traffic mitigation measure and will only provide "right turn in" and "right turn out" access to minimize conflicts with traffic flow on Hāna Highway.

Because of the proximity to the airport, it is envisioned that this area could complement and provided additional space for airport support activities such as car rental companies, airline service areas, flight kitchens, freight forwarding centers, and cargo warehousing, however market forces will largely determine actual uses developed.

While the North Project area is separate from the nearby Kahului Airport Master Plan (Plan) (DOT 1993) Area, the Plan projects the need for approximately 22 additional acres for ground transportation services (car rental agencies, bus facilities, etc.) by 2010. The Plan also projects the need for a flight kitchen facility, additional air cargo and other facilities. While the Plan suggests potential areas for these facilities, in many cases new access and infrastructure will be necessary. In particular, the preferred alternative for expanded ground transportation facilities is to extend Mokauea Place across Kalialinui Gulch. However, bridging the gulch will require substantial fill and a relatively expensive engineered structure. The more economical alternative is to provide a separate ground transportation area south of the gulch with access from Keolani Place. Much of this land currently is leased for non-airport related uses and would be displaced for the expansion of ground transportation facilities. The Plan also recommends that a private entity should develop a flight kitchen facility in this area.

Table 1: Land Use Summary

	Gross Acres	Estimated Number of Lots	Lot Size (Acres)
South Project Area (including Incremental Districted Area)	140.783	75	0.3 – 1.0
Incremental Districted Area	33.53	18	0.3 – 1.0
North Project Area	38.217	22	0.3 – 2.0

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MAUI BUSINESS PARK PHASE II**

2.3.3 Estimated Sales Price

Recent land prices on Maui for improved industrial land comparable to that planned within Maui Business Park Phase II are approximately \$23 to \$32 per square foot. It is expected that property within Maui Business Park Phase II, including the incremental area, will be priced accordingly, subject to the prevailing market prices.

2.4 DEVELOPMENT TIMETABLE AND PRELIMINARY COSTS

Development and sales of Maui Business Park Phase II are projected to occur between 2005 and 2023. Before construction, entitlement processing and permit processing is expected take place between 2003 and 2005. Construction of the major backbone infrastructure is estimated to occur between 2005 and 2013. Infrastructure costs are estimated at \$17.8 million.

Sales of individual lots and construction of individual buildings will begin after the first increment of basic infrastructure is in place in approximately 2008 and continue until about 2023 in response to market demand.

Table 2: Development Timetable

	Year
Entitlement and Permit Processing	2003-2005
Construction of Basic Infrastructure	2006-2013
Sales and Construction	2008-2023

2.5 SUSTAINABLE BUILDING DESIGN

Where appropriate, development of Maui Business Park Phase II will implement techniques described in the Office of Environmental Quality Control's (OEQC) "Guidelines for Sustainable Building Design in Hawai'i."

**FINAL ENVIRONMENTAL IMPACT STATEMENT
MAUI BUSINESS PARK PHASE II**

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3.0 REQUIRED PERMITS AND APPROVALS

The processing of various permits and approvals is prerequisite to construction of Maui Business Park Phase II. Relevant State of Hawai'i and County of Maui land use plans, policies, and ordinances are described below. Conformance to plans and policies of the State of Hawai'i and the County of Maui is described in further detail in Section 6.0.

3.1 STATE OF HAWAI'I

3.1.1 Environmental Impact Statement Law, Chapter 343, Hawai'i Revised Statutes

Compliance with Chapter 343, HRS is required as described earlier in Section 1.1.2.

3.1.2 State Land Use Law, Chapter 205, Hawai'i Revised Statutes

The State Land Use Law (Chapter 205, Hawai'i Revised Statutes (HRS)), establishes the State Land Use Commission (LUC) and provides this body the authority to designate all lands in the State into one of four districts: Urban, Rural, Agricultural, or Conservation.

The majority of the Maui Business Park Phase II site is currently in the Urban District (Figure 5). A portion of the site (33.53 acres) requires approval by the LUC for reclassification from Incremental to the Urban District. The proposed light industrial uses within Maui Business Park Phase II are consistent with uses allowed in the Urban District.

3.1.3 Coastal Zone Management Act, Chapter 205A, Hawai'i Revised Statutes

The Coastal Zone Management Area as defined in Chapter 205A, HRS, includes all the lands of the state. As such, Maui Business Park Phase II is within the Coastal Zone Management Area; however, it is not located along a shoreline.

A portion of the North Project Area is within the Special Management Area (Figure 6). Although established in the Coastal Zone Management Law (Chapter 205A, HRS), Special Management Areas are under the jurisdiction of the counties. A Special Management Area Use Permit from the County of Maui will be required for development within the Special Management Area.

The relevant objectives and policies of the Hawai'i Coastal Zone Management (CZM) Program pertaining to Maui Business Park Phase II, along with a discussion of how the project conforms to these objectives and policies are included in Section 6.1.3.

3.1.4 Hawai'i State Plan, Chapter 226, Hawai'i Revised Statutes

The Hawai'i State Plan (Chapter 226, HRS), establishes a set of goals, objectives and policies that serve as long-range guidelines for the growth and development of the State. The Plan is divided into three parts: Part I (Overall Theme, Goals, Objectives and Policies); Part II (Planning, Coordination and Implementation); and Part III (Priority Guidelines). Part II elements of the State Plan pertain primarily to the administrative structure and implementation process of the Plan. As such, comments regarding the applicability of Part II to Maui Business Park Phase

**FINAL ENVIRONMENTAL IMPACT STATEMENT
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II are not appropriate. The sections of the Hawai'i State Plan directly applicable to the Maui Business Park Phase II, along with a discussion of how the project conforms to the State Plan, are included in Section 6.1.4.

3.1.5 State Functional Plans

The Hawai'i State Plan directs State agencies to prepare functional plans for their respective program areas. There are 13 state functional plans that serve as the primary implementing vehicle for the goals, objectives, and policies of the Hawai'i State Plan. The functional plans applicable to the Maui Business Park Phase II, along with each plan's relevant objectives, policies, and actions are discussed in Section 6.1.5.

3.2 COUNTY OF MAUI

Relevant land use plans and Ordinances of the County of Maui that pertain to Maui Business Park Phase II include the General Plan, the *Wailuku-Kahului Community Plan*, and the Maui County Code.

3.2.1 General Plan

Maui Business Park Phase II implements many of the objectives and policies of the *General Plan of the County of Maui 1990 Update*. As required by the County of Maui Charter, the *General Plan of the County of Maui* sets forth the desired sequence, patterns, and characteristics of future development. This is accomplished through long-range objectives focusing on the social, economic, and environmental effects of development coupled with specific policies designed to implement the objectives.

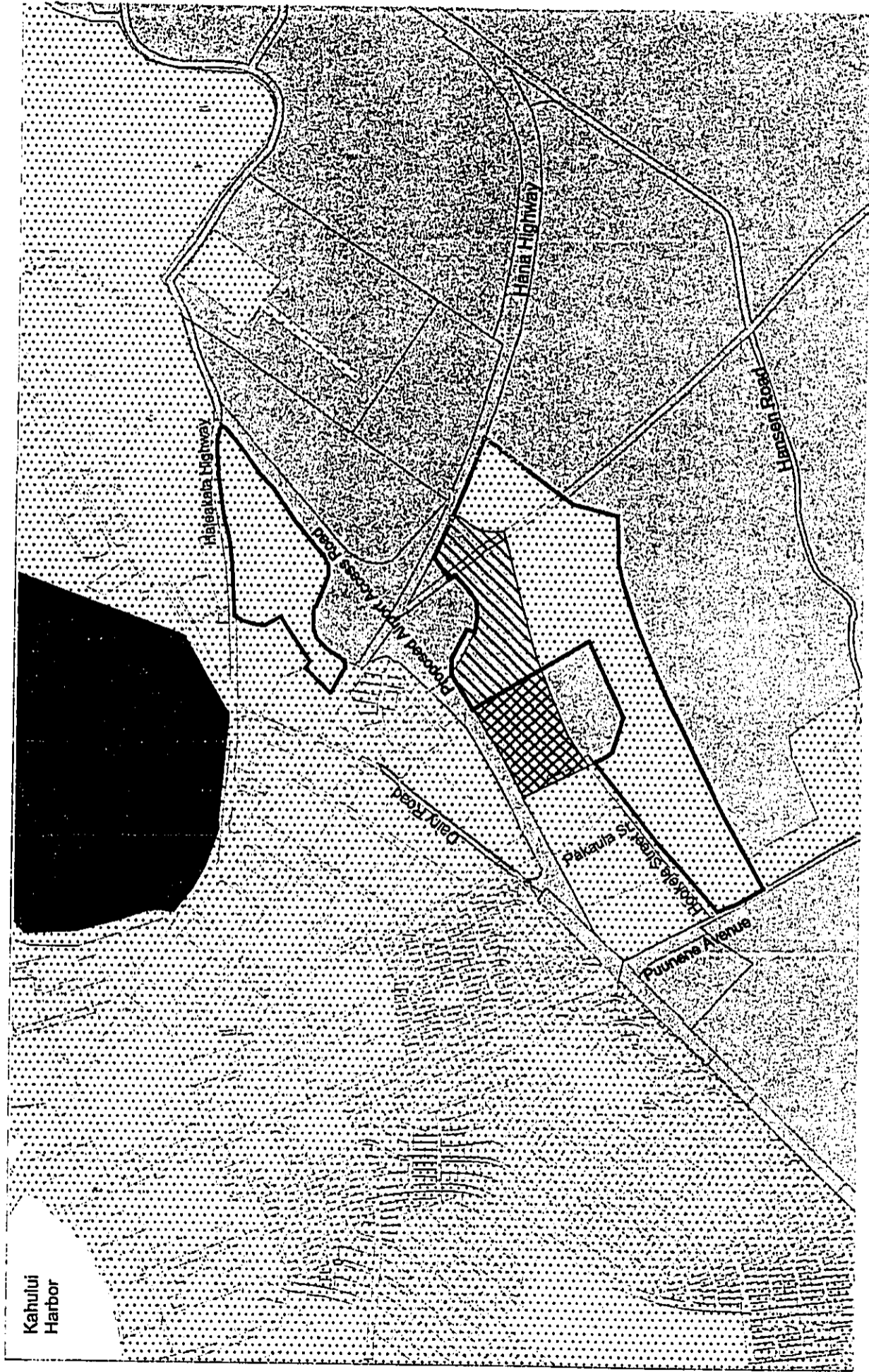
Specific general plan objectives and policies applicable to Maui Business Park Phase II are detailed in 6.2.1.

3.2.2 Wailuku-Kahului Community Plan





Maui Business Park Phase II is in conformance with and implements the *Wailuku-Kahului Community Plan (2002)*. The entire Maui Business Park Phase II area is designated "Light Industrial" on the *Wailuku-Kahului Community Plan (2002)* (Figure 7).

The *Wailuku-Kahului Community Plan (2002)* is one of nine community plans for Maui County. It reflects current and anticipated conditions in the Wailuku-Kahului region and advances planning goals, objectives, policies, and implementation considerations as a decision-making guide in the region through the year 2010. The *Wailuku-Kahului Community Plan (2002)* provides specific recommendations addressing the goals, objectives, and policies contained in the General Plan, while recognizing historic and cultural values in order to enhance the region's overall living environment.

The goals, objectives, policies, and implementing actions of the *Wailuku-Kahului Community Plan (2002)* applicable to the Maui Business Park Phase II are discussed in Section 6.2.2.



Legend

-  Agricultural District
-  Conservation District
-  Urban District
-  Maui Business Park Phase II
-  Incremental Area
-  Incremental Area Withdrawn

Source: State Land Use Commission

Figure 5

State Land Use Districts

Maui Business Park Phase II

AAR Properties, Inc. Kula, Maui

NORTH 

LINEAR SCALE (FEET)







Kahului Harbor

Hana Highway

Hana Highway Road



Proposed Airport Access Road

Dairy Road

Pakaula Street

Hokulele Street
Puunene Avenue

Figure 6
Special Management Area
Maui Business Park Phase II
A&B Properties, Inc.
Kahului, Maui

Legend
 Special Management Area
 Maui Business Park Phase II



Source: County of Maui

Cross-hatched area encompasses TMK 3-8-79:16 and 17, which were designated Hotel by Ordinance No. 3045

Matrix No. 34 (Airport Triangle) - Redesignate approximately 77 acres (TMK 3-8-79:1-13, 15, 20 and 22) from Business/Industrial to Light Industrial

Matrix No. 33 (Dairy Road Light Industrial Expansion) - Revise Planning Commission Map to reflect approximately 28 acres of Open Space and to reflect approximately 143 acres of Light Industrial (TMK 3-8-1:2p; 3-8-6:4p)

Legend

- LI = Light Industrial
- OS = Open Space

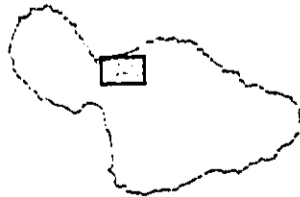


Figure 7
Wailuku-Kahului Community Plan (2002)
Land Use Map
Maui Business Park Phase II

A & B Properties, Inc. Kahului, Maui

NORTH

LINEAR SCALE (FEET)
750 0 1500

Source: Wailuku-Kahului Community Plan (2002)

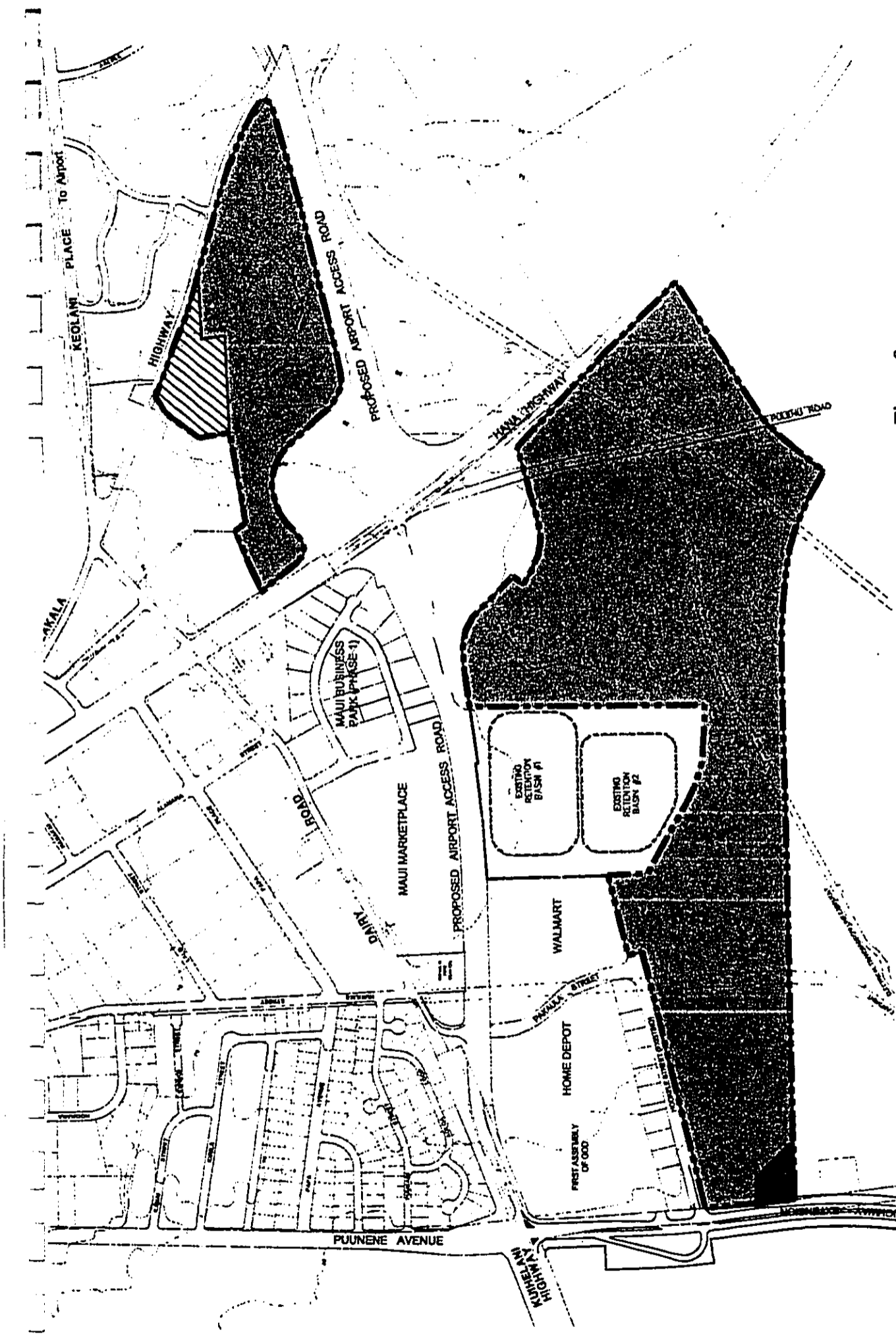


Figure 8
County of Maui Zoning
Maui Business Park Phase II
 A & B Properties, Inc.
 KAHALA, MAUI
 1200
 LINEAR SCALE (FEET)
 0 400
PBR
 APRIL 2004

LEGEND

- Agricultural (AG)
- Heavy Industrial (M-2)
- Residential (R-1)
- Maui Business Park Phase II

SOURCE: County of Maui
 A&B Properties, Inc. NOTE: Zoning District boundaries are approximate.

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3.2.3 County of Maui Zoning

The site of Maui Business Park Phase II covers three parcels: 3-8-01:2 (portion); 3-8-06:4 (portion); and 3-8-79:13 (Figure 2). The zoning for the portions of these parcels within the Maui Business Park Phase II site is Agricultural (AG), Residential (R-1), and Heavy Industrial (M-2) (Figure 8).

A change in zoning to Light Industrial (M-1) (Chapter 19.24 Maui County Code) is being sought from the County of Maui. Land uses within Maui Business Park Phase II will be consistent with the Light Industrial zoning district and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses.

3.2.4 Other Approvals and Permits

A preliminary listing of permits and approvals required for Maui Business Park Phase II is presented below.

Permit/Approval	Responsible Agency
Chapter 343, HRS compliance	State Land Use Commission Office of Environmental Quality Control
State Land Use District Boundary Amendment (Incremental to Urban for approximately 33.53 acres)	State Land Use Commission
Change in Zoning	County of Maui Planning Department Maui Planning Commission Maui County Council
Special Management Area Use Permit (North Project Area)	Maui Planning Commission
NPDES Permit	State Department of Health
Subdivision Approval	County of Maui Department of Public Works and Environmental Management
Grading/Building Permits	County of Maui Department of Public Works & Waste Management

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MAUI BUSINESS PARK PHASE II**

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FINAL ENVIRONMENTAL IMPACT STATEMENT
MAUI BUSINESS PARK PHASE II

4.0 DESCRIPTION OF THE AFFECTED NATURAL ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATIVE MEASURES

This section describes the existing conditions of the physical or natural environment, potential impacts of Maui Business Park Phase II, and mitigative measures to minimize any impacts.

4.1 CLIMATE

Existing Conditions

The lands of Maui Business Park Phase II are in a region of Maui that receives ample sunshine. Average daily temperatures range from lows of 67.4 degrees Fahrenheit to highs of 83.7 degrees Fahrenheit. Average rainfall is approximately 20 inches per year.

Potential Impacts

Maui Business Park Phase II is not expected to have an impact on climatic conditions.

Mitigative Measures

Because Maui Business Park Phase II is not expected to have an impact on climatic conditions, no mitigative measures are planned.

4.2 TOPOGRAPHY AND GEOLOGY

The topography of the site is nearly level to moderately sloping. Slopes generally range from 0.30 to 1.70 percent.

The island of Maui is part of a volcanic massif consisting of at least six major volcanoes and one minor volcano. At present the lower saddles between the volcanoes are flooded by shallow seawater, dividing the mass into four separate islands – Maui, Kaho'olawe, Lāna'i, and Moloka'i. In the geologically recent past, all were united as a single large island (MacDonald, Abbott, & Peterson 1983).

The island of Maui consists of two major volcanoes. The older is West Maui, and the younger is Haleakalā, or East Maui. The broad gently sloping plain connecting the two volcanoes, the Maui Isthmus, was formed when lavas of Haleakalā banked against the existing West Maui volcano. The West Maui volcano has passed through the principal stages of Hawaiian volcanism, and has produced four small post-erosional eruptions. Haleakalā volcano erupted most recently less than two centuries ago and is regarded as dormant (MacDonald, Abbott, & Peterson 1983).

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Potential Impacts

While the addition of Maui Business Park Phase II will alter how the land is used, the proposed improvements are relatively insignificant compared to the overall geological character of the site and region. Impacts on the topography and geology of the site could be caused by alterations, such as grading, to accommodate project construction.

Mitigative Measures

The relatively level topography of the site limits the need for extensive grading. Because the proposed improvements are relatively insignificant compared to the overall geologic character of the site and region, and because significant impacts are not expected, extensive mitigative measures are not planned. Appropriate engineering, design, and construction measures will be undertaken to minimize potential erosion due to grading of soils during construction. Further information on soils and grading is provided in Section 4.3.

4.3 SOILS

There are three soil suitability studies prepared for lands in Hawai'i whose principal focus has been to describe the physical attributes of land and the relative productivity of different land types for agricultural production. These are: 1) the U.S. Department of Agriculture Soil Conservation Services Soil Survey (SCS); 2) the University of Hawai'i Land Study Bureau Detailed Land Classification; and 3) the State Department of Agriculture's Agricultural Lands of Importance to the State of Hawai'i (ALISH).

Soil Conservation Survey. The U.S.D.A. Soil Conservation Service, *Soil Survey of the Islands of Kaua'i, O'ahu, Maui, Moloka'i, and Lāna'i*, (1972) classifies the soils of Maui Business Park Phase II properties into the Pūlehu-'Ewa-Jaucas soil association (Figure 9). Within the Maui Business Park Phase II site there are five soil types in this association. The South Project Area is comprised of 'Ewa Silty Clay Loam (EaA), Waiakoa Very Stony Silty Clay Loam (WgB), and Moloka'i Silty Clay Loam (MuB). The North Project Area is comprised of 'Ewa Silty Clay Loam (EaA), Moloka'i Silty Clay Loam (MuA), Moloka'i Silty Clay Loam (MuB), and Jaucas Sand, Saline (JcC). A brief description of each soil type follows:

'Ewa Silty Clay Loam (EaA). The 'Ewa soil series consists of well-drained soils in basins and on alluvial fans on the islands of Maui and O'ahu. These soils developed in alluvium derived from basic igneous rock. For 'Ewa Silty Clay Loam (EaA) runoff is very slow and the erosion hazard is no more than slight. The soil is used for sugarcane and homesites (Capability classification I if irrigated, IVc if non-irrigated; sugarcane group 1; pineapple group 1; pasture group 2).

Waiakoa Very Stony Silty Clay Loam (WgB). The Waiakoa soil series consists of well-drained soils generally on uplands on Maui. These soils developed in material from basic igneous rock. For Waiakoa Very Stony Silty Clay Loam (WgB), permeability is moderate, runoff is slow, and the erosion hazard is slight. The soil is used for sugar cane, pasture, and wildlife habitat. (Capability classification: IVs if irrigated, VIs if non-irrigated; sugarcane group 1; pasture group 1).

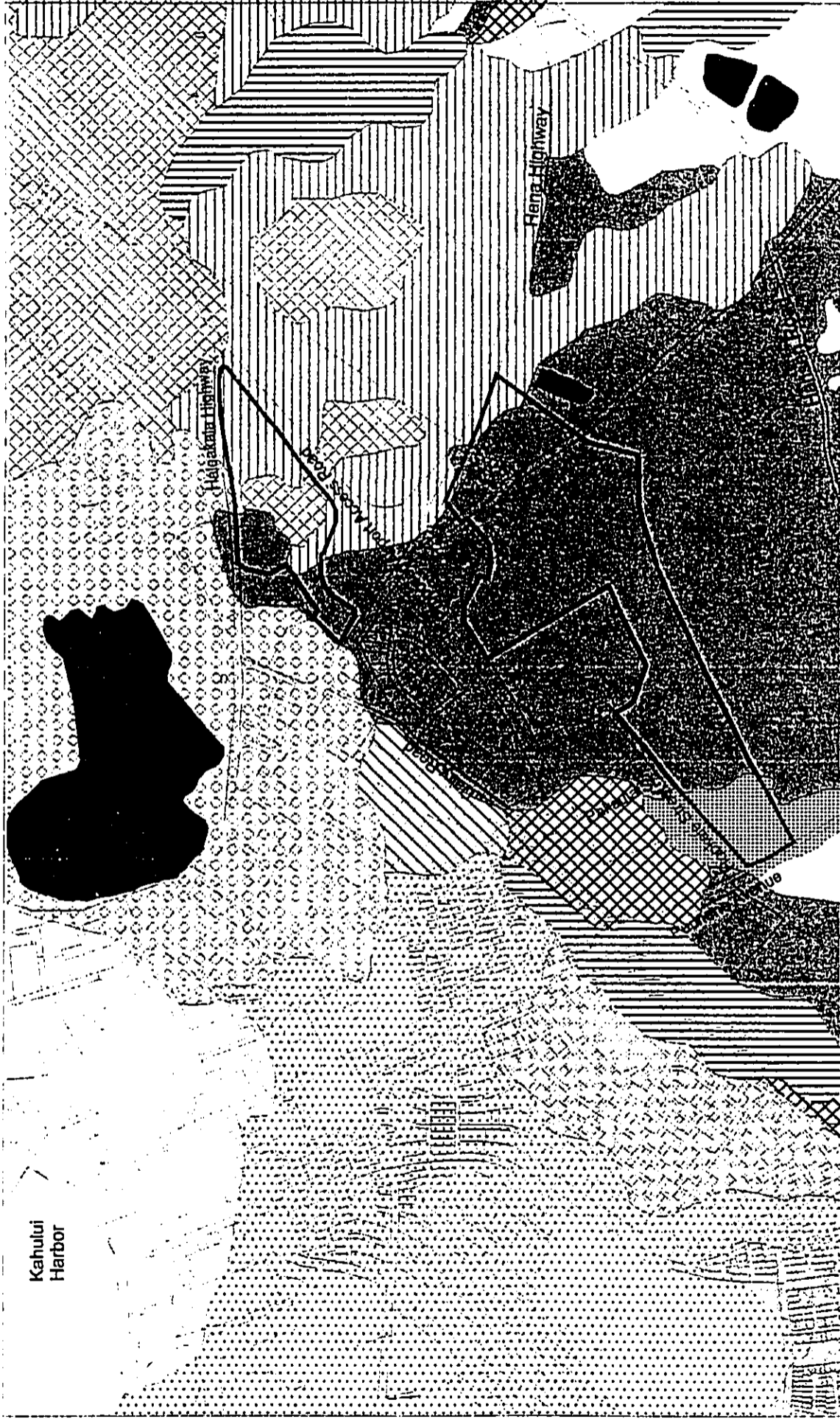


Figure 9
 Soil Conservation Service Soil Survey Map
Maui Business Park Phase II
 AAR Properties, Inc. Kahala, Maui
 NORTH
 LINEAR SCALE (FEET)
 0 750 1,500
 PBR
 MAUI

Legend

	Dune Land (DL)		Pelehu Clay Loam (PsA)
	Ewa Silty Clay Loam (EaA)		Waiakoa Very Stony Silty Clay Loam (WgB)
	Jaucas Sand (JaC)		Molokai Silty Clay Loam, 0-3% slope (MuA)
	Jaucas Sand, saline (JaL)		Molokai Silty Clay Loam, 3-7% slope (MuB)
	Puuone Sand (PZUE)		Water (W)
	Pelehu Silt Loam (TpA)		Maui Business Park Phase II

Source: U.S. Department of Agriculture Soil Conservation Service

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Moloka'i Silty Clay Loam (MuA). The Moloka'i soil series consists of well-drained soil on uplands on the islands of Maui, Lanai, Moloka'i, and O'ahu. These soils formed in material weathered from basic igneous rock. For Moloka'i Silty Clay Loam (MuA) permeability is moderate runoff is slow and the erosion hazard is slight. On Maui the soil is used for sugarcane. (Capability classification I if irrigated, IVc if non-irrigated; sugarcane group 1; pineapple group 1; pasture group 2).

Moloka'i Silty Clay Loam (MuB). On this soil runoff is slow to medium and the erosion hazard is slight to moderate. The soil is used for sugarcane, pineapple, pasture, wildlife habitat. (Capability classification IIe if irrigated, IVc if non-irrigated; sugarcane group 1; pineapple group 2; pasture group 2).

Jaucas Sand, Saline (JcC). The Jaucas Series consists of excessively drained, calcareous soils that occur as narrow strips on coastal plains adjacent to the ocean. They developed in wind and water -deposited sand from coral and seashells. The Jaucas Sand, Saline (JcC) soil occurs near the ocean in areas where the water table is near the surface and salts have accumulated. It is somewhat poorly drained in depressions but excessively drained on knolls. The soil is used for pasture, wildlife habitat, and urban development. (Capability classification VIIs, non-irrigated; pasture group 1).

The Soil Conservation Service's Land Capability Grouping, rates the above soil types according to eight levels, ranging from the highest classification level, I, to the lowest level, VIII.

With irrigation, a majority of the site's soils are considered Class I, which are soils that have few limitations that restrict their use. However, without irrigation these same soils are considered Class IV soils, with very severe limitations that reduce the choice of plants and/or require very careful management practices.

Land Study Bureau Detailed Land Classification. The University of Hawai'i's Land Study Bureau *Detailed Land Classification - Island of Maui* classifies the lands of Maui Business Park Phase II parcels as both "A" and "E" (Figure 10). This classification is based on a five-class productivity rating using the letters A, B, C, D, and E, with A representing the highest class of productivity and E the lowest.

Recognizing that the area is under irrigation, all of the soils of the South Project Area and most of the soils of the North Project Area are classified as "A" soils, indicating that the soils are "prime agricultural soils." However, without irrigation all of the "A" soils would be classified as "E," the lowest productivity rating.

Agricultural Lands of Importance to the State of Hawai'i (ALISH). The Agricultural Lands of Importance to the State of Hawai'i (ALISH) system classifies a majority of the lands of Maui Business Park Phase II as "Prime Agricultural Land" (Figure 11). Small portions within the South Project Area are either classified as "Other Important Agricultural Land," or "not classified".

Prime Agricultural Land is defined as having the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops economically when treated and managed according to modern farming methods. Other Important Agricultural Land is considered to have

FINAL ENVIRONMENTAL IMPACT STATEMENT
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a statewide or local importance for agricultural use. The unclassified lands represent no value for soil-based agriculture.

Potential Impacts

Maui Business Park Phase II will be built on the relatively flat land areas now used for sugar cultivation and other uses. Land disturbing activities will include removal of existing vegetation (clearing and grubbing) and grading. Impacts to the soils of the site include the potential for soil erosion and the generation of dust during construction. Clearing and grubbing activities will temporarily disturb the soil retention values of the existing vegetation and expose soils to erosional forces. Some wind erosion of soils could occur without a proper watering and regressing program. Heavy rainfall could also cause erosion of soils within disturbed areas of land.

Mitigative Measures

The relatively level site topography limits the need for extensive grading. Measures to control erosion during the site development period will include:

- Minimizing the time of construction;
- Retaining existing ground cover as long as possible;
- Constructing drainage control features early;
- Using temporary area sprinklers in non-active construction areas when ground cover is removed;
- Providing a water truck on site during the construction period to provide for immediate sprinkling as needed;
- Using temporary berms and cut-off ditches, where needed, for control of erosion;
- Watering graded areas when construction activity for each day has ceased;
- Grassing or planting all cut and fill slopes immediately after grading work has been completed; and
- Installing silt screens where appropriate.

All construction activities will comply with all applicable Federal, State, and County regulations and rules for erosion control. Before issuance of a grading permit by the County of Maui, an erosion control plan and best management practices required for the NPDES permit will be prepared describing the implementation of appropriate erosion control measures. ~~All construction activities will also comply with the provisions of Chapter 11-60.1, Hawaii Administrative Rules, Section 11-60.1-33 on Fugitive Dust.~~

All construction activities will also comply with the provisions of Chapter 11-60.1, Hawaii Administrative Rules, Section 11-60.1-33 on Fugitive Dust. Measures to control dust from road areas and during various phases of construction include:

- Planning phases of construction to: minimize the amount of dust-generating materials and activities, centralize on-site vehicular traffic routes, and locate potential dust-generating equipment in areas of the least impact;
- Providing an adequate water source at the site prior to start-up construction activities;



Legend

- A Excellent
 - B Good
 - C Fair
 - D Poor
 - E Very Poor
 - U Urban
- Prime Agricultural Soils
 Marginal Agricultural Soils
- Maui Business Park Phase II

Source: University of Hawaii Detailed Land Classification, Island of Maui

Figure 10
 Detailed Land Classification
Maui Business Park Phase II
 A & B Properties, Inc.
 Kahului, Maui

NORTH

LINEAR SCALE (FEET)
 0 750 1500

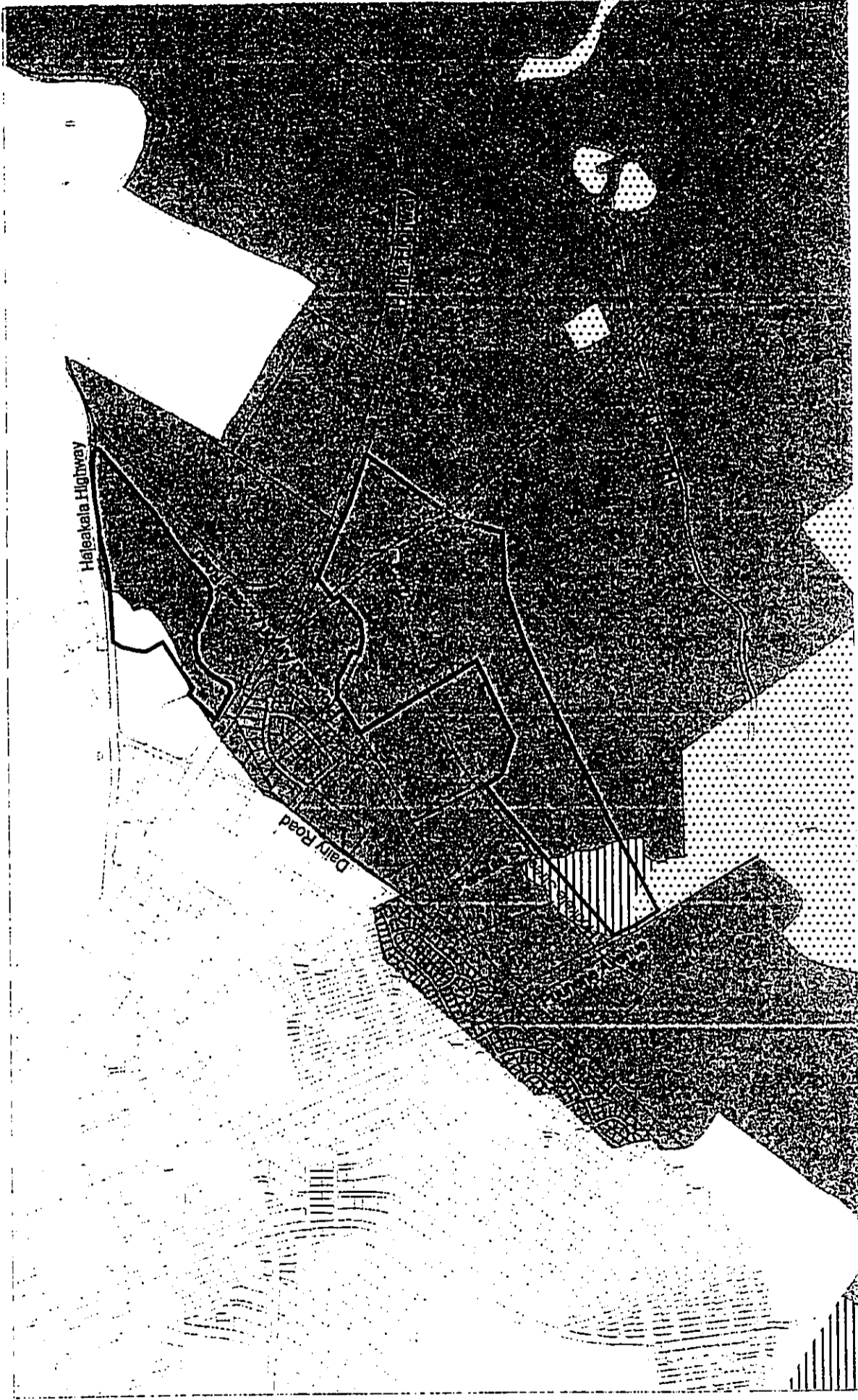


Figure 11
 Agricultural Lands of Importance
 to the State of Hawaii (ALISH)






Maui Business Park Phase II


 A&B Properties, Inc.
 NORTH

 PBR
 Kahului, Maui



Legend

-  Prime Agricultural Land
 -  Other Agricultural Land
 -  Not Classified
 -  Urban Land, Not Classified
 -  Maui Business Park Phase II
- Source: State of Hawaii Department of Agriculture

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- Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;
- Minimize dust from shoulders and access roads;
- Providing adequate dust control measures during weekends, after hours, and before daily start-up of construction activities; and
- Controlling dust from debris being hauled away from the project site.

After construction, establishment of permanent landscaping will provide long-term erosion control.

4.4 AGRICULTURAL IMPACT

Existing Conditions

Currently, Hawaiian Commercial & Sugar Company (HC&S), a subsidiary of Alexander & Baldwin, Inc., is cultivating sugarcane on approximately 140 acres of the South Project Area. The majority of the North Project Area is fallow sugarcane fields, however, HC&S is growing an experimental crop of dryland taro on approximately five acres.

Alexander & Baldwin, Inc., also has a license agreement with Maui Pineapple Company that allows Maui Pineapple Company to use approximately two acres within the North Project Area for a seed processing facility. The original lease agreement began in 1986 and expired on November 30, 2001, however, the agreement currently continues on a month-to-month basis.

Potential Impacts

Impact on Alexander & Baldwin, Inc., and HC&S

The direct impact of the proposed Maui Business Park Phase II on HC&S would be: 1) the removal of approximately 140 acres of land of the South Project Area from sugarcane production; 2) HC&S' experimental crop of dryland taro within the North Project Area would be relocated to other Alexander & Baldwin lands or a decision would be made as to the feasibility of continuing the crop; and 3) Maui Pineapple Company's seed processing facility would have to be relocated.

The slight decrease in the amount of land in sugar cultivation will not contribute to a significant reduction in HC&S revenues or any reduction of employment. In recent years technological improvements in sugar cultivation have resulted in greater yields per acre, therefore a slight reduction in the area cultivated is not expected to reduce overall yields or pose a problem to the economic viability of HC&S. Converting the relatively a small amount of agricultural land for Maui Business Park Phase II will have an insignificant impact on HC&S.

With the slight decrease in the amount of land in sugar cultivation, water requirements for sugar would decline by about 1.2 million gallons per day (gpd), based on a requirement of 8,500 gallons per day (gpd) per acre of sugar. However, this savings would be somewhat offset by the water requirements of Maui Business Park Phase II at full development.

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The North Project Area has not been used for sugar cultivation in recent years. When the proposed Airport Access Road is built, this area will be isolated from the rest of the plantation. Because this isolated area is small, it would be uneconomical to install expensive improvements to renew sugarcane cultivation on the affected fields. Such improvements would include an intersection to allow cane haul and other trucks to cross the Kahului Airport Access Road, and culverts to transport irrigation water under the road. It would also be dangerous for cane haul and other trucks to cross the road without signalization. Even if an intersection and culverts were provided, an isolated 31-acre field would be too small for efficient cultivation of sugarcane using modern planters, harvesters, etc.

As for the limited agricultural uses now taking place within the North Project Area, these uses could be relocated to other A&B lands, or the uses could be discontinued. The dryland taro crop was planted on an experimental basis, and was not intended to be continued on the property indefinitely. If proven successful, HC&S is considering dryland taro on other properties.

The dryland taro operation currently employs one HC&S employee. If the crop proves successful and HC&S decides to move and expand production, this employee would be needed at the new location. HC&S is also evaluating other possible crops.

Maui Pineapple Company will be given adequate advance notice regarding the need to relocate its seed processing facility and A&B will work with Maui Pineapple Company to find an alternative location.

Impact on Pu'unēnē Mill Operations

The Maui Business Park Phase II site is located near Pu'unēnē Mill and is currently irrigated with mill process water. HC&S uses a combination of drip and overhead sprinkler systems as a means of dispensing the mill process water. Yields for fields 712 and 713, in which a portion of Maui Business Park Phase II will be located, average 7.3 tons sugar per acre (TSA), whereas nearby fields irrigated with non-mill process water yield over 13 TSA.

Currently, approximately 13 million gallons per day (MGD) of mill process water is fed to 1,606 acres of land in Pu'unēnē. Maui Business Park Phase II and the re-alignment of Mokulele Highway currently underway will withdraw approximately 150 acres of land from the area used for the release of mill process water. According to HC&S, sufficient land exists to compensate for this withdrawal, provided steps are taken to reduce mill process water through recycling, mill improvements, and other efforts to reduce quantities of mill process water.

Cumulative Impact of Land Withdrawals

In addition to Maui Business Park Phase II, other potential projects in Central Maui may require the withdrawal of sugarcane land from HC&S. Other projects that may affect HC&S include: A&B Properties' Hāli'imaile and Pā'ia Post Office subdivisions and a new County sewage treatment plant. Over the foreseeable future, actual land withdrawals are not expected to significantly impact the economic viability of the plantation. A&B Properties, Inc. is committed to supporting HC&S as an economically viable sugar plantation and, to the extent of its control, will modify projects accordingly, or request modifications of projects, to minimize impacts to the plantation.

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Since 1968 approximately 305,500 acres have been released from plantation agriculture throughout the state. Rather than land supply, the greatest factors limiting the growth of the agricultural industry in Hawai'i are market demand and the profitability of crops grown in Hawai'i. Access to agricultural water is also a limiting factor. Unless there is a dramatic shift in the market demand for sugar, pineapple, and other agricultural products, or factors impacting the profitability of Hawai'i crops change, it is unlikely that additional agricultural lands will be needed to maintain or expand operations. In the unlikely event that HC&S or other interests do require additional lands for future expansion, ample agricultural land is available on Maui (Amfac lands, C. Brewer lands) and on other islands to accommodate agricultural activities.

Impact on Diversified Agriculture

Maui Business Park Phase II will not adversely affect the growth of diversified agriculture. With the closure of Pioneer Mill in Lahaina, the availability of lands owned by C. Brewer, and the planned reduction of pineapple cultivation in West Maui by Maui Pineapple Company, there are vast amounts of agricultural lands on Maui for diversified agricultural activities. In addition:

- 1) A vast amount of agricultural land and water in the State has been freed from sugar and pineapple production due to plantation closings and reductions in operations—over 305,500 acres since 1968. This freeing of plantation land has far outpaced the demand for land for diversified crops (about 38,000 acres over the same period);
- 2) Most of the land released from plantation agriculture has favorable soil ratings and remains available for diversified-agriculture activities.
- 3) Some of the sugar and pineapple land could be made available for more profitable replacement crops to the extent that such crops exist—i.e., the greater the success of diversified agriculture, the greater the amount of land which will be released from sugar and pineapple for diversified agriculture.

The supply of land is not a factor limiting the growth of diversified agriculture—far more land has been and continues to be freed from plantation agriculture than can be absorbed by diversified agriculture and urban development. Rather, the limiting factors to the growth of diversified agriculture statewide are the market demand and profitability of those crops that can be grown in Hawai'i and the lack of available agricultural water. The proposed Maui Business Park Phase II will not affect the statewide growth of diversified agriculture.

Consistency with State and County Agricultural Policies

As indicated above, Maui Business Park Phase II will have minimal impact on HC&S. Consequently, the proposed Maui Business Park II does not conflict with primary goals of the Hawai'i State Plan and the State Agriculture Functional Plan calling for preserving the economic viability of sugar and pineapple operations.

The proposed Maui Business Park Phase II does not conflict with State policies regarding diversified-agriculture. These policies call for promoting the growth of diversified agriculture, and assuring the availability of an adequate supply of agriculturally suitable lands and water. Throughout the state, far more agricultural land has been released from plantation agriculture than has been absorbed by diversified agriculture and other activities.

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Regarding State agricultural guidelines that call for protecting important agricultural lands from development, if irrigated, the land of the Maui Business Park Phase II site is considered productive agricultural land. However, without irrigation, the land has very severe limitations with low productivity ratings.

In relation to Maui County agricultural policies, as established in the *General Plan of the County of Maui 1990 Update* and the *Wailuku-Kahului Community Plan (2002)*, Maui Business Park Phase II would: 1) not conflict with those objectives and policies that call for preserving the economic viability of sugar; and 2) not be detrimental to diversified agriculture. Regarding policies discouraging development of prime agricultural land from development, the land of the Maui Business Park Phase II site is only considered productive agricultural land if irrigated. Without irrigation, the land has very severe limitations with low productivity ratings.

Perhaps most importantly, while the *General Plan of the County of Maui 1990 Update* and the *Wailuku-Kahului Community Plan (2002)* contain general agricultural policies, the *Wailuku-Kahului Community Plan (2002)* specifically designates the Maui Business Park Phase II site as "Light Industrial."

Conclusion

Maui Business Park Phase II will not contribute to a significant reduction in HC&S revenues or any reduction of sugar plantation employment. In recent years technological improvements in sugar cultivation have resulted in greater yields per acre, therefore a slight reduction in the area cultivated is not expected to reduce overall yields or pose a problem to the economic viability of HC&S. Converting the relatively small amount of agricultural land in Maui Business Park Phase II to industrial uses will have an insignificant impact on HC&S.

Additionally, all prospective lot purchasers at Maui Business Park Phase II will be informed of possible odor, noise, and dust resulting from nearby agricultural operations and of the Hawaii Right-to-Farm Act, Chapter 165, HRS, which limits the circumstances under which preexisting farming activities may be deemed a nuisance.

4.5 IDENTIFICATION OF CHEMICALS, FERTILIZERS, AND OTHER SUBSTANCES

Existing Conditions

Portions of the Maui Business Park Phase II are currently in sugar cane cultivation by HC&S or are fallow fields. A portion of the North Project Area includes an area known as the Central Power Plant, that historically was used as an electrical station/substation. As part of its agricultural operations, HC&S uses herbicides, pesticides, and fertilizers. HC&S's application and use of all herbicides, pesticides, and fertilizers is in compliance with all product labeling and applicable government regulations.

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Herbicides and Pesticides. HC&S reports that the following herbicides and pesticides are currently in use on their fields:

- Aatrex 90 (active ingredient - atrazine)
Use: Herbicide/weed control chemical
Most commonly used no-till weed control chemical in US
- Amine 4 (active ingredient - 2,4-D)
Use: Herbicide/weed control chemical, primarily for post-emergence control of broadleaf weeds
- Aqua Master aka Rodeo (active ingredient - glyphosate)
Use: Herbicide/weed control chemical – spot sprayed along ditch lines
Glyphosate is one of the most widely used weed and grass control chemicals in the world.
- Banvel (active ingredient - dimethylamine salt of dicamba)
Use: Herbicide/weed control chemical, primarily for post-emergence control of broadleaf weeds.
- Ethrel (active ingredient - ethephon)
Use: Tassel control on sugar cane
- Evik 80 W (active ingredient - ametryn)
Use: Herbicide/weed control chemical - nonselective
- GB-1111 Mosquito Larvacide (active ingredient - petroleum oil)
Use: Mosquito control chemical
- Karmex (active ingredient – diuron)
Use: Herbicide/weed control chemical
A pre-emergence herbicide for residual bare-ground control
- Pentagon 60 WDG (active ingredient – pendimethalin)
Use: Herbicide/weed control chemical - nonselective
- Polado L (active ingredient - glyphosate)
Use: Plant growth regulator
- Roundup Ultra (active ingredient - glyphosate)
Use: Herbicide/weed control chemical
A non-selective, non-residual, post-emergence herbicide; glyphosate is one of the most widely used weed control chemicals in the world.
- Vecto Bac
Use: Mosquito control bacteria
Non-chemical biological agent
- Velpar (active ingredient – hexazinone)
Use: Herbicide/weed control chemical, a broad-spectrum herbicide particularly effective for treatment of woody plants

Fertilizers. HC&S reports that the following fertilizers are currently in use on their fields:

- Urea
Use: Nitrogen source
- Potash solution (active ingredient - K-2, potassium chloride)
Use: Potassium source

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Hazardous, Regulated, and Toxic Substances. A Phase I Environment Site Assessment (ESA) was conducted for Maui Business Park Phase IB (where Wal-Mart, Home Depot, and several small businesses are located) in February 2002. As part of this ESA, an Environmental Data Resources, Inc. (EDR) Radius Map database search report was conducted to check government databases for records of any reported environmental hazards within a one mile radius of the Maui Business Park Phase 1B site. ~~The area covered in the search of available environmental records includes all of the Maui Business Park~~ This one mile radius area covered all of the South Project Area and the majority of the North Project Area, including the Central Power Plant in the North Project Area. ~~There are no~~ The EDR report did not find records of any spills, dumping, or other evidence of hazardous, regulated, or toxic substances within ~~the area covered by the report.~~ the one mile radius area, which includes the Central Power Plant area. The report covering the search of available environmental records meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E1527-00.

The Central Power Plant site, which comprises a portion of the North Project Area has been the subject of prior environmental surveys commissioned by Alexander & Baldwin, Inc. Most recently, in 2001, a hazardous materials survey of the area was undertaken. The survey of the former power generating facility included the following findings. A sampling of building materials from wall, floor covering and roofing materials was undertaken and a portion of the samples were found to contain asbestos-containing material. This included mastic associated with floor tiles, a sink and roofing. These materials were found to be in good condition and non-friable. A portion of the paint samples taken from interior and exterior painted surfaces were found to contain lead equal to or above the EPA/HUD standard. Electrical equipment associated with the former generating facility has been substantially removed from the site. At the time of the 2001 survey, remnants included two small transformers, cable junctions, cable terminals, cable and a piece of switching equipment. Results from samples collected from a portion of this equipment indicated that insulating material or potting compound contained polychlorinated biphenyls (PCBs). PCB-containing equipment identified in the report has been removed, with the exception of some cable that is embedded in the concrete floor. Environmental impacts from past use of the central power plant site are possible, and further surveying and testing of the site is anticipated. Any environmental issues identified during this testing will be addressed in accordance with all applicable governmental laws and regulations.

Potential Impacts

No adverse effects on surface or underground resources are anticipated due the use of chemicals and fertilizers within Maui Business Park Phase II. Relative to the existing agricultural operations, the use of chemicals and fertilizers is expected to decrease after Maui Business Park Phase II is established. This is because typically more chemicals and fertilizers area use for sugarcane cultivation than within a light industrial project.

Mitigative Measures

The abatement and disposal of any hazardous materials found within the Maui Business Park site, including the Central Power Plant area, will be undertaken in accordance with all applicable governmental laws and regulations.

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Within Maui Business Park Phase II the use of herbicides will generally be limited to the initial landscaping period on the site. Pesticides are anticipated to be used only as a treatment and not as a preventative measure. As a treatment, application use will be limited. In addition, plant selection will be based on hardiness, drought tolerance, pest resistance, as well as aesthetic concerns.

Common nitrogen/phosphorus/potash mixed fertilizers area anticipated to be applied to lawn areas, groundcover, shrubs, and trees. With proper irrigation management practices, leaching and runoff of fertilizers should be negligible.

4.6 NATURAL HAZARDS

Existing Conditions

Natural hazards impacting the Hawaiian Islands include hurricanes, volcanic eruptions, earthquakes, and flooding.

Volcanic hazards in the area of Maui Business Park Phase II are considered minimal due to the dormant status of Haleakalā.

In Hawai'i, most earthquakes are linked to volcanic activity, unlike other areas where a shift in tectonic plates is the cause of an earthquake. Each year, thousands of earthquakes occur in Hawai'i; the vast majority of them so small they are detectable only with highly sensitive instruments.

Devastating hurricanes have impacted Hawai'i twice in the past two decades: Hurricane 'Iwa in 1982 and Hurricane 'Iniki in 1992. While it is difficult to predict these natural occurrences, it is reasonable to assume that future events could be likely given the recent record.

Flood hazards are primarily identified by the Flood Insurance Rate Map (FIRM) prepared by the Federally Emergency Management Agency (FEMA), National Flood Insurance Program. According to the FIRM, the Maui Business Park Phase II site is located in "Areas of Minimal Flooding" (Figure 12).

Potential Impacts

Maui Business Park Phase II will not exacerbate any hazard conditions. Because of the dormant status of Haleakalā, volcanic impacts to the business park are considered unlikely. Seismic hazards in the area are no greater than other locations on Maui. Buildings, as well as roadways, sewer, and water lines could be damaged by an earthquake of sufficient magnitude.

Maui Business Park Phase II, as the rest of Maui or the State, is no more or less vulnerable to the destructive winds and torrential rains associated with hurricanes. Because the project site is located in an area of minimal flooding, impacts from flooding are not expected. Section 5.9.2 contains more information on drainage of the site and discusses proposed impacts and improvements related to drainage infrastructure.

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Mitigative Measures

Volcanic impacts to Maui Business Park Phase II are considered unlikely, however mitigation of lava flow hazards is limited to provision of adequate evacuation routes and a civil defense warning system designed to provide area businesses with as much advance notice of a threatening lava flow as possible.

Mitigation of hazards associated with earthquakes include adherence to Maui County building codes and standards to minimize potential damage to structures. All buildings and structures will be designed and constructed in compliance with applicable building codes and standards.

Likewise, the potential impact of destructive winds and torrential rainfall of hurricanes will be mitigated by compliance with the Maui County Building Code.

4.7 BOTANICAL RESOURCES

Existing Conditions

Almost all of the Maui Business Park Phase II site has been used for sugar cane cultivation or related activities in the past. Today, the majority of the South Project Area is still under sugar cane cultivation. A portion of the North Project Area is used for dryland taro cultivation. The majority of the botanical resources found on the site are weedy species associated with agricultural lands. Smaller uncultivated areas, such as rock piles, support scrub vegetation dominated by koa haole shrubs and clumps of Guinea grass.

Char & Associates conducted a botanical survey of the Maui Business Park Phase II site in January 2003 (Appendix A B). This included a review of earlier botanical studies and walk-through field studies. A total of 67 plant species were inventoried on the site. Of these, 64 (95.5%) are introduced or alien species. The only native species observed were the 'ilima (*Sida Fallax*), popolo (*Solanum americanum*), and 'uhaloa (*Waltheria indica*). These plants are indigenous, that is, they are native to Hawai'i and elsewhere; they do well in open, disturbed environments.

Cultivated Areas. Sugar cane fields cover most of the South Project Area. Sugar cane (*Saccharum officinarum*) is fast-growing and forms dense, closed cover, which excludes most other species. Weedy species associated with sugar cane fields occur along the margins of the fields, along dirt roads and ditches which crisscross the fields, where there is less competition from sugar cane plants and more available light, water, and nutrients. These weedy species are mostly annuals and are adapted to frequent disturbances related to agricultural practices.

Along Ho'okele Street, which fronts the developed areas, Guinea grass (*Panicum maximum*), buffelgrass (*Cenchrus ciliaris*), swollen fingergrass, green panicgrass (*Panicum maximum* var. *trichoglume*), and cheese weed are abundant. Plowed fields are largely barren with scattered small patches of weeds.

Also included in "cultivated areas" vegetation type is a five-acre section on the North Project Area used for dryland taro (*Colocasia esculenta*) cultivation. Recently plowed fields with a few scattered patches of weeds cover a large portion of this parcel.

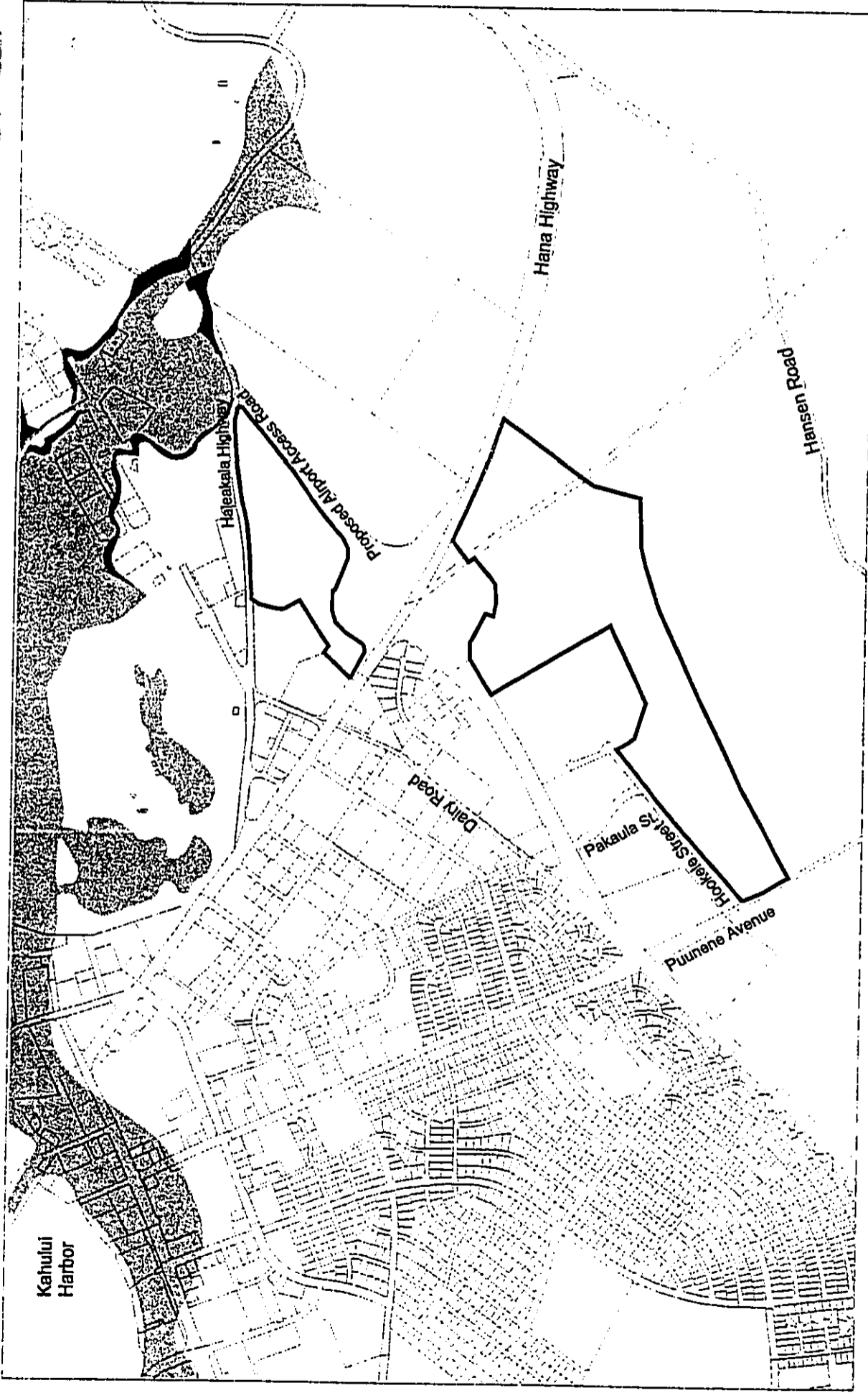


Figure 12
Flood Insurance Rate Map (FIRM)

Maui Business Park Phase II

ABH Properties, Inc. Kula, Maui

NORTH

LINEAR SCALE (FEET)
0 750 1,500

Legend

- Areas of Minimal Flooding
- Zone B
- Areas between limits of the 100-year flood and 500-year flood
- Zone A
- Areas of 100-year flood: Base flood elevations and flood hazard factors not determined
- Maui Business Park Phase II

Source: Flood Insurance Rate Map #150003 0190 D

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Scrub Vegetation. Uncultivated areas support scrub vegetation. On the South Project Area, scrub vegetation occurs on the existing drainage basins and adjacent boulder pile, and an abandoned well site near Pūlehu Road. Within the basins, the vegetation is a mixture of weedy species with buffelgrass, swollen fingergrass, coatbuttons (*Tridax procumbens*), and 'uhaloa (*Waltheria indica*). On the bottom of the flood basins, woody components include Indian fleabane (*Pluchea indica*), sourbush *Pluchea carolinensis*), koa haole (*Leucaena leucocephala*), and tree tobacco (*Nicotina glauca*). Shrubs of tree tobacco and castor bean are also found among a large pile of boulders located south of the drainage basins. Other plants include Guinea grass, sourbush, purple cowpea (*Macroptilium atropurpureum*), koa haole, sourgrass (*Digitaria insularis*), hairy abutilon (*Abutilon grandifolium*), and 'ilima (*Sida fallax*).

On the North Project Area, scrub vegetation borders the HC&S buildings. Where the parcel abuts the Costco and K-Mart properties, kiawe, as well as a few African tulip tree (*Spathodea campanulata*) and be-still tree (*Thevetia peruviana*), occur.

Potential Impacts

No threatened or endangered plant species or species of concern have been found on the Maui Business Park Phase II properties. According to the botanical survey of the properties, "The proposed development of the 179-acre project site is not expected to have a significant negative impact on the botanical resources of the site or the region in general."

Mitigative Measures

The botanical survey report recommends that landscaping be installed as soon as possible to prevent problems with dust. Design standards for the entire business park include a unified streetscape planting theme and program to ensure the appropriate use of landscaping. A landscaped median and landscaped berms along the primary collector road through Maui Business Park Phase II, Ho'okele Street, will be used to soften the visual impact of buildings from the road. Landscape plants will include drought tolerant plant species and xeriscaping, where appropriate. To provide visual screening and shading, open parking areas will include landscaping.

4.8 WILDLIFE RESOURCES

Existing Conditions

An avifaunal and feral mammal field survey of the Maui Business Park Phase II site was prepared in May 2003 (Bruner 2003) and is included in this report as Appendix B C. The survey concludes that the birds and mammals found during the survey were typical of this region of Maui. The relative abundance of these species was likewise similar to that found on other field surveys conducted on comparable lands elsewhere on Maui. No threatened or endangered species were recorded.

Native birds. No native seabirds, land birds, or waterbirds were tallied during the survey, including the Hawaiian Stilt and the Hawaiian Coot, which are known to exist in the nearby Kanahā Pond State Wildlife Refuge. Although it is possible that seabirds might occasionally fly

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across this area, they would not likely nest due to the presence of ground predators and human disturbance. The only native land bird that might occur in this area is the Hawaiian Owl, also known as the Short-eared Owl or Pueo (*Asio flammeus sandwichensis*). However, none were observed during the survey. All other native land birds on Maui would typically be found at much higher elevations.

Migratory birds. The only migratory shorebird found during the survey was the Pacific Golden-Plover (*Pluvialis fulva*), which is the most abundant migrant in Hawai'i. A total of 16 plover were counted during the survey. All of the plover were seen along roadsides and in open patches in the fields. The only other migratory shorebird that might utilize the same habitats as the plover is the Ruddy Turnstone (*Arenaria interpres*), although none were recorded. Neither the Pacific Golden-Plover nor the Ruddy Turnstone is listed as threatened or endangered.

Introduced birds. A total of 13 species of introduced birds were tallied on the survey. None of these are listed as threatened or endangered.

Mammals. The endangered Hawaiian Hoary Bat (*Lasiurus cinereus semotus*) was not found despite the extensive use of an ultrasound detector. Two cats (*Felis catus*) and four Small Indian Mongoose (*Herpestes auropunctatus*) were seen on the survey. No rats or mice were recorded but undoubtedly occur in the area.

Potential Impacts

The proposed Maui Business Park Phase II will alter existing habitats. The development of the business park will involve clearing of sugar cane fields and scrub vegetation. New landscaping will be introduced along Ho'okele Street and throughout the business park. Although this will result in a change in the kinds of birds and their relative abundance at the site, none of the observed species are threatened or endangered.

The larvae of the endangered Blackburn's sphinx moth are sometimes found on tree tobacco plants. Tree tobacco plants were identified on the site during the botanical survey.

Mitigative Measures

No threatened or endangered bird or mammal species were found at the Maui Business Park Phase II site.

To ensure Maui Business Park Phase II will not adversely impact any Blackburn's sphinx moths that may be present on the tree tobacco plants, Alexander & Baldwin, Inc., submitted a plan of action to the U.S. Fish and Wildlife Service (USFWS) detailing steps to be taken regarding the removal of the tree tobacco plants. The USFWS has reviewed this plan and in response wrote: "...we agree that implementation of these measures for the proposed project are unlikely to result in violations of section 9 of the Endangered Species Act." Copies of Alexander & Baldwin, Inc.'s plan and the USFWS response letter are included in Appendix C D.

5.0 ASSESSMENT OF EXISTING HUMAN ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATIVE MEASURES

This section describes the existing conditions of the human environment, potential impacts of Maui Business Park Phase II, and mitigative measures to minimize any impacts.

5.1 ARCHAEOLOGICAL AND HISTORIC RESOURCES

Existing Conditions

Historically, the majority of the lands of Maui Business Park Phase II have been used for sugarcane cultivation. This intensive agricultural activity, as well as previous grubbing and grading, has significantly altered the land so that it is unlikely that the site contains any archaeological resources.

Aki Sinoto, the consulting archaeologist for the project, contacted the Department of Land and Natural Resources State Historic Preservation Division (SHPD) regarding the Maui Business Park Phase II site. Based on past archaeological surveys of the site and the surrounding area and the historical use of the site for sugar cultivation, as described above, SHPD determined that the Maui Business Parks Phase II site is not likely to contain archaeological resources and that an additional archaeological survey of the site is not necessary.

Potential Impacts

The Maui Business Park Phase II is not anticipated to have any adverse impact on archaeological and historic resources of the area. The State Historic Preservation Division has completed their Chapter 6E-42 Historic Preservation Review and in their letter they state: "We believe there are no historic properties present, because: intensive cultivation has altered the land; previous grubbing/grading has altered the land; and an acceptable archaeological assessment or inventory survey found no historic properties. Thus, we believe that "no historic properties will be affected" by this undertaking." The letter from SHPD is included in Appendix D E.

Mitigative Measures

It is not anticipated that there are any archaeological or historic resources at the Maui Business Park Phase II site. However, should any sites be found during construction, A&B Properties, Inc. and its contractors will comply with all state and county laws and rules regarding the preservation of archaeological and historic sites. Should historic remains such as artifacts, burials, concentrations of shell or charcoal be encountered during the construction activities, work shall cease immediately in the immediate vicinity of the find and the find shall be protected from further damage. The contractor shall immediately contact the State Historic Preservation Division which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

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5.2 CULTURAL IMPACTS

A cultural impact assessment for the Maui Business Park Phase II site and surrounding area was conducted by Aki Sinoto Consulting and is included in Appendix E F of this report.

Existing Conditions

There is little material to be found regarding the pre-contact era of Kahului. The climate, terrain, the presence of permanent streams, and its vast shoreline frontage would have made it a favored place of settlement. Much of what is known about Kahului derives from tradition and folklore associated with Wailuku *ahupua'a*. Wailuku was the center of political and military power on Maui during the seventeenth and eighteenth centuries. Legendary battles were fought in Wailuku, including two battles involving Kihapi'ilani, son of Pi'ilani, and Kalani'ōpu'u. Kihapi'ilani fought against his brother, Lono-a-Pi'ilani, for political control of Maui. This battle ended with Kihapi'ilani barely escaping with his life. With the assistance of Hawai'i Island forces, he defeated his opposition and eventually became ruler of Maui. Another battle was fought on the Wailuku Sand Hills during the 1700s when warriors from O'ahu and Maui defeated Kalani'ōpu'u.

The Mahele of 1848 instituted the Western concept of land ownership in Hawai'i. During the Mahele, lands were divided among the government, royalty, and commoners. Wailuku *ahupua'a* was declared Crown Land (L.C.A. 7713, *apana* 23). The last of the royalty shown owning this land was Ruth Ke'elikolani, the great-granddaughter of Kamehameha I, who inherited this land following the death of her brother, Kamehameha V. In 1882, the eastern portion of Wailuku *ahupua'a* was awarded to Claus Spreckels as Grant 3343, totaling 24,000 acres. Spreckels established the Hawaiian Commercial and Sugar Company in 1882. Around this time, the Kahului area became the commercial hub with the harbor and train depot. In 1926, the Alexander & Baldwin purchase of Spreckels' HC&S Company resulted in the intensification of the sugar industry in Wailuku.

Potential Impacts

Maui Business Park Phase II is not expected to affect cultural resources of the area. This conclusion is based on the findings of the cultural impact assessment for the Maui Business Park Phase II site and surrounding area conducted by Aki Sinoto Consulting (Appendix E F).

The assessment included the research of historical records and interviews with individuals knowledgeable of the area, including Native Hawaiian practitioners. The Native Hawaiian practitioners contacted did not express any concerns about the site, including concerns regarding gathering or access. The individuals interviewed felt that growth and expansion was necessary for Kahului. Interviewees voiced a common concern of visual impact and hoped that appropriate presentation and landscaping would be used to maintain the visual character. It was felt that the proximity of Maui Business Park Phase II to the Kahului harbor and to the airport is a major benefit. There were also positive perceptions of the economic impact, especially the creation of new jobs for the area.

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Mitigative Measures

Efforts will be made to minimize the visual impact of Maui Business Park Phase II on the surrounding area. Design standards, including a unified streetscape planting theme and program, will ensure the appropriate use of landscaping and building materials and colors throughout the area over the projected 15-year build out period. Ho'okele Street, the primary collector road through Maui Business Park Phase II, will be designed as a boulevard with a landscaped median and landscaped berms to soften the visual impact of buildings from the road. To the extent practical, the alignment of Ho'okele Street will maintain a view corridor toward Haleakalā. In addition, A&B is planning to require lot owners along the Ho'okele Street Extension to include a 10-foot front yard landscape easement to allow A&B to plant and maintain landscaped berms.

5.3 ACCESS AND TRAILS

The site of Maui Business Park Phase II has been in active sugarcane cultivation for several decades. Because of this, access to, and use of, the area by the public has been limited.

The site is not along the shoreline, nor does it provide primary access to the mountains. There are no known traditional trails through the property; however, there are existing cane roads that provide access to specific agricultural fields. Currently, access to the site is restricted due to ongoing agricultural operations.

Potential Impacts and Mitigative Measures

Relative to the existing agricultural use of the site, the establishment of Maui Business Park Phase II will make the area more accessible.

5.4 ROADWAYS AND TRAFFIC

A traffic impact analysis report (TIAR) for Maui Business Park Phase II was prepared in May of 2003 and revised in July of 2004. The TIAR was revised in response to comments received from the State Department of Transportation and conditions imposed by the State Land Use Commission (LUC) in March 2004 as part of the Decision and Order (Docket A03-739) reclassifying approximately 138.158 acres of the Maui Business Park Phase II site from the Agricultural to the Urban District. Specifically, the revised TIAR differs from the May 2003 TIAR by including analysis considering:

1. Completion of the Airport Access Road, and
2. Development scenarios with a higher percentage of retail versus industrial uses.

The proposed Airport Access Road was not included in the May 2003 TIAR because, at that time, there was no specific timetable for its completion. However, the Hawai'i Department of Transportation has since indicated that the Airport Access Road is a priority project and that a request for bids for a design-build contract will be issued during fiscal year 2005 for the initial segment from Pu'unē Avenue to Hāna Highway. For the purposes of the TIAR, the remaining portion of the Airport Access Road was assumed to be completed prior to the year 2020, the horizon year for the TIAR and the *Maui Long Range Land Transportation Plan*.

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In addition, at the LUC hearings other traffic related matters were discussed, such as the various potential proportions of retail and light industrial uses in Maui Business Park Phase II, permitted accesses, and trip generation rates. One of the conditions imposed by the LUC is that approximately 25 acres of the South Project Area abutting Hāna Highway are restricted in use due to the potential designation of this area as a runway protection zone (RPZ) by the State Department of Transportation, Airports Division. This RPZ is a requirement of the proposed extension of the Kahului Airport runway to 9,600 feet in length. Uses in this area are restricted to those that do not entail the congregation of people and as may be approved by the Federal Aviation Administration.

The State Land Use Commission has also indicated a preference for light industrial development at Maui Business Park Phase II by requiring that at least 50 percent of the area be developed for non-retail, light industrial use.

The revised TIAR analyzes 11 different development scenarios with various mixes of industrial versus retail uses combined with various assumptions regarding the completion of the Airport Access Road. The complete report with analysis of all development scenarios is included in Appendix F G.

The potential impacts and mitigative measures described below take into account the development scenario most consistent with the conditions imposed by the State Land Use Commission and with the comments of the State Department of Transportation. This scenario assumes the construction of the Airport Access Road to Kahului Airport and an equal proportion of light industrial/warehouse use and retail/office use within Maui Business Park Phase II.

Existing Conditions

Existing roadways and intersections in the vicinity of Maui Business Park Phase II include:

Pu'unēnē Avenue: A four-lane roadway with separate left turn storage lanes oriented east-west along the southern boundary of the South Project Area.

Hāna Highway: A four-lane, State highway running east-west between the South and North Project Areas. Major intersections have separate left and/or right turn lanes. The eastbound approach to Dairy Road has one left turn only lane, two through lanes, and one through/right turn lane. The westbound approach has two left turn only lanes, two through lanes, and one right turn only lane. It is a major access route to and from east Maui and is heavily traveled during peak hours.

Haleakalā Highway: Runs in an east-west direction along the northern boundary of the North Project Area. Between Dairy Road and the Costco Driveway, Haleakalā Highway is a four-lane, undivided highway. The intersection with Dairy Road is signalized and has separate left turn storage lanes. The intersection with the Costco Driveway is unsignalized. East of Costco, Haleakalā Highway is a two-lane, undivided highway.

Dairy Road: The major north-south roadway bordering Maui Business Park Phases IA and IB. Between Pu'unēnē Avenue and Haleakalā Highway, Dairy Road is a five-lane roadway with two

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lanes in each direction and a left turn storage lane. There are traffic signals at the intersections with Pakaula Street, Maui Marketplace Drive, Alamaha Street, Hāna Highway, and Haleakalā Highway. Dairy Road is also a primary connector road for motorists traveling between south and east Maui and serves as a route to the Kahului Airport. Dairy Road is heavily used during both morning and afternoon peak hours, with congestion at a number of intersections, particularly at intersections with Pu'unēnē Avenue, Pakaula Street, and Hāna Highway. There are also delays for traffic waiting to turn onto Dairy Road through unsignalized intersections.

Ho'okele Street: is a four-lane, divided roadway between Pu'unēnē Avenue and Pakaula Street. Plans to extend Ho'okele Street through the South Project Area to Hāna Highway are discussed below.

Potential Impacts

With an equal proportion of light industrial/warehouse use and retail/office use within Maui Business Park Phase II, and with the recommended mitigation measures (see below), the roadway network can accommodate traffic generated by Maui Business Park Phase II.

Ho'okele Street, which currently runs between Pu'unēnē Avenue and Pakaula Street (the street between Wal-Mart and Home Depot), will be extended to Hāna Highway concurrent with construction of the first phase of the South Project Area of Maui Business Park Phase II. The extended Ho'okele Street will serve as the primary collector road through the South Project Area. It will also provide the primary access via intersections with Pu'unēnē Ave and Hāna Highway. When extended, Ho'okele Street will run roughly parallel with Dairy Road, and will provide an alternative route between Hāna Highway and Pu'unēnē Avenue, so that people traveling to and from Pā'ia or Upcountry and Kīhei will have the option of bypassing Dairy Road via Ho'okele Street.

Because of the alternative route created by the extension of Ho'okele Street, traffic conditions (projected volume-to-capacity ratios, levels-of-service, and delays) along Dairy Road between Pu'unēnē Avenue and Hāna Highway will improve with the Maui Business Park Phase II versus without Maui Business Park Phase II. The diversion of through traffic from Dairy Road to Ho'okele Street will result in an improvement of volume-to-capacity ratios when compared to future traffic conditions without Maui Business Park Phase II and the Ho'okele Street extension.

However, traffic along Dairy Road between Hāna Highway and Haleakalā Highway will still increase and will require improvements at the intersection of Haleakalā Highway at Dairy Road. The completion of the Airport Access Road will divert traffic from Dairy Road and from this intersection.

The intersection of Pu'unēnē Avenue at Dairy Road will require modifications to accommodate future traffic, under any of the scenarios analyzed. While a significant amount of traffic will be diverted to Ho'okele Street, increased traffic will be making critical turning movements. As an example, traffic that currently turns from eastbound Pu'unēnē Avenue to northbound Dairy Road will be able to continue eastbound along Pu'unēnē Avenue to Ho'okele Street then travel north along Ho'okele Street to Hāna Highway. A needed improvement is a northbound to westbound left turn lane from Kūihelani Highway to Pu'unēnē Avenue. To accommodate this new left turn lane, as well as the westbound through traffic associated with any of the scenarios, Pu'unēnē

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Avenue should be widened west of the intersection with Dairy Road. This is recommended in the *Maui Long Range Land Transportation Plan* to accommodate future background traffic growth.

The intersection of Pu'unēnē Avenue at Ho'okele Street will accommodate traffic diverted from Dairy Road plus traffic generated by the South Project Area. Traffic mitigation measures are proposed for this intersection.

Mitigative Measures

The extension of Ho'okele Street from Pakaula Street to Hāna Highway will be completed during the initial phase of the South Project Area. Ho'okele Street will be a four-lane roadway to accommodate projected traffic volumes. The intersection with Hāna Highway should be approximately 1,800 feet east of the planned intersection of Hāna Highway with the Airport Access Road. This distance is equal to the estimated distance between the Airport Access Road and Dairy Road along Hāna Highway. The equal distances will facilitate synchronization of traffic signals along Hāna Highway. The intersection of Ho'okele Street at Hāna Highway should be a full-service, signalized, at-grade intersection.

Specific mitigation measures identified by the TIAR include:

- Dairy Road at Pu'unēnē Avenue
 - a. Add second westbound to southbound left turn lane.
 - b. Add second northbound to westbound left turn lane.
 - c. Add second southbound to westbound right turn lane.
 - d. The improvements along Pu'unēnē Avenue at Dairy Road will require the widening of Pu'unēnē Avenue from two to four lanes from west of Dairy Road to east of Wakea Avenue. This is recommended in the *Maui Long Range Land Transportation Plan* to accommodate future background traffic growth.

- Dairy Road at Haleakalā Highway
 - a. Add second westbound to southbound left turn lane.

- Pu'unēnē Avenue at Ho'okele Street
 - a. Add second southbound to eastbound left turn lane.
 - b. Add second westbound to northbound right turn lane.
 - c. Add westbound through lane.
 - d. Add northbound through lane.
 - e. Add eastbound through lane.

In addition, access to North Project Area should be provided along Hāna Highway. An access providing right in and right out will divert a portion of the traffic to and from Hāna Highway. In the design and planning of the North Project Area, consideration should be given to an internal connection between Hāna Highway and Haleakalā Highway.

Additional traffic assessments should be performed for major development proposals within Maui Business Park Phase II. Actual development may generate fewer peak hour trips than the

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current estimates since other factors, such as pass-by trips and internal-internal trips can be more accurately estimated once specific land uses are determined.

The TIAR should be periodically updated to reflect changes in development within and adjacent to Maui Business Park Phase II. Development should be monitored to insure that traffic generated is consistent with the traffic projections used in the planning of the Maui Business Park Phase II. If the actual number of peak hour trips is below the forecasts used to develop mitigation measures, then the density of development could be adjusted accordingly.

5.5 NOISE

An environmental noise impact assessment was prepared for the Maui Business Park Phase II site by D.L. Adams Associates, Ltd. to examine the potential noise impact due to the project and to suggest possible mitigation measures. The full environmental noise impact assessment is included in Appendix G & H.

Existing Conditions

~~Currently, the~~ The dominant noise sources impacting the Maui Business Park Phase II site and vicinity are exposed to daytime ambient noise levels of 50 to 73 dBA, with the dominant noise sources being aircraft from the nearby Kahului Airport and roadway traffic. Other noise sources include wind and birds.

Due to its proximity to Kahului Airport, the Maui Business Park Phase II site is exposed to a significant amount of aircraft noise. The Kahului Airport Master Plan and Noise Compatibility Program indicates that the area is exposed to an average day-night aircraft noise level (L_{dn}) between 50 to 75 dBA. ~~however~~ However, commercial, industrial, and manufacturing uses are compatible with airport areas. The majority of the Maui Business Park site is between the 55 to 70 L_{dn} airport noise level contours. Figure 4 of the environmental noise impact assessment (Appendix G & H) shows airport noise level contours in relation to the Maui Business Park site. State DOT Airports Division land use compatibility guidelines do not specify restrictions for commercial, industrial, and manufacturing uses within the 55 to 65 L_{dn} noise contours. For sites above the 65 L_{dn} contour, noise reduction measures, such as air conditioning or double glazed windows, must be incorporated into the design and construction of buildings.

Potential Impacts

Potential impacts on the noise quality of the site and surrounding area are primarily limited to those generated by construction activity in the short-term and increased traffic and on-site equipment in the long-term.

Construction Noise. Development of the project areas will involve excavation, grading, and construction of new buildings and infrastructure. Earthmoving equipment, such as bulldozers and diesel trucks, will likely be the dominant noise sources during construction. The First Assembly of God Church may be impacted by construction noise due to its close proximity to the South Project Area; however construction activity is not expected to occur on Sundays. In addition, noise from construction activity will primarily occur during daytime hours and will be

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limited to the construction period. Noise from construction activities will be short-term and must comply with State of Hawai'i Department of Health noise regulations.

Traffic Noise. Traffic-generated noise due to the development of Maui Business Park Phase II is not expected to be significant. Predicted traffic noise level increases for the year 2020, with and without the project, were calculated in the environmental noise impact assessment. With the project, the study predicts that the maximum traffic noise level increase along the assessed roadways is 0.6 dB, which is below the threshold of change in noise level that is perceptible to most people with normal hearing. In fact, maximum traffic noise levels along Dairy Road and Hāna Highway are predicted to decrease with the project due to expected local roadway improvements. Therefore, the increase in traffic noise level due to the Maui Business Park Phase II project is not considered significant and is not expected to adversely impact the project site or surrounding areas.

On-Site Equipment. Noise from pumps, air handling units, compressors, condensing units, and other on-site equipment is not likely to significantly increase noise levels in the surrounding area and will be addressed during the design phase of the project. Noise at the property line from on-site equipment must be at a level of 70 dBA or less during daytime and nighttime hours to be within the State's maximum permissible sound limit.

Mitigative Measures

All project activities will comply with the Administrative Rules of the Department of Health, Chapter 11-46, Community Noise Control.

Construction. Proper mitigating measures will be employed to minimize construction-related noise impacts and comply with all federal and state noise control regulations. Increased noise activity due to construction will be limited to daytime hours and persist only during the construction period. Noise from construction activities will be short-term and will comply with State of Hawai'i Department of Health noise regulations (Hawai'i Administrative Rules, Chapter 11-46, Community Noise Control). When construction noise exceeds, or is expected to exceed, the DOH's allowable limits, a permit must be obtained from the DOH. Specific permit restrictions for construction activities are:

- No permit shall allow any construction activities that emit noise in excess of the maximum permissible sound levels before 7:00 a.m. and after 6:00 p.m. of the same day, Monday through Friday.
- No permit shall allow any construction activities that emit noise in excess of the maximum permissible sound levels before 9:00 a.m. and after 6:00 p.m. on Saturday.
- No permit shall allow any construction activities that would emit noise in excess of the maximum permissible sound levels on Sundays and holidays.

The use of pile drivers, hoe rams, jack hammers 25 lbs. or larger, high-pressure sprayers, and chain saws may be restricted to 9:00 a.m. to 5:30 p.m., Monday through Friday.

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Traffic Noise. Because the increase in traffic-generated noise due to the development of Maui Business Park Phase II is predicted to be imperceptible to people with normal hearing, no traffic noise mitigation measures are planned. In addition, expected local roadway improvements are predicted to decrease maximum traffic noise levels along Dairy Road and Hāna Highway.

On-Site Equipment. During the design phase, noise from on-site equipment will be addressed to ensure that noise at the property line is at a level of 70dbA or less during daytime and nighttime hours. Mitigation may include barriers, enclosures, silencers, etc. and will be included in the design if necessary.

Kahului Airport Operations. To address the impact of aircraft operations at Kahului Airport upon future occupants of the Project, the LUC, in consultation with the State DOT, under Docket No. A03-739 has prescribed procedures and covenants to address notification and liability issues arising from potential adverse impacts from noise, right of flight, emissions, vibrations and other incidences of aircraft operation resulting from operations at the Kahului Airport.

5.6 AIR QUALITY

An air quality study was prepared by B.D Neal & Associates to examine the potential short- and long-term air quality impacts that could occur as a result of development and use of Maui Business Park Phase 2. The study also suggests mitigative measures to reduce any potential air quality impacts where possible and appropriate. The fully study is included in Appendix H I.

Existing Conditions

The present air quality of the Maui Business Park Phase II area is relatively good, except for periodic impacts from volcanic emissions (vog) and possibly occasional localized impacts from traffic congestion and agricultural smoke and dust. Air quality data available for the area from the Department of Health indicates that ambient air concentrations are well within state and national air quality standards.

Regional and local climate together with the amount and type of human activity generally dictate the air quality of a given location. The climate of the Kahului area is very much affected by its coastal situation between Haleakalā and the West Maui Mountains. Winds are predominantly trade winds from the northeast except for occasional periods when Kona storms may generate strong winds from the south or when trade winds are weak and landbreeze-seabreeze circulations may develop. Mean wind speeds typically are above 10 miles per hour, providing relatively good ventilation much of the time. Temperatures in the Kahului area are generally very moderate with an average annual temperature of 75.5 degrees Fahrenheit.

Potential Impacts

The development of Maui Business Park Phase II may result in short- and long-term impacts on air quality either directly or indirectly as a consequence of construction and use. However, it is anticipated that no State or Federal air quality standards will be violated during or after development of Maui Business Park Phase II.

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Short-Term Air Quality Impacts. Short-term impacts from fugitive dust will likely occur during the project construction phase. To a lesser extent, exhaust emissions from stationary and mobile construction equipment, from disruption of traffic, and from workers' vehicles may also affect air quality during the construction period.

Long-Term Air Quality Impacts. After construction, motor vehicles coming to and from Maui Business Park Phase II will result in a long-term increase in air pollution emissions. To assess the impact of emissions from these vehicles, an air quality modeling study was undertaken to estimate current ambient concentrations of carbon monoxide at intersections in the Maui Business Park Phase II area and to predict future levels both with and without the proposed development.

During worst-case conditions, model results indicated that one-hour and eight-hour carbon monoxide concentrations would be within both the state and national ambient air quality standards. In the year 2020 without the project, carbon monoxide concentrations were predicted to decrease at most locations. With Maui Business Park Phase II in the year 2020, carbon concentrations were estimated to either remain unchanged or decrease slightly compared to the without-project case.

Light industrial operations within Maui Business Park Phase II are not expected to directly impact air quality in the surrounding region, including Kanahā Pond State Wildlife Refuge, as unlike heavy industrial uses, light industrial uses do not involve heavy manufacturing and processing of raw materials.

Electrical Demand. Long-term impacts on air quality are also possible due to indirect emissions associated with the business park's electrical power requirements. However, the air quality study estimated these impacts and concluded: "Any long-term impact on air quality due to indirect emissions from supplying the project with electricity will likely be insignificant based on the relatively small magnitudes of these emissions."

Commercial/Industrial Emissions. As earlier discussed, Maui Business Park Phase II will be zoned M-1 Light Industrial, which ensures that there will be no heavy industrial uses. Unlike heavy industrial uses, light industrial uses typically do not emit significant amounts of air pollution.

Mitigative Measures

Several mitigation measures will be implemented to minimize potential air quality impacts, as listed below.

Dust Control. Fugitive dust emissions can be controlled to a large extent by watering of active work areas, using wind screens, keeping adjacent paved roads clean, and by covering of open-bodied trucks. Other dust control measures include limiting the area disturbed at any given time and/or mulching or chemically stabilizing inactive areas that have been worked. Paving and landscaping of project areas early in the construction schedule will also reduce dust emissions. Monitoring dust at the project boundary during the period of construction could be considered as a means to evaluate the effectiveness of the project dust control program. All construction

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activities will comply with the provisions of Hawai'i Administrative Rules, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, Fugitive Dust.

Construction Equipment Transport. Exhaust emissions can be mitigated by moving construction equipment and workers to and from the project site during off-peak traffic hours.

Post Construction. After project development is completed, any long-term impacts on air quality due to emissions from project-related motor vehicle traffic, supplying the property with electricity, or other on-site activities should be relatively small. Incorporating energy conservation design features within Maui Business Park Phase II could serve to reduce impacts related to the generation of electricity. Due to the small impact the project is expected to have, the air quality report concludes that implementing mitigations measures for traffic-related air quality impacts is probably unnecessary and unwarranted.

Kahului Airport Operations. To address the impact of aircraft operations at Kahului Airport upon future occupants of the Maui Business Park Phase II, the LUC, in consultation with the State DOT, under Docket No. A03-739 has prescribed procedures and covenants to address notification and liability issues arising from potential adverse impacts from noise, right of flight, emissions, vibrations and other incidences of aircraft operation resulting from operations at the Kahului Airport.

5.7 VISUAL RESOURCES

A visual analysis study was conducted of views toward Haleakalā from the proposed Airport Access Road, the extended Ho'okele Street, and other project areas. The full study is included as Appendix I J.

Existing Conditions

The following describes the existing views from the South Project Area, the North Project Area, and the proposed Airport Access Road. See Figure 3 for site photographs.

From the South Project Area. Presently, accessible views toward Haleakalā through the South Project Area are from the existing Ho'okele Street, Pakaula Street (heading toward Haleakalā) and a portion of Hāna Highway (also heading toward Haleakalā).

Views from the existing portion of Ho'okele Street toward Haleakalā are of sugar cane in various stages of growth. Depending on the direction of travel on Ho'okele Street and the stage of growth of the sugar cane, views of Haleakalā may be obscured along the existing Ho'okele Street.

On Pakaula Street, which is mostly at a higher elevation than the existing Ho'okele Street, drivers traveling toward Haleakalā have clear views over sugar cane and wide views toward Haleakalā (although this vista also includes views of two existing overhead high power electrical lines on metal poles extending towards Pu'unēnē Mill from lines in Kahului).

Haleakalā can also be viewed through a portion of the South Project Area from Hāna Highway, but the alignment of Hāna Highway curves away from Haleakalā. This view also includes views

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of overhead power lines along both Hāna Highway and Pūlehu Road. The triangle formed by Hāna Highway and Pūlehu Road roughly forms the view corridor toward Haleakalā from Hāna Highway.

Due to the land set aside for a major interchange at the intersection of Hāna Highway and the Proposed Airport Access Road, the South Project Area does not begin for about 500 to 600 feet *mauka* of the Hāna Highway and Pūlehu Road intersection.

From the North Project Area. Views of Haleakalā from Haleakalā Highway (which delineates the *makai* boundary of the North Project Area) are limited because Haleakalā Highway primarily is located at a lower elevation than the North Project Area.

From the Proposed Airport Access Road. While not a view currently accessible to the public, the proposed Airport Access Road will afford travelers (to and from the Kahului Airport) views toward Haleakalā. Views of Haleakalā from the Airport Access Road will not be impacted by the North Project Area, as the Airport Access Road will run along the south edge North Project Area (between the North Project Area and Haleakalā). With Haleakalā to the south, in this section of the proposed Airport Access Road, there will be open vistas of Haleakalā.

In the area of the South Project Area, the alignment of the proposed Airport Access Road lies between Maui Business Park Phase I and the proposed Maui Business Park Phase II. However, there will be two large open space view corridors with largely unobstructed views of Haleakalā created by: 1) two existing retention basins totaling 33 acres, and 2) land set aside for a major interchange at the intersection of Hāna Highway and the Proposed Airport Access Road.

Potential Impacts

Although construction of Maui Business Park Phase II will alter the existing visual character of the North and South Project Area properties, which are dominated by agricultural uses, design of the industrial park will ensure that it is integrated with its adjacent urban uses. Master planning will establish a cohesive, visually unified identity.

Views of the South Project Area along the proposed Airport Access Road will be similar to those of the existing Wal-Mart and Maui Marketplace (from the proposed alignment depending on the final finished grade). Despite Wal-Mart's relatively higher elevation than the existing alignment of the proposed Airport Access Road, a well-maintained hedge and other landscaping soften its appearance. In addition, as previously noted, there will be two large open space view corridors (provided by the existing 33-acre retention basin area and the land set aside for the Hāna Highway/Proposed Airport Access Road interchange), which will provide unobstructed views of Haleakalā.

Maui Business Park Phase II should also have little impact on views of Haleakalā from most portions of Pakaula Street (because Pakaula Street is at a higher elevation than Ho'okele Street) and Hāna Highway (because the project is set back approximately 500 to 600 feet from the best vantage point of Haleakalā and the project site).

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Mitigative Measures

Design standards, including a unified streetscape planting theme and program, will ensure the appropriate use of landscaping and building materials and colors throughout the area over the projected 15-year build out period. Ho'okele Street, the primary collector road through Maui Business Park Phase II, will be designed as a boulevard with a landscaped median and landscaped berms to soften the visual impact of buildings from the road. To the extent practical, the alignment of Ho'okele Street will maintain a view corridor toward Haleakalā. Presently, A&B Properties, Inc. is planning the Ho'okele Street Extension to consist of an 86-foot wide right-of-way, which will include the following:

- A 10-foot median with canopy trees;
- 26-foot wide travel lanes on either side of the median; and
- Six-foot wide sidewalks and six-foot wide planting strips opposite the median.

In addition, A&B Properties, Inc. is planning to require lot owners along the Ho'okele Street Extension to include a 10-foot front yard landscape easement to allow planting and landscaped berms (Figure 1 of Appendix J- Visual Analysis Study).

5.8 SOCIAL-ECONOMIC IMPACTS

A market study, economic impact analysis, and public cost/benefit assessment was prepared for Maui Business Park Phase II by the Hallstrom Group. The study is summarized below. The full study is included in Appendix J K.

5.8.1 Population

Existing Conditions

The resident population of Maui County was 128,241 persons according to the 2000 U.S. Census. This is more than double the 1980 total of 62,823 persons, equating to a compounded annual growth rate of 3.67 percent over the last two decades. Traditionally, population growth on Maui was primarily attributed to in-migration. However, in recent years, in-migration has significantly decreased and is expected to decline even further by 2020.

According to *Population and Economic Projections for the State of Hawai'i to 2025*, the Department of Business, Economic Development and Tourism (DBEDT) projects the population of Maui County to reach 158,700 people by 2025. In addition to the resident population, approximately 38,000 non-residents populate Maui on any given day.

The Wailuku-Kahului district has experienced the greatest population growth in the past decade, from 45,685 people in 1990 to 61,346 people in 2000. This represents an increase of 34.3 percent, as compared to the County's overall growth rate of 27.6 percent over the same period. Population density is particularly high in the Kahului area at 3,501.4 persons per square mile as compared to 152.4 persons per square mile for the entire island of Maui.

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Potential Impacts

Maui Business Park Phase II will create a future supply of jobs for Maui residents. These will include jobs for the current workforce population as well as persons coming of working age during the term of the project. Businesses at Maui Business Park Phase II are anticipated to principally include service sector industries that feed off of Maui's economic base industries. Due to a strong demand for employment opportunities, the businesses located at the industrial park are expected to primarily employ current Maui residents. These would include employees of existing businesses relocating to Maui Business Park II from other parts of Maui as well as new business that would employ current Maui residents. As such, Maui Business Park Phase II is not expected to have a direct and significant impact on population levels in Maui County as a whole or the Wailuku-Kahului community. Maui Business Park Phase II will not include any residential uses.

Mitigative Measures

As the Maui Business Park Phase II project is not expected to have a direct and significant impact on population levels, no mitigative measures relating to population are presented.

5.8.2 Housing

Existing Conditions

Residential areas in the region are centered around Wailuku, the civic-financial-cultural center, and Kahului, the business and industrial center. Wailuku is primarily composed of older residential areas, intermixed with business uses, varying lot sizes, and street patterns representative of older subdivisions. Residential areas in Kahului are newer, with wide curvilinear streets.

According to the 2000 U.S. Census, there were approximately 10,859 total housing units in the Kahului and Wailuku census designated places (CDP). Only four percent, or 444 units, were vacant. The majority of housing units are occupied by their owners.

Over the past 10 to 15 years, the cost of residential housing has increased dramatically in the region and on the island, in general. Data from the 2000 U.S. Census values the majority of owner-occupied housing units between \$200,000 and \$299,000. The majority of renters pay between \$500 and \$749 per month for housing units.

Potential Impacts

Maui Business Park Phase II does not include any residential component. Further, it is anticipated that the majority of persons to be employed at Maui Business Park Phase II will be current Maui residents. These would include employees of existing businesses relocating to Maui Business Park Phase II as well as new business that would employ current Maui residents. ~~Therefore, it is not anticipated that development of Maui Business Park Phase II will generate a significant need for additional housing.~~

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However, ~~in~~ In response to a requirement by the LUC under Docket No. A03-739, A&B Properties, Inc. has agreed to contribute a minimum of 10 acres of land in the Central Maui region toward the development of employee/affordable housing. As required by the LUC, an analysis of the project's impact on housing demand generated by future employees ~~is being~~ was undertaken, ~~and is included in Appendix L.~~ The housing analysis focuses on increased housing unit demand due to the in-migration of job seekers at the project. Based on the analysis, approximately 13 acres of land capable of supporting moderate density multi-family development (15 units per acre) would be needed. This residential density is comparable to other multi-family projects developed in the Central Maui region, including Kahului Ikena (a 102-unit project completed at a density of about 20 units per acre) and Iao Parkside (a 480-unit project completed at a density of about 18-21 units per acre). The timing of demand for these units would be over an approximately 13-year period from 2008 through 2020. The analysis confirms that the preferable location for these units would be in the Central Maui region.

Mitigative Measures

As noted above, A&B Properties, Inc. has agreed to contribute a minimum of 10 acres of land in the Central Maui region toward the development of employee/affordable housing to address the housing demand attributable to the project. In conjunction with the land contribution, A&B Properties, Inc. will participate with others in formulating an employee/affordable housing program for the contributed property. Specifics concerning the location, project specifications (i.e. number of units, unit types, etc.), timing, eligibility parameters, and the participation of other parties will be formulated in cooperation with the County of Maui as well as other applicable parties. The proposal will address any adopted County of Maui employee/affordable policy for commercial and industrial projects. Specifics of the proposal are subject to the approval of the LUC as provided under Docket No. A03-739.

5.8.3 Employment

Existing Conditions

In 2001, of approximately 74,200 persons in the Maui County civilian labor force, 70,650 were employed, equating to an unemployment rate of 4.8 percent. The "leisure and hospitality" industry, including hotels, employs the greatest number of persons, followed by "trade, transportation, and utilities," "government," and "professional and business services."

Potential Impacts and Mitigative Measures

Maui Business Park Phase II will provide a needed future supply of jobs for Maui residents. These will include jobs for the current workforce population as well as persons coming of working age during the term of the project. These employment opportunities will be in parallel with anticipated population growth and future employment needs. Over the projected build-out period of approximately 15 years, Maui Business Park Phase II will provide employment opportunities and meet the existing need and future demand for increased light industrial space on Maui. Projected employment impacts of Maui Business Park Phase II include:

- On a stabilized basis, at full build-out, 5,522 full-time equivalent jobs related to on-site activities.

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- \$1.57 billion in total wages over the build out period.
- \$202.9 million in stabilized annual wages after the build out period.

5.8.4 Community Character

Existing Conditions

The Wailuku-Kahului region has a rich history and tradition dating back to prehistoric, missionary, and plantation eras. Wailuku maintains its role as the civic-financial-cultural center, while Kahului has developed in recent years into the island's business and industrial center. With the island's major harbor and airport also located within Kahului, it serves as an important center of jobs and economic activity.

The Maui Business Park Phase II area is designated "Light Industrial" on the *Wailuku-Kahului Community Plan (2002)*, which is a reflection of the needs and desires of the community. This designation was strongly supported by the Citizen's Advisory Committee (CAC) during the community plan update process.

The Maui Business Park Phase II site is contiguous with the existing urban area of greater Kahului and is a logical extension of the adjacent and nearby light industrial areas that serve as Maui's primary centers of commerce and industry. From the outset, the intent of Maui Business Park has been to provide a high quality and well planned business park in response to growing demand for light industrial and retail space on Maui. Phases IA and IB of the business park have been designed and constructed to meet this need with a development that is sensitive to Maui's unique environment as well as the community character of Central Maui.

Potential Impacts and Mitigative Measures

Maui Business Park Phase II will be an attractive and functionally integrated industrial park in keeping with the character of adjoining Maui Business Park Phase I. Master planning for the entire area will ensure a cohesive, visually unified, and attractive project. A&B Properties, Inc. will provide all required on-site infrastructure, such as internal roads and water and sewer lines, at no expense to the State or County. Design standards, including a unified streetscape planting theme and program, will ensure the appropriate use of landscaping and building materials over the build out period.

Ho'okele Street, the primary collector road through Maui Business Park Phase II, will be designed as a boulevard with a landscaped median and landscaped berms to soften the visual impact of buildings from the road. To the extent practical, the alignment of Ho'okele Street will maintain a view corridor toward Haleakalā.

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5.8.5 Economic Impacts

Existing Conditions

The Maui Business Park Phase II site is located in Kahului, within the central region of the island of Maui. The Wailuku-Kahului area is the primary economic and population center of Maui. Maui's major harbor and airport are both located in Kahului. Kahului also includes large residential areas connected by wide curvilinear streets.

Tourism is the primary sector of Maui's economy. On average, the 2,048,768 visitors to the island of Maui in 2000 spent an average of \$178.06 per person per day. In 2001, the service industry, including hotels, employed 24,350 persons in Maui County. This represents 34 percent of the total employed civilian labor force (70,650). Unemployment for the County was 4.8 percent in 2001. According to the U.S. Census Bureau, both median household income (\$49,489 in 1999) and per capita income (\$22,033 in 1999) in Maui County closely mirror the statewide figures (\$49,820 and \$21,525 respectively). DBEDT projects per capita income in Maui County to rise to \$27,562 by 2025. Nearly eight percent of families in Maui County fall below the poverty level.

Potential Impacts and Mitigative Measures

Maui Business Park Phase II will contribute to an economic climate that encourages controlled expansion and diversification to the County's economic base by providing the physical space on Maui to allow for new investment, businesses, and jobs. Over its projected 15-year build out period, Maui Business Park Phase II will provide employment opportunities in parallel with population growth and future employment needs. It is expected that the jobs created from businesses locating in Maui Business Park Phase II will provide a balance between visitor industry employment and non-visitor employment for a broader range of employment choices for the County's residents.

With a 15-year build out period, and continued business operations after build out, Maui Business Park Phase II provides a source of long-term economic development. A market analysis and economic impact study (Hallstrom 2003) projected employment impacts of Maui Business Park Phase II to include:

- \$391 million in taxes for the State of Hawai'i and \$33.9 million in taxes for the County of Maui during the 15-year build out period.
- \$51.6 million annually in stabilized taxes for the State and approximately \$3.8 million annually for the County after the build out period.
- A net benefit (taxes minus costs) to the State of between \$44 to 51.4 million annually. A net benefit to the County of between \$1.7 to \$3 million annually.
- On a stabilized basis, at full build-out, 5,522 full-time equivalent jobs related to on-site activities.
- \$1.57 billion in total wages over the build out period.

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- \$202.9 million in stabilized annual wages after the build out period.

5.9 INFRASTRUCTURE AND UTILITIES

A preliminary engineering report and preliminary draining report were prepared for Maui Business Park Phase II. Key elements of the reports are summarized below. The complete reports are included in Appendix K M (engineering) and Appendix L N (Drainage).

5.9.1 Roadway Facilities

Existing Conditions

There are several major roadways and intersections in the vicinity of Maui Business Park Phase II. Hāna Highway is a four-lane, State highway running east-west between the South and North Project Areas. It is a major access route to and from east Maui and is heavily traveled during peak hours. Haleakalā Highway also runs in an east-west direction along the northern boundary of the North Project Area. Pu'unēnē Avenue, a four-lane roadway, is also oriented east-west and runs along the southern boundary of the South Project Area. Dairy Road is the major north-south roadway bordering Maui Business Park Phases IA and IB. It is also a primary connector road for motorists traveling between south and east Maui and serves as an access road to the Kahului Airport. Ho'okele Street is a four-lane, divided road between Pu'unēnē Avenue and Pakaula Street. Plans to extend Ho'okele Street through the South Project Area to Hāna Highway are discussed below.

Potential Impacts and Mitigative Measures

Ho'okele Street, which currently runs between Pu'unēnē Avenue and Pakaula Street (the street between Wal-Mart and Home Depot), will be extended to Hāna Highway during the first phase of Maui Business Park Phase II construction and will serve as the primary collector road through the South Project Area. It will also provide the primary access via intersections with Pu'unēnē Avenue and Hāna Highway. When extended, Ho'okele Street will run roughly parallel with Dairy Road, and will provide an alternative route between Hāna Highway and Pu'unēnē Avenue, so that people traveling to and from Pā'ia or Upcountry and Kihei will have the option of bypassing Dairy Road via Ho'okele Street.

Primary access to the North Project Area will be provided via two intersections with Haleakalā Highway. A third access point is proposed via an intersection with Hāna Highway, however this access is being provided as a traffic mitigation measure and will only provide "right turn in" and "right turn out" access to minimize conflicts with traffic flow on Hāna Highway.

Potential traffic impacts and mitigative measures are thoroughly discussed in Section 5.4 and in the traffic impact analysis study in Appendix F G.

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5.9.2 Drainage System

The following information summarizes the results of the Preliminary Drainage Report. A more detailed drainage master plan for the Maui Business Park Phase II site will be prepared and submitted to the County for review prior to commencing engineering design.

Existing Conditions

South Project Area: The South Project Area is currently planted in sugar cane. There is no storm drainage system and runoff is retained or absorbed within the cane fields. In severe storms, some runoff flows to the southern edge of Maui Business Park Phase IA near Hāna Highway where A&B Properties, Inc. has installed a concrete drainage culvert under Hāna Highway connecting to an existing drainage channel. This culvert was designed to accommodate the 100-year storm and alleviates a previous flooding problem at the Hāna Highway/Dairy Road intersection.

There are two drainage retention basins located adjacent to the South Project Area, just east of Wal-Mart. These basins were constructed to retain runoff from Maui Business Park Phase IB and they have the capacity to retain additional runoff. The current estimated flow from South Project Area is about 77 cubic feet per second (cfs).

The two existing drainage retention basins near Wal-Mart have an estimated combined capacity of 80 acre-feet. The estimated flow volume into these basins, with existing Phase IB and build-out of the South Project Area, will be about 48 acre-feet for a 100-year, 24-hour storm. Therefore, there will be capacity for the flows from the South Project Area.

North Project Area: The North Project Area historically has been used for agricultural purposes, although a portion of the site contains former sugar plantation buildings. The drainage system serving the North Project Area is a channel near K-Mart and Costco that takes drainage from Maui Business Park Phase IA. This channel is connected to the Airport Industrial Area's concrete open channel, which crosses Haleakalā Highway and Keolani Place and is located along the eastern boundary of Kanahā Pond. This channel has its outlet at the Kalialinui Gulch near the airport. The Airport Industrial Area drainage system is owned and maintained by A&B. Estimated flows generated from the undeveloped portion of the North Project Area are about 14 cfs.

Potential Impacts

Development of Maui Business Park Phase II is not expected to have a significant adverse effect on existing drainage conditions, including the existing drainage system of Maui Business Park Phases IA and IB, downstream properties, the Kanahā Pond State Wildlife Refuge, and coastal marine waters. Post development, the flow from the South Project Area is estimated at about 293 cfs. This is an increase of about 216 cfs from current conditions. The estimated runoff from the North Project Area after development is about 61 cfs, which would be an increase of about 47 cfs from the current conditions.

The increase in runoff will be retained by on-site systems designed in accordance with Maui County drainage standards and an existing system designed to accommodate the flow, as described below.

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Mitigative Measures

A preliminary drainage report has been prepared and is contained in Appendix L N. A more detailed drainage master plan for the Maui Business Park Phase II site will be prepared and submitted to the County for review prior to commencing engineering design.

The increased flow from the South Project Area will be accommodated by the two existing drainage retention basins near Wal-Mart, which have an estimated combined capacity of 80 acre-feet. The estimated flow volume into these basins, with existing Maui Business Park Phase IB and build-out of the South Project Area, will be about 48 acre-feet for a 100-year, 24-hour storm. Therefore, there will be capacity for the flows from the proposed developed area. The storm drainage system for the South Project Area will be designed to take the increased runoff to the existing drainage retention basins. This system will be designed to County of Maui standards. Earth berms will be constructed along the southerly boundary of the South Project Area to retain cane field irrigation and field runoff within the sugar cane fields. The existing HC&S ditches in the cane fields will also divert a portion of field flows from the South Project Area.

Unlike the South Project Area, there is no existing drainage system to serve the North Project Area. Since the existing channel near K-Mart and Costco cannot adequately serve the North Project Area after development, retention basins may be constructed to retain the 100-year, 24-hour storms. Another option would be retention basins on each developed lot with capacities to retain on-site generated runoff. The drainage system will be designed to County standards. Earth berms will be constructed along the southern boundary to keep cane field runoff from flowing into the North Project Area.

Based on the recommendations of the detailed drainage master plan, improvements will be made to ensure Maui Business Park Phase II complies with all County drainage requirements and standards. A&B Properties, Inc. will implement best management practices to reduce non-point source pollution. In the development of specific drainage plans, A&B Properties, Inc. will consult with applicable agencies concerning the feasibility of other mitigative measures such as oil/water separators. In addition, the Maui Business Park Phase II site will not require extensive grading, therefore respecting the natural drainage ways of the land.

Maui Business Park Phase II will comply with all laws and regulations regarding runoff and non-point source pollution, ensuring that storm water run-off and siltation will not adversely affect marine environment and nearshore and offshore water quality.

5.9.3 Water System

Existing Conditions

The Kahului industrial area is served by the County of Maui's Department of Water Supply (DWS) system. The source of water for this system is the Waihe'e Wells, which were developed by the Central Maui Source Joint Venture and dedicated to the Board of Water Supply. The three developed wells have a total capacity of 13.5 million gallons per day. A&B Properties, Inc. is a member of this joint venture and has an allocation of 4/19 of the developed capacity. Water storage tanks that served the Kahului system are located in Wailuku and Waiehu.

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The 'Īao Aquifer and the Waihe'e Aquifer supply potable water for Central Maui. In July of 2003, the 'Īao Aquifer system was designated a State Groundwater Management Area. According to the public notice published by the Commission on Water Resource Management, "in a ground-water management area, no person shall make a withdrawal, diversion, impoundment, or consumptive use of ground water without first obtaining a groundwater use permit from the Commission on Water Resource Management."

The Maui Business Park Phase II site is underlain by a thin, saline brackish water lens. It is not over a potable water aquifer as it is located below the Underground Injection Control line, which establishes the boundary between non-drinking water aquifers and underground sources of drinking water. The site also is not within the Wellhead Protection Area established for the County of Maui Central System service area. The Maui Department of Water Supply established the Wellhead Protection Program to prevent contamination of groundwater wells.

South Project Area: When A&B developed Maui Business Park Phase I, a 12-inch waterline was installed in Dairy Road and extended to Pakaula Street. There is an existing stub-out of this waterline at Ho'okele Street and Pakaula Street.

North Project Area: There is an existing 12-inch waterline in Dairy Road and Keolani Place that serves the Airport Industrial development, including K-Mart and Costco. There is also a 16-inch waterline in Keolani Place that goes to the Kahului Airport. A three-inch waterline in Haleakalā Highway serves the former Central Power Plant area.

Potential Impacts

Based on guidelines in the 2002 Water System Standards (water usage of 6,000 gallons per day per acre), potable water supply for Maui Business Park Phase II is estimated at 0.86 million gallons per day based upon the project's net acreage (approximately 80% of the project's 179 gross acres). The County Department of Water Supply estimates water use for the Project to be in the range of 0.828 million gallons per day to 1.074 million gallons per day. As a comparison, based on the Interim Water Usage Standard for Central Maui (water usage of 2,477 gallons per day per acre), potable water supply would be estimated at about 0.45 million gallons per day.

Mitigative Measures

A&B Properties, Inc. will participate in the funding and construction of adequate water source, storage, and transmission facilities and improvements to accommodate water use generated by Maui Business Park Phase II. A&B has substantial rights to the surface water flowing in the Waihe'e and Spreckels Ditches. These ditches run generally from north to south above and through Wailuku Town (Waihe'e and Spreckels, respectively). Over the last 10 years, A & B's use of the flows in the Waihe'e and Spreckels Ditches has averaged almost 42 MGD. It is currently envisioned that a small portion of this water will be withdrawn from the Waihe'e Ditch and processed at a future surface water treatment plant to allow the County to supply water to Maui Business Park Phase II. Transmission lines from the new surface water treatment plant will deliver water into the County Department of Water Supply's (DWS) Central Maui System. Once in the Central Maui System, water will be conveyed via existing transmission lines through

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Kahului to the site. New on-site transmission lines will be developed to provide water to individual businesses.

These water system improvements will need to be developed with the cooperation and consent of the County of Maui. The location of these ditches, the land ownership of A&B, the location of DWS' water system infrastructure, and the DWS' experience in operating surface water treatment plants make treatment of the ditch water for potable use a particularly feasible alternative:

- With the Hopo'i Chute connection from the Waihe'e Ditch to the Wai'ale Reservoir, there are three possible raw water sources for a treatment plant located near to the reservoir. In addition to taking water from the Hopo'i Chute, water could be withdrawn directly from Spreckels Ditch or from Wai'ale Reservoir.
- A&B's land ownership would allow it to construct a water treatment plant to use one or more of these surface water sources and deliver it into the Central Maui System at a location that would enable DWS to supply Phase II of the Maui Business Park.
- DWS has extensive experience in operating both membrane filtration plants and conventional treatment plants in compliance with requirements of EPA's Safe Water Treatment Rule and Interim Enhanced Safe Water Treatment Rule. DWS currently operates plants at Kama'ole Weir using water from EMI's Wailoa Ditch, Piholo on the Lower Kula system, Olinda on the Upper Kula system, the 'Īao Plant using 'Īao Stream water, and at Māhinahina above Lahaina using water from ML&P's Honokōhau Ditch. DWS has the staff with the necessary operator certifications to run treatment plants to produce potable water.

The proposed surface water treatment plant is a separate project from Maui Business Park Phase II and will be subject to applicable provisions of the environmental impact statement law (Chapter 343, Hawaii Revised Statutes), once specifics are developed in coordination with the County.

South Project Area: The water system for the South Project Area will be extended from the 12-inch waterline in Ho'okele Street at Pakaula Street. The water system will be designed to Department of Water Supply standards and dedicated to the Board of Water Supply upon completion.

North Project Area: A new 12-inch waterline will be installed under Haleakalā Highway from the intersection of Dairy Road and Keolani Place to Kulena Street for other planned developments along Haleakalā Highway. This waterline will be extended to serve this the North Project Area. The proposed water system improvements will be designed to Department of Water Supply standards and dedicated to the Board of Water Supply upon completion.

To conserve water within Maui Business Park Phase II:

- Single pass cooling will not be allowed pursuant to Maui County Code Section 14.21.20
- Low-flow fixtures and devices will be used pursuant to Maui County Code Section 16.20A.680

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- Individual Businesses will be encouraged to maintain fixtures to prevent leaks
- Climate-adapted native and other appropriate plants will be used in landscaping as practical
- Best management practices designed to minimize infiltration and runoff from daily operations will be implemented

Additionally, in an effort to reduce the use of potable water, the feasibility of developing a dual water system utilizing non-potable water for landscape irrigation purposes will be evaluated.

5.9.4 Wastewater System

Existing Conditions

The County of Maui's existing wastewater system services the Kahului industrial area. The Wailuku-Kahului Wastewater Reclamation Facility is located on Amala Place near Kanahā Beach. This facility has a capacity of 7.9 million gallons per day (mgd) of which an estimated 7 mgd has been allocated for existing and projected flows.

South Project Area: A 16-inch sewer line extension was connected to the Alamaha Street sewage pump station (SPS) when Maui Business Park Phases IA and IB were developed. This line extension terminates as an eight-inch line on Ho'okele Street, near Pu'unēnē Street. The force main from Alamaha SPS flows to the Kahului Sewage Pump Station on Hāna Highway. Flows from this SPS are then pumped to the Wailuku-Kahului Reclamation Facility.

North Project Area: Existing eight-inch and 18-inch sewer lines service the Airport Industrial area, including Costco and K-Mart. Sewage in these lines flow down to the Airport Triangle sewage pump station on Kele Street. This SPS and all sewer lines that are connected to it are owned and maintained by A&B. The six-inch force main from this SPS is connected to the County's system at Alamaha Street and Papa Place. Sewage then flows to the Alamaha SPS, Kahului SPS and finally to the Wailuku-Kahului Wastewater Reclamation Facility for treatment.

Potential Impacts

Total sewage flows from the Maui Business Park Phase II are estimated to be 0.28 mgd. The estimated sewage generated from the South Project Area will be about 0.23 million gallons per day (mgd), based on a flow rate of 1,600 gallons per acre per day for light industrial uses. The estimated sewage generated from the North Project Area will be about 0.05 mgd, based on a flow rate of 1,600 gallons per day per acre for light industrial uses.

Mitigative Measures

The proposed sewage system, as described below, will be designed to County of Maui standards. In addition, all wastewater plans will conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." A detailed sewer impact study evaluating the wastewater system requirements for Maui Business Park Phase II will be prepared and submitted to the County for review prior to commencing engineering design.

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South Project Area: Sewage from the area west of the drainage retention basin will flow into the existing eight-inch sewer line in Ho'okele Street at Pakaula Street. These flows will go through existing lines in Maui Business Park Phases IA and 1B into the Alamaha Street system.

For flows east of the drainage retention basin, A&B Properties, Inc. has investigated some alternatives to take sewage to the existing wastewater system. One of these alternatives is to direct flows across Hāna Highway to the Airport Industrial Subdivision system. A new 12-inch sewer line could be installed by A&B under Haleakalā Highway from Dairy Road to the North Project Area. The existing sewer line under Dairy Road is connected to the existing Airport Industrial Subdivision Pump Station. This proposed system would then require rerouting flows from this pump station through a new eight-inch force main along Hāna Highway to the Kahului Pump Station. This would divert and reduce flows to the Alamaha Pump Station.

North Project Area: Sewage will flow into the same new 12-inch sewer line in Haleakalā Highway that will receive South Project Area sewage, then to the Airport Industrial Pump Station, to the proposed Hāna Highway force main and to the Kahului Pump Station. Sewage from this pump station flows through a force main to the Wailuku-Kahului Wastewater Reclamation Facility (WWRF).

5.9.5 Electrical and Communications Systems

Existing Conditions

Electricity for central Maui is generated by Maui Electric Company, Limited's (MECO) Kahului and Mā'alaea plants. Hawaiian Commercial & Sugar Company also generates electricity, which is connected to MECO's system. The Kahului plant, which generates about 34 megawatts, is located next to Kahului Harbor. The Mā'alaea plant, near Keālia Pond, generates about 196 mw and HC&S, next to the Pu'unēnē Mill, generates about 12 mw. MECO's Kanahā Substation, located at the corner of Hāna Highway and Dairy Road, will serve Maui Business Park Phase II.

Verizon Hawaii provides telephone and other communication services to the Kahului area. They have a switching station located on Pu'unēnē Avenue near Wakea Avenue.

Cable television service is provided to Kahului by Oceanic Time Warner Cable of Hawaii. Their system is located throughout the area in underground and overhead cables and other facilities.

South Project Area: Existing electrical service for the South Project Area ends in Maui Business Park Phase IB, at Ho'okele Street and Pakaula Street. A transmission line from HC&S' Pu'unēnē Mill runs overhead in an easement through this area to connect to MECO's system at Dairy Road near Pakaula Street. MECO's transmission line to east Maui is located on Hāna Highway, which borders the South Project Area. Pūlehu Road also has overhead electrical lines from Hāna Highway and extends beyond Hansen Road.

Telephone and cable television services have been extended to Ho'okele Street and Pakaula Street at Maui Business Park-Phase IB. Overhead telephone cables are located along Hāna Highway and Pūlehu Road, together with MECO's transmission system.

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North Project Area: MECO has an overhead line for this area along Haleakalā Highway that is an extension of their system from Dairy Road and Keolani Place. This system is connected to the Kanahā Substation.

Telephone and cable services are available at Dairy Road, Haleakalā Highway and Keolani Place.

Potential Impacts

The preliminary engineering report estimates that the electrical demand for Maui Business Park Phase II will be about 2 megawatts. Line extensions from the existing electrical system will provide power to the area. MECO's Kahului and Mā'alea Plants generate sufficient electricity to provide services to Maui Business Park Phase II.

The underground electrical system for Maui Business Park Phase II will be designed to MECO's standards. MECO's Kanahā substation at Dairy Road and Hāna Highway has room to expand if necessary.

Telephone and cable television systems will be extended to the Maui Business Park Phase II from existing systems at Phase I of Kahului Industrial Park and Airport Industrial Area. The underground systems will be designed to current standards and A&B Properties, Inc. will cooperate with these utilities in expanding their services to the proposed areas.

Mitigative Measures

Energy-saving concepts and devices will be encouraged, including the use of solar energy to heat water. Design standards will specify low-impact lighting and will encourage energy efficient building design and site development practices. The underground electrical system and telephone and cable systems will be designed to current standards. A&B Properties, Inc. will cooperate with utility companies in expanding their services to the proposed areas.

Where applicable, the following additional energy saving methods and technologies will be considered during the design phase of Maui Business Park Phase II:

- Use of site shading, orientation, and use of naturally ventilated areas to reduce cooling load;
- Maximum use of day lighting;
- Use of high efficiency compact fluorescent lighting;
- Exceeding Model Energy Code requirements;
- Roof and wall insulation, radiant barriers, and energy efficient windows;
- Use of solar parking lot lighting;
- Use of light color or "green" roofs;
- Use of roof and gutters to divert rainwater for landscaping;
- Use of landscaping for dust control and to minimize heat gain to area; and
- Use of photovoltaics, fuel cells and other renewable energy sources.

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5.9.6 Solid Waste

Existing Conditions

Currently, significant levels of solid waste are not being generated on the Maui Business Park Phase II site from the current agricultural uses; sugarcane fields on the site are either fallow or in limited cultivation and thus do not generate significant waste that is not already properly handled by HC&S.

Potential Impacts

Waste generated by site preparation will primarily consist of vegetation, rocks, and debris from clearing, grubbing, and grading. As much as practical, soil and rocks displaced from grading and clearing will be used as fill within the site. This will include filling a small section of the existing drainage basins and building a berm along the eastern edge of the South Project Area for drainage and flood control.

Construction waste will consist of waste lumber, concrete, and other building materials. Very little demolition material is expected, as the site is essentially vacant.

In the Public Facilities Assessment Update County of Maui (2002), R.M. Towill Corporation projected that the Central Maui Landfill (CML) would have adequate capacity to accommodate commercial and residential waste through the year 2020, with a surplus of approximately one million cubic yards of landfill space. This projection was arrived at by multiplying the Maui County's de facto population projections by an estimate of pounds per person per day (PPD) of waste generated and assumes that solid waste generated by industrial and commercial growth will be captured by a corresponding trend in projected population growth.

Mitigative Measures

A solid waste management plan (Appendix M O) has been prepared for Maui Business Park Phase II to reduce solid waste disposal. As required by the County of Maui, the solid waste management plan will address waste generated by construction during build out of Maui Business Park Phase II.

During the construction phase, whenever practical, solid wastes will be minimized and recycled. It will be recommended to contractors that a job-site recycling plan should be developed and, as much as possible, construction and demolition waste should be recycled.

Solid waste generated at Maui Business Park Phase II that cannot be recycled will be collected by private waste collection companies or by the County's Solid Waste Division and hauled to the CML for disposal. A&B has been cooperating with the County in increasing the area of this landfill for the County's expansion plans.

Green waste from grubbing will either be chipped into mulch for use on site or will be taken to green waste recycling centers. Phasing of the project will minimize the amount of green waste generated at any one time. In addition, if large amounts of green waste are expected from an

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individual phase, delivery will be coordinated with the recycling centers to ensure that there is adequate capacity.

Following construction, recycling will be encouraged, and architects for individual businesses will be encouraged to provide space for individual dumpsters to separate recyclable materials, such as cardboard, from municipal solid waste. In addition, as practical, individual businesses will be requested to: 1) specify and use products with recycled-content such as: steel, concrete aggregate fill, drywall, carpet and glass tile; and 2) use products such as plastic lumber, hydromulch, soil amendment, and glass tile.

5.10 PUBLIC SERVICES AND FACILITIES

5.10.1 Police Protection

Existing Conditions

The Maui County Department of Police Headquarters located at 55 Mahalani Street in Wailuku, approximately three miles from the Maui Business Park Phase II site, provides police services in the Kahului area. Kahului is within the Wailuku uniformed patrol division. There are approximately 115 uniformed patrol officers and other personnel that serve this division.

Potential Impacts and Mitigative Measures

Although the development of Maui Business Park Phase II may increase the need for police services similar to those required for Business Park Phase I, this increase is not anticipated to be significant.

5.10.2 Fire Protection

Existing Conditions

The Kahului Fire station is located on Dairy Road adjacent to Maui Business Park Phase I. In 2002 there were approximately 33 fire fighters and other personnel in the Kahului District.

Potential Impacts and Mitigative Measures

Although the development of Maui Business Park Phase II may increase the need for fire services similar to those required for Maui Business Park Phase I, this increase is not anticipated to be significant.

5.10.3 Schools

Existing Conditions

The Kahului area falls within the State Department of Education's Maui Complex. Schools in Kahului include Maui High, Maui Waena Intermediate, Kahului Elementary, and Lihikai Elementary.

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Potential Impacts and Mitigative Measures

Because Maui Business Park Phase II will not have any residential population, it is not expected to directly increase the demand on the State Department of Education's Maui Complex schools.

5.10.4 Recreational Facilities

Existing Conditions

There are a number of recreation facilities, parks, and open spaces in the Wailuku-Kahului area, including the 110-acre Kepuolani Regional Park, located approximately three miles from the Maui Business Park Phase II site.

Potential Impacts and Mitigative Measures

Because Maui Business Park Phase II will not have any residential population, it is not expected to directly increase the demand on the recreational facilities in the area.

5.10.5 Health Care Services

Existing Conditions

Maui Memorial Hospital, located between Wailuku and Kahului adjacent to the Police Department Headquarters, is the only major medical facility on the island of Maui. Acute, general, and emergency care services are provided by the 194-bed facility.

Potential Impacts and Mitigative Measures

Because Maui Business Park Phase II will not have any residential population, it is not expected to directly increase the demand on Maui Memorial Hospital.

6.0 RELATIONSHIP TO THE LAND USE PLANS, POLICIES, AND CONTROLS FOR THE AFFECTED AREA

This section discusses the relationship of the proposed Maui Business Park Phase II to State and County land use plans, policies, and controls for the Central Maui region.

6.1 STATE OF HAWAII

6.1.1 Environmental Impact Statement Law, Chapter 343, Revised Statutes

Compliance with Chapter 343, HRS is required as described earlier in Section 1.1.2.

6.1.2 State Land Use Law, Chapter 205, Hawai'i Revised Statutes

The State Land Use Law (Chapter 205, Hawai'i Revised Statutes (HRS)), establishes the State Land Use Commission (LUC) and gives this body the authority to designate all lands in the State into one of four districts: Urban, Rural, Agricultural, or Conservation.

The majority of the 179-acre Maui Business Park Phase II site is in the Urban District (Figure 5). Approximately 33.530 acres within the South Project Area requires approval by the LUC for reclassification from Incremental to the Urban District.

Also include discussion of withdrawn area.

Discussion: To accommodate the uses proposed within Maui Business Park Phase II, landowner A&B Properties, Inc. will seek to reclassify the portion of the site within the Incremental District to the Urban District.

The proposed light industrial uses within Maui Business Park Phase II are consistent with uses allowed in the Urban District. According to the Administrative Rules governing Chapter 205, HRS (Title 15, Subtitle 3, Chapter 15, Hawai'i Administrative Rules), the Urban District "shall include lands characterized by 'city like' concentrations of people, structures, streets, urban level of services and other related land uses."

6.1.3 Coastal Zone Management Act, Chapter 205A, Hawai'i Revised Statutes

The Coastal Zone Management Area as defined in Chapter 205A, HRS, includes all the lands of the state. As such, Maui Business Park Phase II is within the Coastal Zone Management Area; however, it is not located along a shoreline.

A portion of the North Project Area is within the Special Management Area (Figure 6). Although established in the Coastal Zone Management Law (Chapter 205A, HRS), Special Management Areas are under the jurisdiction of the counties. A Special Management Area Use Permit from the County of Maui will be required for development within the Special Management Area.

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The relevant objectives and policies of the Hawai'i Coastal Zone Management (CZM) Program pertaining to Maui Business Park Phase II include:

- (b) *Objectives*
- (2) *Historic Resources;*
- (A) *Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*
- (5) *Economic Uses*
- (A) *Provide public or private facilities and improvements important to the State's economy in suitable locations.*
- (c) *Policies*
- (2) *Historic Resources*
- (A) *Identify and analyze significant archaeological resources*
- (B) *Maximize information retention through preservation of remains and artifacts or salvage operations; and*
- (C) *Support state goals for protection, restoration, interpretation, and display of historic resources.*
- (3) *Scenic and open space resources*
- (A) *Identify valued scenic resources in the coastal zone management area;*
- (D) *Encourage those developments which are not coastal dependent to locate in inland areas.*
- (6) *Coastal Hazards*
- (C) *Ensure that development comply with requirements of the Federal Flood Insurance Program.*

Discussion: Maui Business Park Phase II is situated adjacent to existing urban uses and is a logical extension of the State Urban District. As a center for both small and large businesses in close proximity to Maui's primary airport and harbor facilities, Maui Business Park Phase II will not impact historic resources and will have a positive impact on the State's economy. Some of the economic benefits of Maui Business Park Phase II include:

- \$391 million in taxes for the State of Hawai'i and \$33.9 million in taxes for the County of Maui during the 15-year build out period.
- \$51.6 million annually in taxes for the State and approximately \$3.8 million annually for the County after build out.
- A net benefit (taxes minus costs) to the State of between \$44 and \$51.4 million annually. A net benefit to the County of between \$1.7 and \$3 million annually.
- On a stabilized basis, at full build out, 5,522 full time equivalent jobs related to on-site activities.
- \$1.57 billion in total wages over build out
- \$202 billion in annual wages after build out.

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- \$15.04 billion infused into the economy during build out and \$2.1 billion annually after build out due to the "multiplier" effect.

For more information on the projected economic and employment impacts of Maui Business Park Phase II, see Section 5.8.2 and Appendix J K, which contains the complete market analysis and economic impact study.

Maui Business Park Phase II will comply with the provisions of the Coastal Zone Management law (Chapter 205A, HRS). In particular, A&B Properties, Inc. and all of its subcontractors will comply with all state and county laws and rules regarding the preservation of cultural and historic sites should any be found during construction.

Maui Business Park Phase II is not coastal dependent and is located inland from the coast. The dominant view from the business park will be of Haleakalā. Ho'okele Street, the primary collector road through the South Project Area, will be aligned to provide views of Haleakalā, and will include a landscaped berm using trees and shrubbery to soften the visual impact of buildings along the road.

As indicated on the Flood Insurance Rate Map (Figure 12) both parcels of Maui Business Park Phase II are outside of flood zones, in areas of minimal flooding. Grading and other site improvements will comply with the requirements of the Federal Flood Insurance Program and all state and county laws.

6.1.4 Hawai'i State Plan, Chapter 226, Hawai'i Revised Statutes

The Hawai'i State Plan (Chapter 226, HRS), establishes a set of goals, objectives and policies that serve as long-range guidelines for the growth and development of the State. The Plan is divided into three parts: Part I (Overall Theme, Goals, Objectives and Policies); Part II (Planning, Coordination and Implementation); and Part III (Priority Guidelines). Part II elements of the State Plan pertain primarily to the administrative structure and implementation process of the Plan. As such, comments regarding the applicability of Part II to Maui Business Park Phase II are not appropriate. The following sections of the Hawai'i State Plan are directly applicable to the proposed project:

Part I: Overall Theme, Goals, Objectives and Policies

The Hawai'i State Plan lists three "Overall Themes" relating to: (1) individual and family self-sufficiency; (2) social and economic mobility; and (3) community or social well-being. These themes are viewed as "basic functions of society" and goals toward which government must strive" (§226-3). To guarantee the elements of choice and mobility embodied in the three themes, the Plan states three goals:

- 1) *A strong, viable economy, characterized by stability, diversity and growth that enables fulfillment of the needs and expectations of Hawaii's present and future generations.*

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- 2) *A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.*
- 1) *Physical, social and economic well-being, for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring and of participation in community life (§226-4).*

Discussion: Maui Business Park Phase II will contribute to the attainment of the three goals by: 1) providing direct and indirect short and long-term employment opportunities for the present and future residents of Maui; 2) generating increased State and County tax revenues; 3) contributing to the stability, diversity and growth of local and regional economies; and 4) protecting the archaeological, historic, and natural features of the site.

Specific objectives and priority directions of the State Plan most relevant to Maui Business Park Phase II include the following:

Objectives and Policies for Population (§226-5)

Objective:

It shall be the objective in planning for the State's population to guide population growth to be consistent with the achievement of physical, economic and social objectives contained in this chapter.

Policies:

- (1) *Manage population growth statewide in a manner that provides increased opportunities for Hawaii's people to pursue their physical, social and economic aspirations while recognizing the unique needs of each County.*
- (2) *Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs and desires.*
- (3) *Promote increased opportunities for Hawaii's people to pursue their socio-economic aspiration throughout the islands.*
- (7) *Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area.*

Discussion: Maui Business Park Phase II will provide long term economic and employment opportunities for the population of Maui. Providing additional light industrial space will promote increased opportunities for people to pursue their economic aspirations through employment and creation of new businesses. Projected economic and employment impacts from Maui Business Park Phase II include:

- On a stabilized basis, at full build out, 5,522 full time equivalent jobs related to on-site activities.
- \$1.57 billion in total wages over build out.
- \$202 billion in annual wages after build out.

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- \$15.04 billion infused into the economy during built out and \$2.1 billion annually after build out due to the "multiplier" effect.

For more information on the projected economic and employment impacts of Maui Business Park Phase II, see Section 5.8.2 and Appendix J-K, which contains the complete market analysis and economic impact study.

Maui Business Park Phase II is consistent with the *Wailuku-Kahului Community Plan (2002)*, which is an expression of the community's needs and desires for future growth. The area for Maui Business Park Phase II is already designated for light industrial uses on the community plan, reflecting the community's desire for growth in the Kahului region.

Objectives and Policies for the Economy – in General (§226-6)

Objectives:

- 1) *Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people.*
- 2) *A steadily growing and diversified economic base that is not overly dependent on a few industries, and includes the development and expansion on the neighbor islands.*

Policies:

- (3) *Seek broader outlets for new or expanded Hawaii investments.*
- (6) *Strive to achieve a level of construction activity responsive to, and consistent with, State growth objectives.*
- (8) *Encourage labor-intensive activities that are economically satisfying and which offer opportunities for upward mobility.*
- (9) *Foster greater cooperation and coordination between the public and private sectors in developing Hawaii's employment and economic growth opportunities.*
- (11) *Maintain acceptable working conditions and standards for Hawaii's workers.*
- (13) *Encourage businesses that have favorable financial multiplier effects within Hawaii's economy.*
- (14) *Foster a business climate in Hawaii – including attitudes, tax and regulatory policies and financial assistance programs – that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.*

Discussion: Maui Business Park Phase II will provide increased light industrial space on Maui, which, when occupied by businesses, will provide increased employment opportunities. While specific businesses within Maui Business Park Phase II have not been determined, it is expected that businesses will range from essential local services to potentially national or multinational companies looking for a presence on Maui. This will lead to broader outlets for new or expanded Hawai'i investments, increased and diversified employment opportunities, increased income and job choice, and improved living standards for Maui's residents. It is also expected that this increased mix of businesses on Maui will lead to a steadily growing and diversified economic base that is not overly dependent on a few industries. Development and construction

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of Maui Business Park Phase II will also provide construction-related employment over the course of the project's built-out.

Projected economic and employment impacts of Maui Business Park Phase II include:

- \$391 million in taxes for the State of Hawai'i and \$33.9 million in taxes for the County of Maui during the 15-year build out period.
- \$51.6 million annually in taxes for the State and approximately \$3.8 million annually for the County after build out.
- A net benefit (taxes minus costs) to the State of between \$44 and \$51.4 million annually. A net benefit to the County of between \$1.7 and \$3 million annually.
- On a stabilized basis, at full build out, 5,522 full time equivalent jobs related to on-site activities.
- \$1.57 billion in total wages over build out
- \$202 billion in annual wages after build out.
- \$15.04 billion infused into the economy during build out and \$2.1 billion annually after build out due to the "multiplier" effect.

For more information on the projected economic and employment impacts of Maui Business Park Phase II, see Section 5.2.8 and Appendix J-K, which contains the complete market analysis and economic impact study.

Objectives and Policies for the Economy – Agriculture (§226-7)

Objectives:

- (1) *Viability of Hawaii's sugar and pineapple industries*
- (3) *An agriculture industry that continues to constitute a dynamic and essential component of Hawaii's strategic, economic, and social well-being.*

Policies:

- (10) *Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.*

Discussion: Alexander & Baldwin, Inc., is the parent company of both A&B Properties Inc., and Hawaiian Commercial & Sugar (HC&S). HC&S is one of two remaining sugar plantations in Hawai'i and has over 37,000 acres in sugar cultivation in central Maui. Maui Business Park Phase II will require approximately 140 acres of HC&S' cultivated sugarcane land be taken out of cultivation. The slight decrease in the amount of land in sugar cultivation will not contribute to a significant reduction in HC&S revenues or any reduction of employment. In recent years, technological improvements in sugar cultivation have resulted in greater yields per acre, therefore a slight reduction in the area cultivated will not pose a problem to the economic

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viability of HC&S. Converting the relatively small amount of agricultural land for Maui Business Park Phase II will have minimal impact on HC&S.

Objectives and Policies for the Economy – Potential Growth Activities (§226-10)

Objective:

Planning for the State's economy with regard to potential growth activities shall be directed towards achievement of the objectives of development and expansion of potential growth activities that serve to increase and diversify Hawaii's economic base.

Policies:

- (1) Facilitate investment and employment in economic activities that have the potential for growth such as diversified agriculture, aquaculture, apparel and textile manufacturing, film and television production and energy and marine-related industries.*
- (2) Expand Hawaii's capacity to attract and service international programs and activities that generate employment for Hawaii's people.*
- (5) Promote Hawaii's geographic, environmental, social, and technological advantages to attract new economic activities into the State.*
- (6) Provide public incentives and encourage the private initiative to attract new industries that best support Hawaii's social, economic, physical, and environmental objectives.*

Discussion: Maui Business Park Phase II will provide the potential for economic growth and diversification by providing the necessary space on Maui for a variety of businesses. Providing available light industrial space could expand the capacity to attract new businesses to Hawai'i. New businesses may include manufacturing, high-tech, film and television production, and other diversified industries. Maui Business Park Phase II could also aide to promote the State's geographic, environmental, social, and technological advantages, especially given Maui's reputation as a desirable place to live and the project's location relative to Maui's primary harbor and airport. Granting of the requested approvals and permits to implement Maui Business Park Phase II could represent a portion of the public incentives required to encourage private diversified businesses to locate in Hawai'i.

Objectives and Policies for the Physical Environment – Land Based, Shoreline and Marine Resources (§226-11)

Objectives:

- (1) Prudent use of Hawaii's land-based, shoreline, and marine resources.*
- (2) Effective protection of Hawaii's unique and fragile environmental resources.*

Policies:

- (1) Exercise an overall conservation ethic in the use of Hawaii's resources.*
- (2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.*
- (3) Take into account the physical attributes of areas when planning and designing activities and facilities.*
- (4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.*

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- (8) *Pursue compatible relationships among activities, facilities, and natural resources.*

Discussion: Maui Business Park Phase II constitutes a prudent use of land, as it is contiguous with the main commercial and business center of Maui and is consistent with the *Wailuku-Kahului Community Plan (2002)*. The design of Maui Business Park Phase II will comply with all environmental laws, including requirements for grading and drainage, so that Hawai'i's unique and fragile environmental resources are protected. In addition, Maui Business Park Phase II will be designed in concert with the site's physical attributes. Thus compatible relationships among the activities, facilities, and natural resources of the area have been considered and will be integrated within the design of Maui Business Park Phase II.

Objectives and Policies for the Physical Environment – Scenic, Natural Beauty and Historic Resources (§226-12)

Objective:

Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawaii's scenic assets, natural beauty, and multi-cultural/historical resources.

Policies:

- (1) *Promote the preservation and restoration of significant natural and historic resources.*
- (3) *Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.*
- (4) *Protect those special areas, structures, and elements that are an integral and functional part of Hawaii's ethnic and cultural heritage.*
- (5) *Encourage the design of development and activities that complement the natural beauty of the islands.*

Discussion: Maui Business Park Phase II will be planned and designed based on the unique attributes of the land and to maintain and/or enhance the site's natural features. Ho'okele Street, the business park's primary roadway, will be planned and sited to maintain vistas of Haleakalā. The State Historic Preservation Division has stated that they do not anticipate archaeological resources will be discovered on the Maui Business Park Phase II site. If discovered during construction or at any other time, significant historical, cultural, and archaeological sites will be protected in accordance with all federal, state, and county laws.

Objectives and Policies for the Physical Environment – Land, Air, and Water Quality (§ 226-13)

Objectives:

- (1) *Maintenance and pursuit of improved quality in Hawaii's land, air and water resources.*
- (2) *Greater awareness and appreciation of Hawaii's environmental resources.*

Policies:

- (2) *Promote the proper management of Hawaii's land and water resources.*
- (6) *Encourage design and construction practices that enhance the physical qualities of Hawaii's communities.*

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- (7) *Encourage urban development in close proximity to existing services and facilities.*

Discussion: Maui Business Park Phase II is situated adjacent to major urban districts of similar uses, is consistent with the *Wailuku-Kahului Community Plan (2002)*, and is a logical extension of the adjacent and nearby light industrial areas that serve as Maui's primary centers of commerce and industry. Maui Business Park Phase II will be designed and constructed so that the land and water resources of the area can be managed in an environmentally compatible and beneficial manner that will foster the recognition of the importance and value of the area's land, air, and water resources.

Part II. Planning, Coordinating and Implementation

Part II of the Hawai'i State Plan pertains to the administrative structure and implementation process of the Plan. As such, comments are not deemed appropriate.

Part III. Priority Guidelines

The purpose of Part III of the Hawai'i State Plan is to establish overall priority guidelines to address areas of Statewide concern. The Plan notes that the State shall strive to improve the quality of life for Hawai'i's present and future population through the pursuit of desirable courses of action in five major areas of Statewide concern that merit priority attention: 1) economic development, 2) population growth and land resource management, 3) affordable housing, 4) crime and criminal justice, and 5) quality education (§226-102). The priority guidelines applicable to Maui Business Park Phase II are discussed below.

Economic Priority Guidelines (§226-103)

- (a) *Priority guidelines to stimulate economic growth and encourage business expansion and development to provide needed jobs for Hawaii's people and achieve a stable and diversified economy:*
- (1) *Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.*
 - (8) *Provide public incentives and encourage private initiative to develop and attract industries which promise long term growth potentials and which have the following characteristics:*
 - (A) *An industry that can take advantage of Hawaii's unique location and available physical and human resources.*
 - (B) *A clean industry that would have minimal adverse impacts on Hawaii's environment.*
 - (C) *An industry that is willing to hire and train Hawaii's people to meet the industry's labor needs at all levels of employment.*
 - (D) *An industry that would provide reasonable income and steady employment.*
- (c) *Priority guidelines to promote the continued viability of the sugar and pineapple industries:*
- (1) *Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industry.*
- (f) *Priority guidelines for energy use and development:*

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- (1) *Encourage the development, demonstration, and commercialization of renewable energy sources.*

Discussion: Maui Business Park Phase II will assist in meeting the above stated guidelines by providing the physical space on Maui to allow for new businesses and investment. Potential industries and businesses that may locate in the Maui Business Park Phase II include industries and businesses: 1) attracted because of Hawai'i's unique location and available physical and human resources; 2) that would have minimal adverse impacts on Hawai'i's environment; 3) that are willing to hire and train Hawai'i's people to meet the industry's labor needs at all levels of employment; and 4) that would provide reasonable income and steady employment. Projected employment impacts of Maui Business Park Phase II include:

- On a stabilized basis, at full build out, 5,522 full time equivalent jobs related to on-site activities.
- \$1.57 billion in total wages over build out.
- \$202 billion in annual wages after build out.

For more information on the projected economic and employment impacts of Maui Business Park Phase II, see Section 5.8.2 and Appendix J K, which contains the complete market analysis and economic impact study.

With regard to promoting the continued viability of the sugar industry, Alexander & Baldwin Inc., is the parent company of both A&B Properties Inc., and HC&S. HC&S is one of two remaining sugar plantations in Hawai'i and has over 37,000 acres in sugar cultivation in central Maui. Maui Business Park Phase II will require approximately 140 acres of HC&S' cultivated sugarcane land be taken out of cultivation. The slight decrease in the amount of land in sugar cultivation will not contribute to a significant reduction in HC&S revenues or any reduction of employment. In recent years, technological improvements in sugar cultivation have resulted in greater yields per acre; therefore a light reduction in the area cultivated will not pose a problem to the economic viability of HC&S. Converting the relatively small amount of agricultural land for Maui Business Park Phase II will have minimal impact on HC&S.

Maui Business Park Phase II will also aid in the attainment of energy-related guidelines through implementation of energy conservation measures including the use of low-impact lighting and alternative energy sources where practical, including the use of solar energy to heat water.

Population Growth and Land Resources Priority Guidelines (§226-104)

- (a) *Priority guidelines to effect desired Statewide growth and distribution:*
- (1) *Encourage the planning and resource management to insure population growth rates throughout the State that are consistent with available and planned resource capacities and reflect the needs and desires of Hawaii's people.*
 - (2) *Manage a growth rate for Hawaii's economy that will parallel future employment needs for Hawaii's people.*
 - (3) *Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the state.*

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- (4) *Encourage major State and federal investments and services to promote economic development and private investment to the neighbor islands, as appropriate.*
- (7) *Support the development of high technology parks on the neighbor islands.*
- (b) *Priority guidelines for regional growth distribution and land resource utilization:*
 - (1) *Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures, and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.*
 - (2) *Make available marginal or nonessential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.*
 - (6) *Seek participation from the private sector for the cost of building infrastructure and utilities and maintaining open space.*
 - (9) *Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized.*
 - (10) *Utilize Hawaii's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands and other limited resources for future generations.*

Discussion: With Maui's growing population and economy there is a current and future demand for increased light industrial space, which will be partially filled by Maui Business Park Phase II. In addition, the area of Maui Business Park Phase II is designated "Light Industrial" by the *Wailuku-Kahului Community Plan (2002)*, which is a reflection of the needs and desires of the community. Maui Business Park Phase II will provide employment opportunities in parallel with future employment needs and will ensure that adequate support services and facilities are provided to accommodate that desired distribution of future growth on Maui. Thus, Maui Business Park Phase II will promote economic development and private investment consistent with the State policy of promoting economic growth on neighbor islands. While not designated specifically as a high technology park, with light industrial zoning, high technology uses would be allowed within Maui Business Park Phase II.

Maui Business Park Phase II is contiguous with the existing urban area of greater Kahului and is a logical extension of the adjacent and nearby light industrial areas that serve as Maui's primary centers of commerce and industry. Existing public facilities are already in place and A&B Properties, Inc. will provide the required on-site infrastructure, such as internal roads and water and sewer lines, at no expense to the State of County. While a small amount of agricultural land will be required for Maui Business Park Phase II, the amount is insignificant compared to the total amount of agricultural land currently being cultivated in Central Maui. In addition, because of its proximity to Maui's main commercial area and primary harbor and airport facilities, the land proposed for Maui Business Park Phase II has much higher utility and value for light industrial uses than for growing sugarcane, especially in light of the needs of the community for increased industrial space, economic growth, and employment opportunities.

The site of Maui Business Park Phase II is not a critical environmental area. Proper mitigating measures, such as adhering to civil engineering standards and implementing best management practices, will be undertaken to ensure negative impacts on the environment are minimized.

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6.1.5 State Functional Plans

The Hawai'i State Plan directs State agencies to prepare functional plans for their respective program areas. There are 13 state functional plans that serve as the primary implementing vehicle for the goals, objectives, and policies of the Hawai'i State Plan. The functional plans applicable to the Maui Business Park Phase II, along with each plan's applicable objectives, policies, and actions are discussed below.

6.1.5.1 Agriculture

The Agriculture Functional Plan seeks to increase the overall level of agricultural development in Hawai'i, in accordance with the two fundamental Hawai'i State Plan objectives for agriculture: 1) continued viability of Hawai'i's sugar and pineapple industries; and 2) continued growth and development of diversified agriculture throughout the state. The objectives, policies, and actions of the Agriculture Functional Plan applicable to the Maui Business Park Phase II are as follows:

Objective H: Achievement of productive agricultural uses of lands both suitable and needed for agriculture.

Policy H2: Conserve and protect important agricultural lands in accordance with the Hawaii State Constitution.

Discussion: HC&S is one of two remaining sugar plantations in Hawai'i and has over 37,000 acres in sugar cultivation in central Maui. Maui Business Park Phase II will require approximately 140 acres of HC&S' cultivated sugarcane land be taken out of cultivation. The slight decrease in the amount of land in sugar cultivation will not contribute to a significant reduction in HC&S revenues or any reduction of employment. In recent years, technological improvements in sugar cultivation have resulted in greater yields per acre, therefore a light reduction in the area cultivated will not pose a problem to the economic viability of HC&S. Converting the relatively small amount of agricultural land for Maui Business Park Phase II will have minimal impact on HC&S.

Agricultural soil rating systems (U.S.D.A. Soil Conservation Service, Soil Survey, University of Hawai'i's Land Study Bureau Detailed Land Classification, and the Agricultural Lands of Importance to the State of Hawai'i (ALISH) system) indicate that with irrigation, both the North and South Project Areas are comprised of productive soils for agriculture. Without irrigation, the soils would have very severe limitations with low productivity ratings.

6.1.5.2 Energy

The Energy Advisory Committee highlights three major concerns for Hawai'i in its Functional Plan: 1) the state's over dependency on oil and fossil fuels; 2) the need for an integrated approach to energy development and management; and 3) energy emergency preparedness. The issues, objectives, policies, and actions that are most relevant to Maui Business Park Phase II are as follows:

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Issue Area: Overdependence Upon Oil and Other Fossil Fuels for Energy Needs.
Objective A: Moderate the Growth in Energy Demand through Conservation and Energy Efficiency.
Policy A(1): Promote and stimulate greater energy efficiency and conservation in non-transportation sectors.
Policy A(2): Stimulate and promote greater energy efficiency and conservation in the transportation sector.

Discussion: Within Maui Business Park Phase II, alternative energy will be used where practical, including the use of solar energy to heat water. Design standards will specify low-impact lighting and will encourage energy efficient building design and site development practices.

The concentration of similar light industrial businesses within Maui Business Park Phase II and surrounding properties creates the potential for greater energy efficiency and conservation in the transportation sector by limiting the distances and potential transportation trips between related businesses.

6.1.5.3 Employment

The Employment functional plan focuses on the preparation of Hawai'i's workforce for the global, information-based twenty-first century economy. It takes a multi-agency approach in providing job training and education services, implementing of job placement services, improving the quality of the work environment, and coordinating employment information, analysis, and planning. The four main issue areas and related objectives of the Employment functional plan are as follows:

Issue Area 1: Education and Preparation Services for Employment
Objective A: Improve the Qualifications of Entry Level Workers and Their Transition to Employment
Objective B: Develop and Deliver Education, Training and Related Services to Ensure and Maintain a Quality and Competitive Workforce.

Issue Area 2: Job Placement
Objective C: Improve Labor Exchange

Issue Area 3: Quality of Worklife
Objective D: Improve the Quality of Life for Workers and Families

Issue Area 4: Employment Planning Information and Employment Coordination
Objective E: Improve Planning of Economic Development

Discussion: Maui Business Park Phase II will provide increased light industrial space on Maui, which, when occupied by business, will provide increased employment opportunities. Providing available light industrial space could expand the capacity to attract new businesses to Hawai'i. While specific businesses within Maui Business Park Phase II have not been determined, it is expected that with the business park's proximity to the island's main commercial area and primary harbor and airport facilities, businesses will range from essential local services to potentially national or multinational companies looking for a presence on Maui.

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New businesses may include manufacturing, high-tech, film and television production, and other diversified industries. This will lead to broader outlets for new or expanded Hawai'i investments, increased and diversified employment opportunities, increased income and job choice, and improve living standards for Maui's residents. An increase in the number and variety of industries and businesses on Maui may expand opportunities for job training and employment at all levels of experience, thus serving the needs of a range of Hawai'i residents, from first-time job seekers to experienced management-level applicants.

Projected employment impacts of Maui Business Park Phase II include:

- On a stabilized basis, at full build out, 5,522 full time equivalent jobs related to on-site activities.
- \$1.57 billion in total wages over build out.
- \$202 billion in annual wages after build out.

For more information on the projected economic and employment impacts of Maui Business Park Phase II, see Section 5.8.2 and Appendix J K, which contains the complete market analysis and economic impact study.

6.1.5.4 Health

The State Health functional plan identifies four major priority issues. These are: 1) preventive health care; 2) access to health care; 3) environmental protection; and 4) public administration issues. Of these four environmental protections is the most relevant issue for the Maui Business Park Phase II.

Policy 5A. Air, Land and Water Quality Programs: The DOH will develop and implement new programs to prevent degradation and enhance the quality of Hawaii's air, land and water.

Implementing Action 5A1: Develop and implement comprehensive air toxic control programs.

Implementing Action 5A2: Develop and implement a comprehensive Solid and Hazardous Waste Management Program.

Implementing Action 5A3: Develop and implement a comprehensive Recreational Water Quality Monitoring Strategy.

Implementing Action 5A4: Develop and implement a Non-Point Source Pollution Program to protect recreational and other surface waters.

Implementing Action 5A6: Develop and implement a Groundwater Protection Program including groundwater monitoring, safe drinking water and underground injection control.

Discussion: Maui Business Park Phase II will comply with all environmental laws, including requirements for grading and drainage systems (including non-point source pollution), storage of hazardous wastes, and air, noise, and water pollution.

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6.1.5.5 Historic Preservation

The long-term philosophy of the Historic Preservation Functional plan highlights the importance of maintaining a record of Hawai'i's unique history. The Historic Preservation Functional Plan attempts to preserve historic resources by focusing on three main areas: (1) preservation of historic properties; (2) collection and preservation of historic records, artifacts and oral histories; and (3) provision of public information and education on the ethnic and cultural heritages and history of Hawai'i. Of the three issue areas, the first two hold the most relevance to the proposed project. The objectives, policies, and actions of the Historic Preservation Functional Plan applicable to the Maui Business Park Phase II are as follows:

Issue Area 1: Preservation of Historic Sites

Objective B: Protection of Historic Properties

Discussion: Maui Business Park Phase II is not anticipated to have any adverse affect on archaeological and historic resources of the area. The Department of Land and Natural Resources State Historic Preservation Division was contacted regarding the Maui Business Park Phase II site. Through past archaeological surveys of the site and surrounding area, the State Historic Preservation Division determined that the Maui Business Park Phase II site is not likely to contain archaeological resources and an additional archaeological survey of the site is not necessary. However, A&B Properties, Inc. and all of its subcontractors will comply with all state and county laws and rules regarding the preservation of archaeological, cultural, and historic sites should any be found during construction.

6.1.5.6 Transportation

The Transportation Functional Plan is implemented as a short- to mid-term action agenda by the State Department of Transportation (DOT). It identifies four key issue areas as the most critical concerns relating to transportation in Hawai'i. They are: (1) congestion; (2) economic development; (3) funding; and (4) education. The objectives, policies, and actions of the Transportation Functional Plan applicable to the Maui Business Park Phase II are as follows:

Issue I. Congestion

Objective I.A.: Expansion of the transportation system

Policy I.A.2.: Improve regional mobility in areas of the State experiencing rapid urban growth and road congestion.

Objective I.E.: Planning and designing State highways to enhance inter-regional mobility.

Policy I.E.1.: Design highways with controlled accesses, grade-separated crossings, and minimum four-lane divided highway standards where applicable. Encourage counties to develop local road networks for local travel and access.

Discussion: A&B Properties will extend Ho'okele Street, which currently runs between Pu'unēnē Avenue and Pakaula Street (the street between Wal-Mart and Home Depot), to Hāna Highway during the first phase of Maui Business Park Phase II construction. Ho'okele Street will be four lanes with a center median and will serve as the primary collector road through the project.

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When extended, Ho'okele Street will run roughly parallel with Dairy Road, and will provide an alternative route between Hāna Highway and Pu'unē Avenue, so that people traveling to and from Pā'ia or Upcountry and Kihei will have the option of bypassing Dairy Road via Ho'okele Street.

The traffic impact analysis report prepared for Maui Business Park Phase II (see Section 5.4 and Appendix F G) concludes that conditions along Dairy Road will improve – even with additional traffic generated by the Maui Business Park Phase II – as a result of extending Ho'okele Street to Hāna Highway. This will increase regional mobility by relieving traffic on Dairy Road.

6.2 COUNTY OF MAUI

Relevant land use plans and ordinances of the County of Maui that pertain to Maui Business Park Phase II include the General Plan, the *Wailuku-Kahului Community Plan*, and the *Maui County Code*.

6.2.1 General Plan

Maui Business Park Phase II implements many of the objectives and policies of the *General Plan of the County of Maui 1990 Update*. As required by the County of Maui Charter, the *General Plan of the County of Maui* sets forth the desired sequence, patterns, and characteristics of future development. This is accomplished through long-range objectives focusing on the social, economic, and environmental effects of development coupled with specific policies designed to implement the objectives.

Specific General Plan objectives and policies applicable to Maui Business Park Phase II are discussed below.

I. *POPULATION, LAND USE, THE ENVIRONMENT AND CULTURAL RESOURCES*

A. *POPULATION*

Objective

1. *To plan the growth of resident and visitor population through directed and managed growth plans so as to avoid social, economic, and environmental disruptions.*

Policies

- a. *Manage population growth so that the County's economic growth will be stable and the development of public and private infrastructures will not expand beyond growth limits specified in appropriate community plans or negatively impact our natural resources.*

Discussion: Maui Business Park Phase II will provide employment opportunities in parallel with population growth and future employment needs. Over the projected build-out period of approximately 15 years, Maui Business Park Phase II will provide employment opportunities and meet the existing need and future demand for increased light industrial space on Maui. A market

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analysis and economic impact study (Hallstrom 2003) projected employment impacts of Maui Business Park Phase II to include:

- On a stabilized basis, at full build-out, 5,522 full-time equivalent jobs related to on-site activities.
- \$1.57 billion in total wages over the build out period.
- \$202.9 million in stabilized annual wages after the build out period.

The complete market analysis and economic impact study is included in the Appendix J K.

The Maui Business Park Phase II area is designated "Light Industrial" on the *Wailuku-Kahului Community Plan (2002)*, which is a reflection of the needs and desires of the community. This designation was strongly supported by the Citizen's Advisory Committee (CAC) during the community plan update process. Maui Business Park Phase II is also contiguous with the existing urban area of greater Kahului and is a logical extension of the adjacent and nearby light industrial areas that serve as Maui's primary centers of commerce and industry. A&B Properties, Inc. will provide all required on-site infrastructure, such as internal roads and water and sewer lines, at no expense to the State or County. Offsite infrastructure improvements and the proximity of Maui Business Park Phase II to existing urban areas will improve the County's ability to properly manage population growth.

B. LAND USE

Objective

1. *To preserve for present and future generations existing geographic, cultural and traditional community lifestyles by limiting and managing growth through environmentally sensitive and effective use of land in accordance with the individual character of the various communities and regions of the County.*

Policies

- b. *Provide and maintain a range of land use districts sufficient to meet the social, physical, environmental and economic needs of the community.*

Objective

2. *To use the land within the County for the social and economic benefit of all the County's residents.*

Policies

- a. *Mitigate environmental conflicts and enhance scenic amenities, without having a negative impact on natural resources.*

Objective

3. *To preserve lands that are well suited for agricultural pursuits.*

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Policies

- a. *Protect prime agricultural lands from competing nonagricultural land uses.*
- b. *Discourage the conversion, through zoning or other means, of productive or potentially productive agricultural lands to nonagricultural uses, including but not limited to golf courses and residential subdivisions.*

Discussion: Maui Business Park Phase II constitutes a prudent use of land, as it is contiguous with the main commercial and business center of Maui and is consistent with the *Wailuku-Kahului Community Plan (2002)*. The use of the land for the Maui Business Park Phase II will contribute to the social and economic benefit of the County's residents as the business park will fulfill the existing need and future demand for increased light industrial space on Maui and it will provide employment opportunities in parallel with population growth and future employment needs.

Environmental impacts of the Maui Business Park Phase II will be mitigated by compliance with all environmental laws, including requirements for grading, drainage systems, storage of hazardous wastes, and air, noise, and water pollution. Maui Business Park Phase II will border agricultural land used for sugar cultivation to the south. Ho'okele Street, the primary roadway through Maui Business Park Phase II, will be aligned to maintain view corridors toward the sugarcane fields and Haleakalā.

While Maui Business Park Phase II will require approximately 140 acres of land be taken out sugar cane production, this slight decrease will not contribute to a significant reduction in HC&S revenues or a reduction of employment. In recent years technological improvements in sugar cultivation have resulted in greater yields per acre, therefore a slight reduction in the area cultivated will not pose a problem to the economic viability of HC&S. More significantly, the *Wailuku-Kahului Community Plan (2002)*, which is a reflection of the needs and desires of the community, designates the area of Maui Business Park Phase II as "Light Industrial."

C. ENVIRONMENT

Objective

1. *To preserve and protect the county's unique and fragile environmental resources.*

Policies

- a. *Preserve for present and future generations the opportunity to experience the natural beauty of the islands.*
- b. *Preserve scenic vistas and natural features.*
- c. *Support programs to reduce air, land and water pollution.*

Objective

2. *To use the County's land-based physical and ocean-related coastal resources in a manner consistent with sound environmental planning practice.*

Policies

- b. *Evaluate all land based development relative to its impact on the County's land and ocean ecological resources.*

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Discussion: To preserve and protect the county's unique and fragile environmental resources, Maui Business Park Phase II will comply with all environmental laws, including requirements for grading and drainage systems, storage of hazardous wastes, and air, noise, and water pollution.

As much as possible scenic vistas and natural features will be preserved, as the site will not require extensive grading and Ho'okele Street, the primary roadway through Maui Business Park Phase II, will be aligned to the extent practical to maintain view corridors toward sugarcane fields and Haleakalā.

Maui Business Park Phase II will comply with all laws and regulations regarding runoff and non point source pollution, ensuring that storm water run-off and siltation will not adversely affect Maui's coastal resources.

D. CULTURAL RESOURCES

Objective

1. *To preserve for present and future generations the opportunity to know and experience the arts, culture and history of Maui County.*

Policies

- b. *Encourage the recordation and preservation of all cultural and historic resources, to include culturally significant natural resources.*
- c. *Establish programs to restore, maintain and interpret significant cultural districts, sites and artifacts in both natural and museum settings.*

Discussion: Alexander & Baldwin, Inc., and its subsidiaries are strong supporters of the arts, culture, and history of Maui County. The A&B Foundation provides financial support of such organizations and programs, including the Sugar Museum in Pu'unēnē.

The Maui Business Park Phase II is not expected to have any affect on cultural resources of the area. This conclusion is based on the findings of a cultural impact assessment for the Maui Business Park Phase II site and surrounding area conducted by Aki Sinoto Consulting. This assessment included consulting with individuals knowledgeable with the area.

In addition, Maui Business Park Phase II is not expected to adversely affect archaeological and historic resources of the area. The Department of Land and Natural Resources State Historic Preservation Division was contacted regarding the Maui Business Park Phase II site. Through past archaeological surveys of the site and surrounding area, the State Historic Preservation Division determined that the Maui Business Park Phase II is not likely to contain archaeological resources and that an additional archaeological survey of the site is not necessary. The determination letter from the State Historic Preservation Division is included in Appendix D E.

A&B Properties, Inc. and its contractors will comply with all state and county laws and rules regarding the preservation of archaeological, cultural, and historic sites should any be found during construction.

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II. ECONOMIC ACTIVITY

A. GENERAL

Objective

1. *To provide an economic climate which will encourage controlled expansion and diversification to the County's economic base.*

Policies

- a. *Maintain a diversified economic environment compatible with acceptable and consistent employment.*
- b. *Support programs, services and institutions which provide economic diversification.*

Objective

2. *To provide a balance between visitor industry employment and non-visitor employment for a broader range of employment choices for the County's residents.*

Policies

- a. *Encourage a sustainable rate of economic development which is linked to the carrying capacity of the infrastructure systems and the fiscal ability of the County to maintain those systems.*

Discussion: Maui Business Park Phase II will contribute to an economic climate that encourages controlled expansion and diversification to the County's economic base by providing the physical space on Maui to allow for new investment, businesses, and jobs. Over its projected 15-year build out period, Maui Business Park Phase II will provide employment opportunities in parallel with population growth and future employment needs. It is expected that the jobs created from businesses locating in the Maui Business Park Phase II will provide a balance between visitor industry employment and non-visitor employment for a broader range of employment choices for the County's residents.

With a 15-year build out period, and continued business operations after build out, Maui Business Park Phase II provides a source of long-term economic development. Projected economic impacts (Hallstrom 2003) from Maui Business Park Phase II include:

- \$391 million in taxes for the State of Hawai'i and \$33.9 million in taxes for the County of Maui during the 15-year build out period.
- \$51.6 million annually in stabilized taxes for the State and approximately \$3.8 million annually for the County after the build out period.
- A net benefit (taxes minus costs) to the State of between \$44 to 51.4 million annually. A net benefit to the County of between \$1.7 to \$3 million annually.
- On a stabilized basis, at full build-out, 5,522 full-time equivalent jobs related to on-site activities.

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- \$1.57 billion in total wages over the build out period.
- \$202.9 million in stabilized annual wages after the build out period.

For more information on the projected economic and employment impacts of Maui Business Park Phase II, see Section 5.8.2 and Appendix J K, which contains the complete market analysis and economic impact study.

Applicant, A&B Properties, Inc. will provide all necessary infrastructure within Maui Business Park Phase II and will participate in the funding and construction of adequate water source, storage, and transmission facilities and improvements to accommodate water use generated by Maui Business Park Phase II. The preliminary engineering report is included in Appendix K M.

C. AGRICULTURE

Objective 1. To foster growth and diversification of agriculture and aquaculture throughout Maui County.

*Policies a. Support programs to maintain the viability of the sugar and pineapple industry.
b. Support and promote programs to maintain the viability of diversified agriculture, specialty crops, forestry and aquaculture.*

Objective 2. To maximize the use and yield of productive agricultural land throughout the County.

Policies a. Ensure the availability of land that is well suited for agricultural production

Discussion: HC&S is one of two remaining sugar plantations in Hawai'i and has over 37,000 acres in sugar cultivation in central Maui. Maui Business Park Phase II will require that approximately 140 acres of HC&S' cultivated sugarcane land be taken out of cultivation. The slight decrease in the amount of land in sugar cultivation will not contribute to a significant reduction in HC&S revenues or any reduction of employment. In recent years technological improvements in sugar cultivation have resulted in greater yields per acre, therefore a slight reduction in the area cultivated will not pose a problem to the economic viability of HC&S.

With the closure of Pioneer Mill in Lahaina, the availability of C. Brewer's agricultural land in Central Maui, and the planned reduction of pineapple cultivation in West Maui by Maui Pineapple Company, there is an ample supply of agricultural land on Maui.

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B. URBAN DESIGN

Objective

1. *To see that all developments are well designed and are in harmony with their surroundings.*

Policies

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

Objective

2. *To encourage developments which reflect the character and the culture of Maui County's people.*

Policies

- b. *Encourage community design which establishes a cohesive identity.*

Discussion: Maui Business Park Phase II will be an industrial park that is well designed and harmonious with its adjacent urban uses. Master planning will establish a cohesive, visually unified identity. Design standards, including a unified streetscape planting theme and program, will ensure the appropriate use of landscaping and building materials and colors throughout the area over the projected 15-year build out period.

Ho'okele Street, the primary collector road through Maui Business Park Phase II, will be designed as a boulevard with a landscaped median and landscaped berms to soften the visual impact of buildings from the road. To the extent practical, the alignment of Ho'okele Street will maintain a view corridor toward Haleakalā. Landscaping will also be provided along the portions of Maui Business Park Phase II adjacent to the proposed Kahului Airport Access Road to enhance this gateway to Maui.

III. TRANSPORTATION

A. TRANSPORTATION

Objective

2. *To develop a program for anticipating and enlarging the local street and highway systems in a timely response to planned growth.*

Policies

- a. *Ensure that transportation facilities are anticipated and programmed for construction in order to support planned growth.*
- c. *Support Maui County's street tree plan and encourage landscape planting, irrigation and maintenance programs along all public highways and rights-of-way.*

Discussion: The traffic impact analysis report prepared for Maui Business Park Phase II (see Section 5.4 and Appendix F G) concludes that with an equal proportion of light industrial/warehouse use and retail/office use within Maui Business Park Phase II, and with the

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recommended mitigation measures, the roadway network can accommodate traffic generated by Maui Business Park Phase II.

A&B Properties will extend Ho'okele Street, which currently runs between Pu'unēnē Avenue and Pakaula Street (the street between Wal-Mart and Home Depot), to Hāna Highway during the first phase of Maui Business Park Phase II construction. When extended, Ho'okele Street will run roughly parallel with Dairy Road, and will provide an alternative route between Hāna Highway and Pu'unēnē Avenue, so that people traveling to and from Pā'ia or Upcountry and Kihei will have the option of bypassing Dairy Road via Ho'okele Street. Because of the alternative route created by the extension of Ho'okele Street, traffic conditions along Dairy Road between Pu'unēnē Avenue and Hāna Highway will improve with the Maui Business Park Phase II versus without Maui Business Park Phase II.

Ho'okele Street will be designed as a boulevard with a landscaped median and landscaped berms to soften the visual impact of buildings from the road. To the extent practical, Maui Business Park Phase II will comply with the Maui County Planting Plan. Landscape plants will include drought tolerant plant species and xeriscaping, where appropriate.

B. WATER

Objective

1. *To provide an adequate supply of potable and irrigation water to meet the needs of Maui County's residents.*

Policies

- a. *Monitor growth activities throughout Maui County in order that development of new water sources is concurrent with approval of new developments.*

Discussion: A&B Properties, Inc. will participate in the funding and construction of adequate water source, storage, and transmission facilities and improvements to accommodate water use generated by Maui Business Park Phase II.

D. ENERGY

Objective

1. *To make Maui County more self-sufficient in its need for non-renewable energy and more efficient in its use of energy.*

Policies

- f. *Encourage the incorporation of energy-saving building design concepts and devices in all new private and public developments by providing energy efficient urban design guidelines and amendments to the Maui County Uniform Building Code.*

Discussion: Energy-saving concepts and devices, including the use of solar energy to heat water, will be encouraged within Maui Business Park Phase II. Design standards will specify low-impact lighting and will encourage energy efficient building design and site development practices.

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6.2.2 Wailuku-Kahului Community Plan

The *Wailuku-Kahului Community Plan* is one of nine community plans for Maui County. It reflects current and anticipated conditions in the Central Maui region and advances planning goals, objectives, policies, and implementation considerations as a decision-making guide in the region through the year 2010. The *Wailuku-Kahului Community Plan* provides specific recommendations addressing the goals, objectives, and policies contained in the General Plan, while still recognizing the values and unique attributes of the Central Maui region. The goals, objectives, policies, and implementing actions of the *Wailuku-Kahului Community Plan* applicable to Maui Business Park Phase II are discussed below.

ECONOMIC ACTIVITY

Goal

A stable and viable economy that provides opportunities for growth and diversification to meet long-term community and regional needs and in a manner that promotes agricultural activity and preserves agricultural lands and open space.

Objectives and Policies

1. *Support agricultural production so agriculture can continue to provide employment and contribute to the region's economic well being.*
4. *Provide industrial growth opportunities through the expansion of existing industrial centers associated with the airport and harbor, and in Wailuku and Kahului. Encourage the fee simple ownership of lots provided by private developers.*
5. *Recognize the importance of small business to the region's economy.*

Discussion: Maui Business Park Phase II will provide opportunities for economic growth and diversification to meet long-term community and regional needs. Maui Business Park Phase II will provide needed industrial growth in close proximity to Maui's primary airport and harbor facilities, business centers, the existing Maui Business Park Phase I, and the Kahului industrial area. Land uses within Maui Business Park Phase II will be consistent with the Light Industrial district (Chapter 19.24, Maui County Code) and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses. Lots within the Maui Business Park Phase II will be available for fee-simple ownership. Recognizing the importance of small business to the region's economy, lots within Maui Business Park Phase II will be a variety of sizes to accommodate small locally owned businesses as well as larger businesses.

A market analysis and economic impact study (Hallstrom 2003) projects employment impacts of Maui Business Park Phase II to include:

- \$391 million in taxes for the State of Hawai'i and \$33.9 million in taxes for the County of Maui during the 15-year build out period.
- \$51.6 million annually in stabilized taxes for the State and approximately \$3.8 million annually for the County after the build out period.

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- A net benefit (taxes minus costs) to the State of between \$44 to 51.4 million annually. A net benefit to the County of between \$1.7 to \$3 million annually.
- On a stabilized basis, at full build-out, 5,522 full-time equivalent jobs related to on-site activities.
- \$1.57 billion in total wages over the build out period.
- \$202.9 million in stabilized annual wages after the build out period.

For more information on the project economic impacts of Maui Business Park Phase II, see Section 5.8.2 and Appendix J K, which contains the complete market analysis and economic impact study.

With regard to supporting agricultural production, Alexander & Baldwin Inc., is the parent company of both A&B Properties Inc., and HC&S. HC&S is one of two remaining sugar plantations in Hawai'i and has over 37,000 acres in sugar cultivation in central Maui. While Maui Business Park Phase II will require approximately 140 acres of land be taken out sugar cane production, this slight decrease is not expected to contribute to a significant reduction in HC&S revenues or any reduction of employment. In recent years technological improvements in sugar cultivation have resulted in greater yields per acre, therefore a slight reduction in the area cultivated will not pose a problem to the economic viability of HC&S.

ENVIRONMENT

Goal

A clean and attractive physical and natural environment in which man-made development or alterations to the natural environment relate to sound environmental and ecological practices, and important scenic and open space resources are maintained for public use and enjoyment.

Objectives and Polices

1. *Preserve agricultural lands as a major element of the open space setting, which borders the various communities with the planning region. The close relationship between open space and developed areas is an important characteristic of community form.*
6. *Encourage the use of siltation basins and other erosion control features in the design of drainage systems.*
7. *Mitigate potential hazards associated with oil storage tanks and the bulk containment of other toxic, corrosive or combustible substances.*
8. *Minimize noise, water and air pollution from industrial uses, electric power generating facilities and wastewater treatment plants.*
13. *Support energy conservation measures, including the use of solar heating and photovoltaic systems, in conjunction with urban uses.*
14. *Promote the planting and maintenance of trees and other landscape planting to enhance the streetscapes and the built environment.*

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Discussion: In constructing Maui Business Park Phase II, A&B Properties, Inc. will comply with all environmental laws, including requirements for grading, drainage systems, storage of hazardous wastes, and noise, air, and water pollution.

The visual quality of Maui Business Park Phase II will be enhanced and maintained by the establishment of design standards. Standards will include a unified streetscape planting theme and program, underground utilities, and low-impact lighting. In addition, alternative energy will be used where practical, including the use of solar energy to heat water.

While Maui Business Park Phase II will require land to be taken out of agricultural production, the project will border vast areas of agricultural land to the south. Ho'okele Street, the primary roadway through Maui Business Park Phase II, will be aligned to the extent practical to maintain view corridors toward the sugarcane fields and Haleakalā.

CULTURAL RESOURCES

Goal

Identification, protection, preservation, enhancement, and where appropriate, use of cultural practices and sites, historic sites and structures, and cultural landscapes and view planes that:

- 1. Provide a sense of history and define a sense of place for the Wailuku-Kahului region; and*
- 2. Preserve and protect native Hawaiian rights and practices customarily and traditionally exercised for subsistence, cultural and religious purposes in accordance with Article XII, Section 7, of the Hawaii State Constitution, and the Hawaii Supreme Court's PASH opinion, 79 HAW. 425 (1995).*

Objectives and Policies

- 1. Preserve the character and integrity of historic sites in the Wailuku-Kahului region.*
- 2. Recognize the importance of historically and archaeologically sensitive sites and encourage their preservation through development project review.*
- 3. Protect and preserve historic, cultural and archaeological sites and resources through on-going programs to identify and register important sites, and encourage their restoration. This shall include structures and elements that are a significant and functional part of Hawaii's ethnic and cultural heritage.*
- 4. Ensure that the proposed projects are compatible with neighboring historic, cultural, and archaeological sites or districts. Such projects should be reviewed by the Cultural Resources Commission, where appropriate.*
- 5. Require development projects to identify all cultural resources located within the project area as part of initial project studies. Further, require that all proposed activity include recommendations to mitigate potential adverse impacts on cultural resources.*

Implementing Actions

- 2. Require development projects to identify all cultural resources located within or adjacent to the project area and consult with individuals knowledgeable about such cultural resources prior to application as part of the County development review process. Further, require that all proposed activity include*

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recommendations to mitigate potential adverse impacts on cultural resources including site avoidance, adequate buffer areas, and interpretation. Particular attention should be directed toward dune areas, known and probable pre-contact habitation areas, and other sites and areas listed in No. 5 below, with review by the Cultural Resources Commission, where appropriate.

Discussion: Alexander & Baldwin, Inc., and its subsidiaries are strong supporters of the arts, culture, and history of Maui County. The A&B Foundation provides financial support of such organizations and programs, including the Sugar Museum in Pu'unēnē.

Maui Business Park Phase II is not expected to adversely affect archaeological and historic resources of the area. The Department of Land and Natural Resources State Historic Preservation Division was contacted regarding the Maui Business Park Phase II site. Through past archaeological surveys of the site and surrounding area, the State Historic Preservation Division determined that the Maui Business Parks Phase II is not likely to contain archaeological resources and that an additional archaeological survey of the site is not necessary. The determination letter from the State Historic Preservation Division is included in Appendix D E.

A&B Properties, Inc. and its contractors will comply with all state and county laws and rules regarding the preservation of archaeological, cultural, and historic sites should any be found during construction.

The Maui Business Park Phase II is not expected to have any affect on cultural resources of the area. This conclusion is based on the findings of a cultural impact assessment for the Maui Business Park Phase II site and surrounding area conducted by Aki Sinoto Consulting. This assessment included consulting with individuals knowledgeable of the area. See Appendix E F for the full cultural impact assessment report.

GOVERNMENT

Goal

Government that demonstrates the highest standards of fairness; responsiveness to the needs to the community; fiscal integrity; effectiveness in planning and implementation of programs and projects; a fair and equitable approach to taxation and regulation; and efficient, results-oriented management.

Objectives and Policies

4. *Monitor the implementation of and compliance with the Community Plan.*
5. *Ensure that adequate infrastructure is or will be available to accommodate planned development.*
6. *Support public and private partnerships to fund the planning and construction of infrastructure.*

Implementing Actions

1. *Streamline the land use, building permit and subdivision processes through means such as consolidated public hearings and concurrent processing of applications.*

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8. *Formulate special plans and studies to implement recommendations of the Community Plan. These would include water development and distribution, housing, local and regional circulation, drainage, solid waste and recycling, sewage disposal and treatment, human services, recreation, public safety and other special plans and studies as required.*

Discussion: Maui Business Park Phase II is in conformance with and implements the *Wailuku-Kahului Community Plan (2002)*. The entire area of Maui Business Park Phase II is designated as "Light Industrial" on the *Wailuku-Kahului Community Plan (2002)* (Figure 7). Because Maui Business Park Phase II implements the community plan, it provides an opportunity for the land use, building permit, and subdivision processes to be streamlined through means such as consolidated public hearings and concurrent processing of applications.

A&B Properties, Inc. will participate in the funding and construction of adequate water source, storage, and transmission facilities and improvements to accommodate water use generated by Maui Business Park Phase II.

A&B Properties, Inc. will provide all necessary infrastructure systems, including the extension of Ho'okele Street, from Pakaula Street to Hāna Highway. This extension will be completed during the first phase of Maui Business Park Phase II and serve as the primary collector road through the project. When extended, Ho'okele Street will run roughly parallel with Dairy Road, and will provide an alternative route between Hāna Highway and Pu'unēnē Avenue, so that people traveling to and from Pā'ia or Upcountry and Kīhei will have the option of bypassing Dairy Road via Ho'okele Street.

LAND USE

Goal

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

Objectives and Policies

1. *Ensure that adequate lands are available to support the region's present and future agricultural activities.*
2. *Identify prime or productive agricultural lands, and develop appropriate regulations for their protection.*
6. *Establish an adequate supply of urban land use designations to meet the needs of the community over the next 20 years.*
10. *All zoning applications and/or proposed land uses and developments shall conform with the planned use designations, as specified in the adopted Community Plan Land Use Map, and be consistent with the Community Plan policies.*
14. *Maintain physical separation between traditional towns and villages in the region. Where possible, provide specific design or landscape elements, such as open space buffers or changes in streetscape, to clearly delineate the boundary between Kahului and Wailuku. Maintain open space around traditional rural*

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areas, such as Waikapū and Waihe'e, to provide a sense of community and to prevent envelopment of these areas by urban expansion.

Implementing Actions

Establish zoning regulations to implement the land use recommendations in the Community Plan, including but not limited to Service Business/Single Family Residential (SBR), Business/Multi-Family (BMF), and Business/Industrial (BI).

Discussion: Maui Business Park Phase II is in conformance with and implements the *Wailuku-Kahului Community Plan (2002)*. The entire area of Maui Business Park Phase II is designated as "Light Industrial" on the *Wailuku-Kahului Community Plan (2002)* (Figure 7).

HC&S currently cultivates over 37,000 acres in Central Maui. Converting the relatively small amount of agricultural land for Maui Business Park Phase II will have an insignificant impact on HC&S.

Maui Business Park Phase II will ensure that there is an adequate supply of industrial space in Central Maui to meet the needs of the community. A market study prepared for Maui Business Park Phase II forecasts a shortfall of light industrial acreage on Maui within one to two years. The study also forecasts that over the next two decades, there will be demand for approximately 290 acres of new light industrial areas in Central Maui. In Central Maui, there currently are less than 20 acres of available industrial land, much of it in older, less desirable subdivisions. Not including Maui Business Park Phase II, only about 80 acres of additional light industrial development is currently being proposed in Central Maui.

Maui Business Park Phase II will not merge with developed portions of Pu'unēnē. While a portion of land from Hansen Road toward Kahului (see Figure 5) is in the State Urban District, this Urban area was not part of the recent reclassification of the majority of the Maui Business Park Phase II site. This area has been designated Urban District for many years, is planted in sugar cane, and will remain in sugar cultivation for the foreseeable future. Thus, an open space buffer will be maintained between Maui Business Park Phase II and Pu'unēnē.

INFRASTRUCTURE

Goal

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

WATER AND UTILITIES

Objectives and Policies

1. *Coordinate water system improvement plan with growth areas to ensure adequate supply and a program to replace deteriorating portions of the distribution system. Future growth should be phased to be in concert with the service capacity of the water system.*

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4. *Protect water resources in the region from contamination, including protecting ground water recharge areas, and wellhead protection areas within a 1.25-mile radius from the wells.*

Discussion: A&B Properties, Inc. will participate in the funding and construction of adequate water source, storage, and transmission facilities and improvements to accommodate water use generated by Maui Business Park Phase II.

The Maui Business Park Phase II is not within the wellhead protection area established for the Central System. Also it is located below the Underground Injection Control line, which establishes the boundary between non-drinking water aquifers and underground sources of drinking water. Therefore, there are no potable water sources within the Maui Business Park Phase II.

Operations within Maui Business Park Phase II will adhere to Federal, State, and County regulations regarding the handling, use, and storage of petroleum products, chemicals, and other potential pollutants. These regulations require the establishment of appropriate systems to contain spills and prevent potential pollutants from leaching into the ground and flowing into the storm drainage system. As a result, no significant impacts to water quality in the area are anticipated.

LIQUID AND SOLID WASTE

Objectives and Policies

1. *Coordinate sewer system improvement plans with future growth requirements, as defined in the Community Plan.*
2. *Reduce the disposal of solid waste in landfills through reducing the amount of material for disposal at the source (i.e. home composting of lawn or tree trimmings, reuse and recycling programs, bioconversion (i.e. composting) and the provision of convenient drop-off facilities*

Discussion: The Preliminary Engineering Report, which describes the wastewater requirements of Maui Business Park Phase II is included in this report as Appendix K M. A more detailed sewer impact study evaluating the wastewater system requirements for Maui Business Park Phase II will be prepared and submitted to the County for review prior to commencing engineering design. A&B Properties, Inc. also will provide all sewer lines required for Maui Business Park Phase II.

A solid waste management plan has been prepared for Maui Business Park Phase II to reduce solid waste disposal and is included in this report as Appendix M O. As required by the County of Maui, the solid waste management plan will address waste generated by construction during build out of Maui Business Park Phase II. However, recycling will be encouraged after construction, and architects for individual businesses will be encouraged to provide space for individual dumpsters to separate recyclable materials, such as cardboard, from municipal solid waste.

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DRAINAGE

Objectives and Policies

1. *Establish a storm drainage improvement program to alleviate existing problems; implement a continuing maintenance program, and ensure that improvements to the system will meet growth requirements. This addresses safety and property loss concerns as well as the need for comprehensive flood control planning.*
8. *Construct necessary drainage improvements in flood-prone areas. Where replacement drainage is required for flood protection, these systems shall be designed, constructed, and maintained using structural controls and best management practices to preserve the functions of the natural system that are beneficial to water quality. These functions include infiltration, moderation of flow velocity, reduced erosion, uptake of nutrients and pollutants by plants, filtering, and settlement of sediment particles. The use of landscaped swales and unlined channels shall be urged.*
2. *Respect natural drainageways as part of good land development.*
4. *Ensure that storm water run-off and siltation from proposed development will not adversely affect marine environment and nearshore and offshore water quality. Minimize the increase in discharge of storm water runoff to coastal waters by preserving flood storage capacity in low-lying areas, and encouraging infiltration of runoff.*

Discussion: A&B Properties, Inc. has already constructed two drainage basins on approximately 33 acres of land adjacent to Maui Business Park Phase II. These drainage basins currently serve Maui Business Park Phase IB and have the capacity to also serve the South Project Area of Maui Business Park Phase II. A preliminary drainage report has been prepared and is included in this report as Appendix L N. A more detailed drainage master plan for the Maui Business Park Phase II site will be prepared and submitted to the County for review prior to commencing engineering design. Based on recommendations of the detailed drainage master plan, improvements will be made to ensure Maui Business Park Phase II complies with all County drainage requirements and standards. In addition, the Maui Business Park Phase II site will not require extensive grading, therefore respecting the natural drainage ways of the land.

Maui Business Park Phase II will comply with all laws and regulations regarding runoff and non-point source pollution, ensuring that storm water run-off and siltation will not adversely affect marine environment and nearshore and offshore water quality.

ENERGY

Objectives and Policies

1. *Promote the use of alternative energy sources, such as biomass, wind and solar.*
3. *Promote energy conservation and awareness programs.*
5. *Expand efforts to utilize environmentally and cost effective renewable resources for energy production, such as solar, biomass, and wind energy.*
6. *Encourage energy efficient building design and site development practices.*

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7. *Support energy conservation measures, including the use of solar heating and photovoltaic systems, in conjunction with urban uses.*
8. *Promote recycling programs to reduce solid waste disposal in landfills.*

Discussion: Energy-saving concepts and devices will be encouraged, including the use of solar energy to heat water. Design standards will specify low-impact lighting and will encourage energy efficient building design and site development practices.

A solid waste management plan has been prepared for Maui Business Park Phase II to reduce solid waste disposal and is included in this report as Appendix M Q. As required by the County of Maui, the solid waste management plan addresses waste generated by construction during build out of Maui Business Park Phase II. However, recycling will be encouraged after construction, and architects for individual businesses will be encouraged to provide space for individual dumpsters to separate recyclable materials, such as cardboard, from municipal solid waste.

During the construction phase, whenever practical, solid wastes will be minimized and recycled. It will be recommended to contractors that a job-site recycling plan should be developed and, as much as possible, construction and demolition waste should be recycled.

TRANSPORTATION

Objectives and Policies

Enhance circulation by improving road maintenance; improving or providing traffic signals and turning lanes at congested intersections; and by providing street destination signs.

Discussion: A&B Properties will extend Ho'okele Street, which currently runs between Pu'unēnē Avenue and Pakaula Street (the street between Wal-Mart and Home Depot), to Hāna Highway during the first phase of Maui Business Park Phase II construction. When extended, Ho'okele Street will run roughly parallel with Dairy Road, and will provide an alternative route between Hāna Highway and Pu'unēnē Avenue, so that people traveling to and from Pā'ia or Upcountry and Kīhei will have the option of bypassing Dairy Road via Ho'okele Street. To improve traffic flow, signalized intersections along Ho'okele Street will be minimized and will be installed when warranted by standard traffic engineering requirements.

A Traffic Impact Analysis Report (TIAR) for Maui Business Park Phase II is included in Appendix F G.

URBAN DESIGN

Goal

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

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Objectives and Policies for the Wailuku-Kahului Region in General

1. *Enhance the appearance of major public roads and highways in the region.*
2. *Maintain a design quality for commercial and public projects and large-scale master planned developments.*
6. *Promote a unified street tree-planting program along major highways and streets.*
8. *Maintain shrubs and trees at street intersections for adequate sight distance.*
10. *Incorporate drought tolerant plant species and xeriscaping in future landscape planting.*
12. *Existing and future public rights-of-way along roads and parks shall be planted with appropriate trees, turfgrass and ground covers.*
14. *Require all future subdivisions, construction projects and developments to comply with the adopted Maui County Planting Plan.*
15. *Emphasize contrasting earth-tone color schemes for buildings and avoid bright or garish colors.*

Objectives and Policies for Kahului

1. *Within industrial subdivisions, encourage the establishment of design standards for individual projects, including a unified streetscape planting theme and program, in order to enhance the visual quality of industrial developments.*
3. *Building Form and Character: Maintain compatible scale relationships between the existing and higher buildings.*
 - h. *Building heights along the perimeter of commercial blocks should provide a transition in scale to adjacent public and quasi-public uses.*
4. *Landscape Character*
 - a. *A coordinated theme should be established from the airport to Kahului, with landscape buffers established along Keolani Place, Hāna Highway, and Ka'ahumanu Avenue.*
 - b. *Landscaping along Dairy Road between Keolani Place and Pu'unēnē Avenue should be established and coordinated with the landscaping of the airport-Kahului roadway approach routes.*
 - d. *Open parking areas should be landscaped to provide visual screening and shade.*

Discussion: Maui Business Park Phase II will be an attractive and functionally integrated industrial park. Master planning for the entire area will ensure a cohesive, visually unified, and attractive project. Design standards, including a unified streetscape planting theme and program, will ensure the appropriate use of landscaping and building materials over the projected 15-year build out period.

Ho'okele Street, the primary collector road through Maui Business Park Phase II, will be designed as a boulevard with a landscaped median and landscaped berms to soften the visual impact of buildings from the road. To the extent practical, the alignment of Ho'okele Street will maintain a view corridor toward Haleakalā.

To the extent practical, Maui Business Park Phase II will comply with the Maui County Planting Plan. Landscape plants will include drought tolerant plant species and xeriscaping, where appropriate. To provide visual screening and shading, open parking areas will include landscaping.

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PLANNING STANDARDS

The following planning standards are guides for development and design. These standards are essential in clarifying the intent of the land use and town design objectives and policies and the Land Use Map.

LAND USE

All zoning applications and/or proposed land uses and developments shall conform with the planned use designations, as specified in the adopted Community Plan Map, and be consistent with the Community Plan policies.

Development of the vacant properties in the Dairy Road Light Industrial Expansion (Matrix 33), identified as TMK: 3-8-1: portion of 2 and 3-8-6: portion of 4; and the Airport Triangle (Matrix 34), identified as TMK: 3-8-79: 13, shall provide a landscaped aesthetic visual corridor along all adjacent highways. Additionally, a landscaped berm utilizing trees and shrubbery shall be constructed along the entire proposed collector road (Ho'okele Street Extension) to soften the visual impact of the buildings along the road. Ingress/egress or other improvements mandated by engineering safety standards shall be exempt. Additionally, alternative energy shall be utilized, including, but not limited to, the use of solar energy to heat water. Underground utilities and low impact lighting to preserve the visual appearance of the area shall also be utilized. Signalized intersections shall be minimized on the Ho'okele Street Extension, and shall be installed only when warranted by standard traffic engineering requirements.

In addition, the said Dairy Road Light Industrial Expansion (Matrix 33), shall be constructed in increments of not greater than seventy (70) acres. Building permits shall not be authorized for each increment until completion of infrastructure construction for the prior increment. The Ho'okele Street Extension, or similar thoroughfare connecting Dairy Road to Hāna Highway, shall be constructed concurrently with development of the first increment. The exact location of the Ho'okele Street Extension shall be determined as a part of the property's zoning approval, with an emphasis on maintaining a "view corridor" toward Haleakalā.

Discussion: Maui Business Park Phase II is in conformance with and implements the *Wailuku-Kahului Community Plan (2002)*. The entire area of Maui Business Park Phase II is designated as "Light Industrial" on the *Wailuku-Kahului Community Plan (2002)* (Figure 7). To include the Maui Business Park Phase II in the M-1 Light Industrial District (Chapter 19.24 Maui County Code) and to implement the community plan, a change in zoning is being sought from the County of Maui. Land uses within Maui Business Park Phase II will be consistent with the Light Industrial District and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses. The South Project Area (Matrix 33) will be developed in phases not greater than 70 acres.

The visual quality of Maui Business Park Phase II will be enhanced and maintained by the establishment of design standards. Standards will include a unified streetscape planting theme and program, underground utilities, and low-impact lighting. In addition, alternative energy will be used where practical, including the use of solar energy to heat water.

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Maui Business Park Phase II will include landscaping along all roadways. Ho'okele Street, which currently runs between Pu'unēnē Avenue and Pakaula Street (the street between Wal-Mart and Home Depot), will be extended to Hāna Highway during the first increment of Maui Business Park Phase II construction and serve as the primary collector road through the project. It will also provide the primary access via intersections with Pu'unēnē Ave and Hāna Highway. When extended, Ho'okele Street will run roughly parallel with Dairy Road, and will provide an alternative route between Hāna Highway and Pu'unēnē Avenue, so that people traveling to and from Pā'ia or Upcountry and Kīhei will have the option of bypassing Dairy Road via Ho'okele Street.

The extended Ho'okele Street will include a landscaped berm with trees and shrubbery to soften the visual impact of the buildings along the road, except where required for ingress/egress or as mandated by engineering safety standards. To the extent practical, the alignment of Ho'okele Street will maintain a view corridor toward Haleakalā. Signalized intersections along Ho'okele Street will be minimized and will be installed when warranted by standard traffic engineering requirements.

CULTURAL RESOURCES

Require development projects to identify significant cultural resources located within the project area as part of initial project studies. Further require that all proposed activity include recommendations to mitigate potential adverse impacts on cultural resources.

Discussion: The Maui Business Park Phase II is not expected to have any affect on cultural resources of the area. This conclusion is based on the findings of a cultural impact assessment for the Maui Business Park Phase II site and surrounding area conducted by Aki Sinoto Consulting. This assessment included consulting with individuals knowledgeable with the area. The complete cultural impact assessment is included in this ~~draft~~ final EIS as Appendix B F.

URBAN DESIGN

General

- Incorporate drought tolerant plant species and xeriscaping in future landscape planting.*
- Use native plants for landscape planting in public projects to the extent practicable.*
- Emphasize contrasting earth-tone color schemes for building.*

Discussion: Landscape plants within the Maui Business Park Phase II will include native plants and drought tolerant plant species, and xeriscaping, where appropriate and practicable. To the extent practical, Maui Business Park Phase II will comply with the Maui County Planting Plan.

Design standards, including a unified streetscape planting theme and program, will ensure the appropriate use of landscaping, color, and building materials throughout Maui Business Park Phase II.

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6.2.3 Maui County Code

County of Maui Zoning

The site of Maui Business Park Phase II covers three parcels: 3-8-01:2 (portion); 3-8-06:4 (portion); and 3-8-79:13 (Figure 2). The zoning for the portions of these parcels within the Maui Business Park Phase II site is Agricultural (AG), Residential (R-1), and Heavy Industrial (M-2) (Figure 8).

A change in zoning to Light Industrial (M-1) (Chapter 19.24 Maui County Code) is being sought from the County of Maui. Land uses within Maui Business Park Phase II will be consistent with the Light Industrial zoning district and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses.

Applicability of the County of Maui Agricultural District Ordinance (Chapter 19.30A, Maui County Code)

Section 19.30A.020 of the County of Maui Agricultural District Ordinance (Chapter 19.30A, Maui County Code) states:

Agricultural lands that meet at least two of the following criteria should be given the highest priority for retention in the agricultural district:

- A. *Agricultural Lands of Importance to the State of Hawai'i (ALISH);*
- B. *Lands not classified by the ALISH system whose agricultural land suitability, based on soil, topographic, and climatic conditions, supports the production of agricultural commodities, including, but not limited to coffee, taro, watercress, ginger, orchard and flower crops and non-irrigated pineapple. In addition, these lands shall include lands used for intensive animal husbandry, and lands in agricultural cultivation in five of the ten years immediately preceding the date of approval of this chapter; and*
- C. *Lands which have seventy-five percent or more of their boundaries contiguous to lands within the agricultural district.*

Although the lands of the Maui Business Park Phase II site meet aspects of the above criteria, the site should be rezoned to Light Industrial for the following reasons:

1. Compliance with the Wailuku-Kahului Community Plan. *West Maui Community Plan* designates the entire Maui Business Park Phase II as Light Industrial. Therefore, Maui Business Park Phase II is in conformance with and implements the *Community Plan*.

While boundaries of the Maui Business Park site will be contiguous to the Agricultural district to the south, to the north the site is contiguous to lands zoned light industrial. Maui Business Park Phase II is a logical addition to Maui Business Park Phase I and will provide needed light industrial space in Maui's central commercial and business district in close proximity to the Kahului Airport

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and Kahului Harbor.

2. Continuation of Agriculture. While the establishment of Maui Business Park Phase II will require approximately 140 acres to be removed from agricultural productions, HC&S currently has approximately 37,000 acres in active sugarcane cultivation. In recent years technological improvements in sugar cultivation have resulted in greater yields per acre, therefore a slight reduction in the area cultivated is not expected to reduce overall yields or pose a problem to the economic viability of HC&S.

In addition, with the closure of Pioneer Mill in Lahaina there are currently vast amounts of fallow agricultural land in the West Maui region. Statewide, a substantial amount of land has been released from plantation agriculture (over 305,900 acres since 1968) and remains largely uncultivated open space.

3. While the lands of the site are classified under the ALISH system as "Prime Agricultural Land" and small portions are also classified as "Other Important Agricultural Land" these classifications apply when the land is treated and managed according to modern farming methods. If irrigated, the land is considered productive agricultural land; however, without irrigation, the land has very severe limitations with low productivity ratings.

Special Management Area

A portion of the North Project Area is within the Special Management Area (SMA) (Figure 6). A Special Management Area Use Permit from the County of Maui will be required for development within the Special Management Area

6.3 APPROVALS AND PERMITS

A listing of anticipated permits and approvals required for the Maui Business Park Phase II is presented below.

Permit/Approval	Responsible Agency
Chapter 343, HRS compliance	State Land Use Commission Office of Environmental Quality Control
State Land Use District Boundary Amendment (Incremental to Urban for approximately 33.53 acres)	State Land Use Commission
Change in Zoning	County of Maui Planning Department Maui Planning Commission Maui County Council
Special Management Area Use Permit (North Project Area)	Maui Planning Commission
NPDES Permit	State Department of Health
Subdivision Approval	County of Maui Department of Public Works and Environmental Management
Grading/Building Permits	County of Maui Department of Public Works & Waste Management

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7.0 ALTERNATIVES TO THE PROPOSED ACTION

In compliance with the provisions of Title 11, Department of Health, Chapter 200, Environmental Impact Statement Rules, Section 11-200-17(f), the following is a discussion of the alternatives to the use of the site for Maui Business Park Phase II. The possible alternatives to the proposed plan, including the "no-action" alternative, will be investigated to identify other potential land uses which might be appropriate on the property relative to existing environmental and social/economic conditions.

7.1 NO ACTION ALTERNATIVE

Under the "no action" alternative, the site would not be developed and the current agricultural uses on the site would most likely continue for the time being.

The no action alternative would not respond to the need for additional light industrial land on Maui, particularly in the Wailuku-Kahului region. As stated in Section 2.2, the market study prepared for Maui Business Park Phase II forecasts a demand for approximately 290 gross acres of additional light industrial lands over the next two decades. There is a limited supply of existing and proposed industrial land inventory. In Central Maui, there currently are less than 20 acres of available industrial land, much of it in older, less desirable subdivisions.

The no action alternative would not be consistent with the *Wailuku-Kahului Community Plan (2002)*, which designates the entire area of Maui Business Park Phase II as "Light Industrial," and would not implement other State and County governmental policies as discussed in Section 6. The *Wailuku-Kahului Community Plan (2002)* directs development of the property according to recommended standards. To implement these standards, Maui Business Park Phase II will be consistent with the Light Industrial District and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses. The South Project Area will be developed in phases not greater than 70 acres. The visual quality of Maui Business Park Phase II will be enhanced and maintained by the establishment of design standards. Standards will include a unified streetscape planting theme and program, underground utilities, and low-impact lighting. In addition, alternative energy will be used where practical, including the use of solar energy to heat water.

Development of Maui Business Park Phase II will also implement the Community Plan's recommendation for the construction the Ho'okele Street Extension. As described in the *Wailuku-Kahului Community Plan*, "The Ho'okele Street Extension, or similar thoroughfare connecting Dairy Road to Hāna Highway, shall be constructed concurrently with development of the first increment." The Ho'okele Street will run roughly parallel with Dairy Road, and will provide an alternative route between Hāna Highway and Pu'unē Avenue, so that people traveling to and from Pā'ia or Upcountry and Kīhei will have the option of bypassing Dairy Road via Ho'okele Street. To the extent practical, the alignment of Ho'okele Street will maintain a view corridor toward Haleakalā.

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In addition, the no action alternative would not meet the project objectives to:

- Provide an appropriate and sensitive use of land in context with Maui's environmental, social, and economic needs;
- Provide for the logical and long-planned expansion of Maui Business Park; and
- Develop a high-quality light industrial business park.

Finally, the no action alternative would deny the State, County, and general public of the potential public benefits associated with Maui Business Park Phase II. Some of these benefits include:

- Generation of new tax revenues that would exceed the expenditures necessary to support the development, resulting in a net fiscal benefit to the County and State;
- Creation of employment opportunities in the construction industry during development and in the light industrial industry after completion; and
- New capital investment and spending, adding to the Maui economy.

7.2 OTHER USES OF THE SITE

The "other uses of the site" alternative considers uses of the project site other than the proposed light industrial use.

Due to its proximity to Kahului Airport, the Maui Business Park site is exposed to aircraft operations and noise; however, commercial, industrial, and manufacturing uses are compatible with airport areas. The majority of the Maui Business Park site is within the 55 to 70 L_{dn} airport noise level contours. Figure 4 of the environmental noise impact assessment (Appendix G H) shows airport noise level contours in relation to the Maui Business Park site.

The Federal Aviation Administration (FAA) standards for various uses exposed to environmental noise do not recommend residential uses in areas within or above the 65 L_{dn} contour. The State Department of Transportation Airports Division is more restrictive, as areas within or above the 60 L_{dn} contour are not recommended for residential uses. All of the North Project area and a majority of the South Project Area are within the 60 L_{dn} to 70 L_{dn} noise contours. As such, residential use is not the most appropriate for these areas.

Under the more restrictive State standards for noise and land use compatibility, besides commercial, industrial, and manufacturing, other uses allowable within the 65 to 70 L_{dn} noise contours include government services and office buildings, transportation and parking facilities, utilities, resource production and extraction, nature exhibits and zoos, neighborhood parks, public golf courses, and cemeteries.

The use of the site for the above uses allowable within the 65 to 70 L_{dn} noise contours have been ruled out for various reasons:

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- Government services and office buildings: The county seat of Maui is at Wailuku. Expanding government offices to the Maui Business Park Phase II site would not be desirable as this would separate various government functions and agencies, resulting in inefficient services. In addition, the land would have to be acquired from Alexander & Baldwin, Inc., and Federal, State, and County governments have not expressed an interest in locating in the area
- Transportation and parking facilities: These uses could already be incorporated within Maui Business Park Phase II as they are compatible with Light Industrial uses, however, it is doubtful that there is a need for the entire 179 acres to be used for transportation and parking facilities.
- Utilities: No utilities have expressed an interest in locating at the site.
- Resource production and extraction: The site does not contain resources suitable for extraction, such as rocks or minerals.
- Nature exhibits and zoos: Maui's only zoo recently closed due to fiscal problems. It is unlikely that another zoo will be opened in the near future.
- Neighborhood park: While the entire site could be used as a park, the Wailuku-Kahului area is already served by number of parks, including the 110-acre Kepuolani Regional Park, located approximately three miles from the Maui Business Park Phase II site.
- Public golf course: The Maui Business Park Phase II site does not possess the scenic attributes or diverse topography typical of a successful golf course.
- Cemetery: While a specific assessment of the need for an additional cemetery on Maui was not undertaken for this EIS, there are currently 95 cemeteries on Maui.

In addition to aircraft noise, the project site is subject to impact from other aircraft operations. Approximately 25 acres of the South Project Area abutting Hāna Highway are restricted in use due to its potential designation as a runway protection zone (RPZ) by the State Department of Transportation (DOT). This RPZ is a requirement of the proposed extension of the Kahului Airport runway to 9,600 feet in length. Uses in this area are restricted to those which do not entail the congregation of people and as may be approved by the Federal Aviation Administration. It is envisioned that this area would contain warehouses, self storage facilities, base yards, or other uses that do not entail the congregation of people.

Furthermore, the above alternatives would not respond to the need for additional light industrial land on Maui, particularly in the Wailuku-Kahului region, nor would they be consistent with the *Wailuku-Kahului Community Plan (2002)*, which designates the entire area of Maui Business Park Phase II as "Light Industrial."

In examining other potential uses, the proposed light industrial use is deemed most compatible with existing and planned uses in the vicinity.

7.3 ALTERNATIVE PROJECT LOCATION

This alternative considers other locations for the planned light industrial project. Alexander & Baldwin, Inc., has other land holdings throughout the Wailuku-Kahului region and other areas on Maui. While it is possible that A&B Properties, Inc. could seek to develop a business park on other property, this alternative is not desirable for the following reasons:

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- 1) The proposed site is contiguous with the existing urban area of greater Kahului and is a logical extension of the adjacent and nearby light industrial areas that serve as Maui's primary centers of commerce and industry. From a planning perspective, it is logical to group light industrial/commercial uses in proximity to one another. Other sites would not be directly contiguous to Maui Business Park Phases IA and IB, and thus would not meet the objective of providing for the logical expansion of light industrial/commercial uses in Central Maui.
- 2) The proposed site is strategically located in close proximity to Maui's main center of commerce and its primary harbor and airport facility. Transportation costs to and from such facilities are minimized as a result. The impact to agricultural operations is minimal at this site, due in part to its contiguous location with existing urban development. Other locations could promote urban sprawl and greater impacts to agriculture.
- 3) The proposed site will maximize the use of existing infrastructure that is already in place. While upgrades to infrastructure will be required, these are less than would be required at other locations with less or no available infrastructure.
- 4) The entire 179 acre-site is currently designated for light industrial use on the *Wailuku-Kahului Community Plan (2002)*. Therefore, the idea of expanding Maui Business Park as proposed has been sanctioned by the community and County of Maui during the community plan update process. Furthermore, other potential locations would have been considered in the community plan update process.

7.4 ALTERNATIVE OF POSTPONING ACTION PENDING FURTHER STUDY

The alternative of postponing action pending further study is not recommended for the following reasons:

1. This ~~draft~~ final environmental impact statement and its related technical studies provide a thorough evaluation of the project's impacts.
2. Entitlement processing for Maui Business Park Phase II will include a State Land Use District Boundary Amendment to change the Incremental area to the Urban District, a Change in Zoning, and a Special Management Area Use Permit. All of these steps provide for public input and comments, as well as opportunities for decision makers to thoroughly examine and evaluate all aspects of the project. In March 2004 the LUC saw fit to urbanize 138 acres, a majority of the project site, for the development of Maui Business Park Phase II. As part of its deliberation, the LUC examined all relevant factors and conducted extensive hearings, including public testimony and the participation of the State Office of Planning and the Maui Planning Department. Both the State Office of Planning and the Maui Planning Department supported the urbanization of the project site with conditions.
3. The entire 179 acres of the Maui Business Park Phase II site are designated "Light Industrial" on the *Wailuku-Kahului Community Plan (2002)*. The Maui County Council approved this designation in May 2002 as part of the community plan update process,

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which provides for extensive input from decision makers and the public. The community plan update process incorporates technical studies and assessments to establish policies, goals, and standards for the region. These studies included a socio-economic forecast, land use forecast, infrastructure assessment, and public facilities and service assessment.

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8.0 CONTEXTUAL ISSUES

Key issues within the context of the overall Maui Business Park Phase II are presented in this section.

8.1 RELATIONSHIP BETWEEN THE SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The Maui Business Park Phase II site possesses physical attributes that make it particularly appropriate for a light industrial business park. These include its location contiguous to existing urban industrial land uses, proximity to port facilities, the hub of the islandwide highway system, and the largest population center on Maui, and superior access and exposure characteristics. The studies performed in the preparation of this environmental impact statement indicate that Maui Business Park Phase II will be compatible with the existing environment, and will not pose long-term risks to health and safety. Specific measures will be employed to mitigate potential adverse environmental impacts (as discussed in Sections 4 and 5) in the design, construction, and long-term operation of the business park.

As discussed in Section 4.4, use of the site for Maui Business Park Phase II will require approximately 140 acres of land be removed from sugar cane cultivation. This slight decrease in the amount of land in sugar cultivation will not contribute to a significant reduction in HC&S revenues or any reduction of sugar plantation employment. Further, there are currently vast amounts of suitable agricultural land on Maui for future agricultural pursuits. In addition, as discussed in Section 7.2, because of its location near the Kahului Airport and the related noise impacts, the site is more suitable for light industrial use than other uses. While the use of the site for Maui Business Park Phase II precludes the use of the site for other uses, it does not foreclose future options for agriculture or other uses at more suitable other locations or narrow the range of beneficial uses of the environment.

Short-term uses and long-term productivity consists of the business park's construction phases and light industrial uses after build out. Short-term construction impacts can be mitigated. As detailed in Section 5.8, Maui Business Park Phase II will provide for the long-term productivity of the site by creating jobs and economic activity. Some of the employment and economic benefits of Maui Business Park Phase II include:

- \$391 million in taxes for the State of Hawai'i and \$33.9 million in taxes for the County of Maui during the 15-year build out period.
- \$51.6 million annually in taxes for the State and approximately \$3.8 million annually for the County after build out.
- A net benefit (taxes minus costs) to the State of between \$44 and \$51.4 million annually. A net benefit to the County of between \$1.7 and \$3 million annually.
- On a stabilized basis, at full build out, 5,522 full time equivalent jobs related to on-site activities.

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- \$1.57 billion in total wages over build out

Long-term benefits to the environment will, on balance, be positive with the implementation of proposed mitigation measures. The physical attributes of the property are appropriate for the land uses proposed.

Through careful site planning and design standards, Maui Business Park Phase II will be a positive addition to Central Maui and the island as a whole. Maui Business Park Phase II will maintain the same high standards established at Maui Business Park Phases IA and IB. The visual quality of Maui Business Park Phase II will be enhanced and maintained by the establishment of design standards. Standards will include a unified streetscape planting theme and program, underground utilities, and low-impact lighting. The extended Ho'okele Street will include a landscaped berm with trees and shrubbery to soften the visual impact of the buildings along the road, except where required for ingress/egress or as mandated by engineering safety standards. To the extent practical, the alignment of Ho'okele Street will maintain a view corridor toward Haleakalā. In addition, alternative energy will be used where practical, including the use of solar energy to heat water.

Based on the above discussion, it can be concluded that Maui Business Park Phase II will not foreclose future options, narrow the range of beneficial uses, or pose long-term risks to health or safety.

8.2 CUMULATIVE AND SECONDARY IMPACTS

Cumulative and secondary impacts are impacts that may result from other reasonably foreseeable actions within the area, regardless of who initiates the action. To assess the cumulative and secondary impacts of Maui Business Park Phase II in context with other projects, the *Wailuku-Kahului Community Plan* was used as the basis of reasonably anticipated development in the area.

Two other light industrial projects, the Maui Lani Business Park and the Consolidated Baseyards Light Industrial Subdivision have been proposed or announced within the Wailuku-Kahului area. These projects could provide approximately 80 acres of light industrial space.

In addition to these industrial park projects, the planned Airport Access Road is relevant to Maui Business Park Phase II. During the LUC hearings for Maui Business Park Phase II in September of 2003 (Docket No. A03-739), the State Department of Transportation (DOT) indicated that the Airport Access Road is a priority project and that construction is anticipated to begin within three years. In a subsequent letter, DOT stated that they plan to request bids for a design build contract in Fiscal Year 2005 for the first phase of the Airport Access Road between Pu'unē Avenue (near Pakaula Street) and Hāna Highway.

The traffic impact analysis report prepared for Maui Business Park Phase II (see Section 5.4 and Appendix F G) has examined and evaluated traffic impacts of the project under a range of possible scenarios and has included analysis of other projects anticipated to occur in the region. Traffic in the vicinity is expected to increase even if Maui Business Park Phase II is not built. Because of the alternative route created by the extension of Ho'okele Street, traffic conditions

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along Dairy Road between Pu'unē Avenue and Hāna Highway will improve with Maui Business Park Phase II versus without Maui Business Park Phase II.

In addition to traffic, other cumulative and secondary impacts resulting from other projects, along with Maui Business Park Phase II, are likely to include greater demands on public infrastructure systems and services. Previous sections of this ~~draft~~ final EIS have discussed the expected impact Maui Business Park Phase II will have on infrastructure systems and services, and mitigative measures have been proposed. Developers of other projects in the region will be required to satisfactorily mitigate impacts of their projects before proceeding with development. As Kahului is the primary business district on Maui, growth is a natural progression. Careful planning will ensure that growth does not negatively effect and overburden infrastructure systems.

Maui Business Park Phase II is not expected to incur secondary impacts to sensitive surrounding land uses, including Kanahā Pond State Wildlife Refuge. While the Refuge is home to two endangered birds, the faunal survey conducted for Maui Business Park Phase II did not identify the Maui Business Park Phase II site as a refuge for any endangered bird species. In addition, drainage from Maui Business Park Phase II will be retained by on-site systems designed in accordance with Maui County drainage standards and will not flow to the Refuge. Further, light industrial operations within Maui Business Park Phase II are not expected to directly impact air quality in the surrounding region, including the Refuge, as unlike heavy industrial uses, light industrial uses do not involve heavy manufacturing and processing of raw materials. Additionally, low level lighting for landscape areas and the shielding of parking lot lighting are planned to minimize lighting impacts.

Tax revenues from Maui Business Park Phase II are expected to contribute to State and County revenues in excess of the costs incurred to the State and the County, and thus contribute to the overall State and the County tax base (see Section 5.8.2) and, in turn, the provision of infrastructure concurrent with growth.

In addition, A&B Properties, Inc. will participate in the funding and construction of adequate water source, storage, and transmission facilities and improvements to accommodate water use generated by Maui Business Park Phase II. A&B Properties, Inc. will also provide all sewer lines required for the development. Energy-saving concepts and devices will be encouraged, including the use of solar energy to heat water. Design standards will specify low-impact lighting and will encourage energy efficient building design and site development practices.

8.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The development of Maui Business Park Phase II would result in the irreversible and irretrievable commitment of land and fiscal resources. Major resource commitments include the 179-acre site and the capital, construction materials, non-renewable resources, labor, and energy required for the business park's completion.

Use of the land for Maui Business Park Phase II will require approximately 140 acres of land be removed from sugar cane cultivation. However, there are there are currently vast amounts of suitable agricultural land on Maui for future agricultural pursuits. In addition, the site is well-suited to light industrial uses because of its: 1) location contiguous to existing urban industrial

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land uses, and 2) proximity to: port facilities, the hub of the islandwide highway system, and the largest population center on Maui. Further, because of its location near the Kahului Airport and the related noise impacts, the site is not suitable for many other uses.

The impacts represented by the commitment of these resources, should be weighed against the positive socio-economic benefits that could be derived from the Maui Business Park Phase II versus the consequences of either taking no action or pursuing another less beneficial use of the property.

8.4 PROBABLE ADVERSE ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED

Visual Resources. Although construction of Maui Business Park Phase II will alter the existing visual character of the North and South Project Area properties, which are currently dominated by agricultural uses, design of the industrial park will ensure that it is integrated and compatible with adjacent urban uses. Master planning will establish a cohesive, visually unified identity. The visual quality of Maui Business Park Phase II will be enhanced and maintained by the establishment of design standards. Standards will include a unified streetscape planting theme and program, underground utilities, and low-impact lighting. More information on the visual impact of Maui Business Park Phase II is included in Section 5.7 and Appendix I J which contains a visual impact analysis study.

Traffic Impacts. Traffic in the vicinity is expected to increase even if Maui Business Park Phase II is not built. Because of the alternative route created by the extension of Ho'okele Street, traffic conditions (projected volume-to-capacity ratios, levels-of-service, and delays) along Dairy Road between Pu'unē Avenue and Hāna Highway will improve with the Maui Business Park Phase II versus without Maui Business Park Phase II.

The traffic impact analysis report prepared for Maui Business Park Phase II (see Section 5.4 and Appendix F G) concludes that with an equal proportion of light industrial/warehouse use and retail/office use within Maui Business Park Phase II, and with the recommended mitigation measures, the roadway network can accommodate traffic generated by Maui Business Park Phase II.

Solid Waste. As detailed in Section 5.9.5, there will be solid waste generated during construction and after development of Maui Business Park Phase II. A&B Properties, Inc. will encourage all contractors and tenants to recycle. Solid waste that cannot be recycled will be disposed of at the Central Maui Landfill.

Electrical Power. The preliminary engineering report estimates that the electrical demand for Maui Business Park Phase II will be about 2 megawatts. To lessen demand, energy-saving concepts and devices will be encouraged, including the use of solar energy to heat water. Design standards will specify low-impact lighting and will encourage energy efficient building design and site development practices.

Air Quality. In the short term, construction of Maui Business Park Phase II will unavoidably contribute to air pollutant concentrations due to fugitive dust releases at construction areas. However, mitigative measures, including frequent watering of exposed surfaces, will help to

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establish controls. As earlier discussed, Maui Business Park Phase II will be zoned M-1 Light Industrial, which ensures that there will be no heavy industrial uses. Unlike heavy industrial uses, light industrial uses typically do not emit significant amounts of air pollution.

Noise. In the short term, construction of Maui Business Park Phase II will generate temporary noise impacts. The dominant noise sources during construction will most likely be earth-moving equipment, such as bulldozers and diesel trucks. Noise from construction activities must comply with all federal and state noise control regulations. Traffic-generated noise due to the development is predicted to be imperceptible to people with normal hearing, and no traffic noise mitigation measures are planned.

8.4.1 Rational for Proceeding with the Maui Business Park Phase II Notwithstanding Unavoidable Effects

In light of the above mentioned unavoidable effects, Maui Business Park Phase II should proceed because adverse impacts can be mitigated and offset by substantial positive factors, including:

- Compliance with the *Wailuku-Kahului Community Plan*, which designates the site for light industrial uses
- Substantial compliance with policies of the Hawaii State Plan, State Functional Plans, the Coastal Zone Management Act, and the County of Maui General Plan
- The provision of needed light industrial space—the project market study forecasts a shortfall of light industrial space on Maui within one to two years, and over the next two decades, there will be demand for approximately 290 acres of new light industrial areas in Central Maui
- Economic impacts, including:
 - \$391 million in taxes for the State of Hawai'i and \$33.9 million in taxes for the County of Maui during the 15-year build out period
 - \$51.6 million annually in taxes for the State and approximately \$3.8 million annually for the County after build out
 - A net benefit (taxes minus costs) to the State of between \$44 and \$51.4 million annually. A net benefit to the County of between \$1.7 and \$3 million annually
 - On a stabilized basis, at full build out, 5,522 full time equivalent jobs related to on-site activities
 - \$1.57 billion in total wages over build out
- The productive use of the land, in relation to the noise impacts of the nearby Kahului Airport, which limit many other uses

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8.5 UNRESOLVED ISSUES

Unresolved issues are invariably associated with projects in the planning and preliminary design stages. The planning process, which includes preparation of this environmental impact statement attempts to identify applicable issues and to develop appropriate mitigative measures. At this stage of the planning process the following issues remain unresolved:

Water: A&B Properties, Inc. will participate in the funding and construction of adequate water source, storage, and transmission facilities and improvements to accommodate water use generated by the Project. It is currently envisioned that a portion of water from the Waihe'e Ditch would be processed at a future surface water treatment plant to allow the County to supply water to Maui Business Park Phase II. Transmission lines from the new surface water treatment plant will deliver water into the County Department of Water Supply's (DWS) Central Maui System. Once in the Central Maui System, water will be conveyed via existing transmission lines through Kahului to the site. New on-site transmission lines will be developed to provide water to individual businesses. These water system improvements will need to be developed *with the cooperation and consent of the County of Maui. Agreements concerning these planned improvements have not been finalized. The proposed surface water treatment plant is a separate project from Maui Business Park Phase II and will be subject to applicable provisions of the environmental impact statement law (Chapter 343, Hawaii Revised Statutes), once specifics are developed in coordination with the County.*

Wastewater: The County of Maui's existing wastewater system services the Kahului industrial area. The Wailuku-Kahului Wastewater Reclamation Facility has a capacity of 7.9 million gallons per day (mgd) of which an estimated 7 mgd has been allocated for existing and projected flows. A&B Properties is preparing a detailed sewer impact study evaluating the wastewater requirements for Maui Business Park Phase II. This study will be submitted to the County for review prior to commencing engineering design. The adequacy of existing systems as well as needed improvements will be more specifically determined at that time.

Airport Access Road: The State Department of Transportation has indicated that the Airport Access Road is a priority project and that a request for bids for a design-build contract will be issued during fiscal year 2005 for the initial segment from Pu'unē Avenue to Hāna Highway. DOT has not stated when the remaining portion of the Airport Access Road from Hāna Highway to the Kahului Airport will be completed. However, Maui Business Park Phase II is not dependent on the completion of the Airport Access road as: 1) there are no assumed access points into Maui Business Park Phase II from the Airport Access Road; and 2) Ho'okele Street within the South Project Area will provide an alternative route between Hāna Highway and Pu'unē Avenue, so that people traveling to and from Pā'ia or Upcountry and Kīhei will have the option of bypassing Dairy Road via Ho'okele Street.

Kahului Airport Runway Extension: At the Land Use Commission hearings on Maui Business Park Phase II in September of 2003, the State Department of Transportation, Airports Division indicated that they are considering extending the Kahului Airport runway up to 9,600 feet in length. Although no plans have been finalized, one of the conditions imposed by the Land Use Commission is that approximately 25 acres of the South Project Area abutting Hāna Highway be restricted in use due to the potential designation of this area as a runway protection zone (RPZ)

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in the event that the runway is extended. The State Department of Transportation has also indicated the possibility of acquiring this area from A&B Properties, Inc. in the future.

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9.0 EIS CONSULTATION

The preparation of this ~~draft~~ final EIS involved communicating with federal, state, and county agencies, and individuals, private companies, and community organizations, including the following:

9.1 COUNTY OF MAUI

Planning Department
Department of Water Supply
Department of Public Works & Environmental Management
Department of Housing & Human Concerns
Department of Parks and Recreation
Police Department
Fire Department

9.2 STATE OF HAWAII

Department of Business Economic Development & Tourism (DBED&T) Land Use Commission
DBED&T Office of Planning
DBED&T Housing and Community Development Corporation of Hawai'i
DBED&T Energy, Resources and Technology Division
Department of Land and Natural Resources (DLNR) Land Division
DLNR Historic Preservation Division
Department of Health (DOH) Environmental Planning Office
DOH Office of Environmental Quality Control
Department of Transportation
Office of Hawaiian Affairs
Department of Agriculture
Department of Defense
Department of Hawaiian Home Lands
University of Hawai'i at Mānoa (UHM) Environmental Center
UHM Water Resources Research Center

9.3 FEDERAL

U.S. Army Engineer Division
U.S. Federal Aviation Administration
U.S. Fish and Wildlife Service
U.S. Natural Resources Conservation Service

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9.4 INDIVIDUALS, PRIVATE COMPANIES, AND COMMUNITY ORGANIZATIONS

Maui Electric Company
Sally Raisbeck
Fred Rohlfing

9.5 IDENTIFICATION OF ALL COMMUNITY MEETINGS

Public hearings related to Maui Business Park Phase II were held as part of the Land Use Commission's consideration of the reclassification of a portion of the site from the State Agricultural District to the Urban District (Docket A03-739). The hearings were open to the public and public testimony was accepted. The LUC hearings were held on:

- September 4, 2003 at the Outrigger Wailea Marriott Resort
- September 5, 2003 at the Outrigger Wailea Marriott Resort
- September 18, 2003 at the Outrigger Wailea Marriott Resort
- September 19, 2003 at the Outrigger Wailea Marriott Resort
- December 5, 2003 in Land Use Commission conference room in Honolulu

Concerns raised in public testimony at the hearings included: the traffic impact of the project, the visual impact of the project given its location near the airport and the issue that this area is perceived as the "gateway" to Maui, the need for affordable housing, the impact on agricultural land, and the amount of retail uses that will be allowed.

The State Office of Planning and the Maui Planning Department also participated in the hearings before the State Land Use Commission. As part of their preparation for the hearings both the State Office of Planning and the Maui Planning Department circulated the Maui Business Park Phase II reclassification petition to various State and County agencies for review and comment. Upon attaining these agencies' comments, both the State Office of Planning and the Maui Planning Department recommended approval of the land use reclassification from the Agricultural to the Urban District with conditions to address their concerns.

The Land Use Commission addressed these concerns in its ~~Decision and Order (dated March 25, 2004)~~ Findings of Fact, Conclusions of Law, and Decision and Order on Docket No. A03-739 (Appendix A) approving the reclassification. The Land Use Commission attached conditions to the reclassification to address concerns in the following areas, as well as other subject matters.

- Traffic impacts
- Visual impacts
- Affordable housing
- The amount of retail and light industrial uses allowed
- Hawaii's Right to Farm Act
- Kahului Airport operations and improvements
- Drainage, wastewater and potable water facilities

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In addition to the recent Land Use Commission hearings, the appropriateness of designating the Maui Business Park Phase II site as Light Industrial on the Wailuku-Kahului Community Plan (2002) was the subject of many public meetings during the County of Maui's community plan update process, including meetings of the Citizen's Advisory Committee, the Planning Commission, and the County Council. As a result, the Wailuku-Kahului Community Plan (2002) adopted by the Council designates the Maui Business Park Phase II site as Light Industrial.

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MAUI BUSINESS PARK PHASE II

10.0 LIST OF PREPARERS

The ~~draft~~ final EIS has been prepared by PBR HAWAII, 1001 Bishop Street, ASB Tower, Suite 650, Honolulu, Hawai'i, 96813. The staff involved in the preparation of this document include:

Thomas S. Witten, ASLA	President
Thomas Schnell, AICP	Associate/Project Manager
Wendy Okazaki	Planner
Etsuyo Kila	Cartography
Kanai'a Nakamura	Graphic Design
Dionne Talia	Production
Gretchen Tomas	Production

Several key technical consultants were employed to provide specific assessments of environmental factors for this project. These consultants, their company affiliation, and their specialty are listed below:

Name	Firm	Area of Expertise
David Adams	D.L. Adams Associates, Ltd.	Noise Assessment
Phil Bruner		Faunal Studies
Winona P. Char	Char and Associates	Botanical Studies
Thomas W. Holliday	The Hallstrom Group, Inc.	Economic/Fiscal Research
Barry Neal	B.D. Neal & Associates	Air Quality Assessment
Phillip J. Rowell	Phillip Rowell and Associates	Traffic Impact Analysis
Aki Sinoto	Aki Sinoto Consulting	Cultural Assessment
Hideo Kawahara	A&B Properties, Inc.	Civil Engineering

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12.0 COMMENTS ON THE ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE AND RESPONSES

The environmental impact statement preparation notice (EISPN) was sent to the following agencies, organizations, and individuals. The public comment period on the EISPN was from June 23, 2004 to July 23, 2004. Where indicated, the agency, organization, or individual submitted comments.

	AGENCY	EISPN Mail Date	Date of Comments
	STATE		
1	Department of Business Economic Development & Tourism – Land Use Commission	6/22/04	
2	Department of Business Economic Development & Tourism – Energy, Resources & Technology Division	6/22/04	
3	Department of Business Economic Development & Tourism – Office of Planning	6/22/04	7/22/04
4	Department of Business Economic Development & Tourism – Housing and Community Development Corporation of Hawaii	6/22/04	
5	Department of Business Economic Development & Tourism – Strategic Industries Division	6/22/04	6/28/04
6	Department of Defense	6/22/04	
7	Department of Land and Natural Resources	6/22/04	7/9/04
8	Department of Land and Natural Resources – State Historic Preservation Division	6/22/04	8/9/04
9	Department of Health – Clean Water Branch	6/22/04	7/22/04
10	Department of Health – Hazard Evaluation & Emergency Response*		8/10/04
11	Department of Health - Office of Environmental Quality Control	6/22/04	7/22/04
12	Department of Health – Safe Drinking Water Branch, Environmental Management Division	6/22/04	8/2/04
13	Department of Health – Solid & Hazardous Waste Branch*		8/10/04
14	Department of Health – Wastewater Branch*		8/9/04
15	State Department of Hawaiian Home Lands	6/22/04	
16	Office of Hawaiian Affairs	6/22/04	7/13/04
17	UH Environmental Center	6/22/04	
18	UH Water Resources Research Center	6/22/04	
19	Department of Transportation*	6/22/04	8/30/04
	FEDERAL		
20	US Fish and Wildlife Service	6/22/04	
21	US Natural Resource Conservation Service	6/22/04	

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	AGENCY	EISPN Mail Date	Date of Comments
22	US Federal Aviation Administration	6/22/04	
23	US Army Engineer Division	6/22/04	
	COUNTY OF MAUI		
24	Department of Housing and Human Concerns	6/22/04	7/19/04
25	Department of Planning	6/22/04	7/26/04
26	Department of Public Works & Environmental Management*	6/22/04	8/19/04
28	Department of Parks & Recreation	6/22/04	7/2/04
29	Department of Fire Control	6/22/04	
30	Police Department	6/22/04	
31	Department of Water Supply	6/22/04	7/22/04
	PRIVATE COMPANIES, ORGANIZATIONS & INDIVIDUALS		
32	Maui Electric Company	6/22/04	
33	Sally Raisbeck	6/22/04	
34	Fred Rohlfig	6/22/04	

* These agencies submitted comments on the EISPN after the public comment period on the EISPN ended and the draft environmental impact statement (DEIS) was completed. Therefore, their comments were not included in the DEIS.



**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

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ASSOCIATE

RAYMOND T. HERR, ASLA
PRESIDENT

KEVIN HANAWALA, ASLA
PRESIDENT

Ref. No. P-10550

July 22, 2004

Mr. Tom Schnell
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

Subject: Maui Business Park Phase II, Kahului, Maui, Hawaii
Environmental Impact Statement Preparation Notice (EISPN)
Request for Comments

The Office of Planning has reviewed the EISPN which has been prepared pursuant to Chapter 343, HRS, and Title 11, Chapter 200, HAR, as required for the applicant's proposed development of the Maui Business Park, Phase II light industrial project.

On March 25, 2004, the State Land Use Commission approved a boundary amendment to reclassify 138.158 acres from the Agricultural to the Urban District for this project.

We have no additional comments since the State's position regarding the impacts of this project is clearly stated in the Decision and Order issued by the Land Use Commission for Docket No. A03-739.

Thank you for the opportunity to comment on the EISPN. If you have any questions, please call Mary Alice Evans at 587-2802.

Sincerely,

Mary Lou Kobayashi
Mary Lou Kobayashi
Administrator

cc: Anthony Ching, LUC

August 9, 2004

Ms. Mary Lou Kobayashi, Administrator
Office of Planning
Department of Business, Economic Development & Tourism
P.O. Box 2359
Honolulu, Hawaii 96804

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13

Dear Ms. Kobayashi:

Thank you for your letter dated July 22, 2004 regarding the Environmental Impact Statement Preparation Notice (EISPN) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we acknowledge that you have no additional comments since the State's position regarding the impacts of this project was clearly stated in the Decision and Order issued by the Land Use Commission for Docket No. A03-739.

Thank you for reviewing the EISPN. Your comments will be included in the draft environmental impact statement.

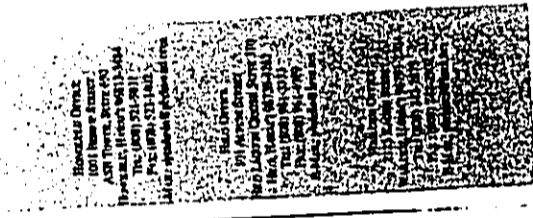
Sincerely,

Tom Schnell

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

01/19/02-08/15/22Comment1 rtko ResponsesEISPN09.doc





**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

Strategic Initiatives Division
235 South Beretani Street, Lagoon Plaza A, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2256, Honolulu, Hawaii 96804
Web site: www.hawaii.gov/eedt

LINDA LINGOLE
GOVERNOR
THEODORE E. LIU
COMMISSIONER
STEVE BRETSCHNEIDER
DEPUTY DIRECTOR

(808) 587-3827
(808) 587-3320

Telephone:
Fac:

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JUL 09 7 08 AM

HONOLULU

June 28, 2004

A&B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Attn: Dan Yasui

Subject: Environmental Impact Statement Preparation Notice (EISPN)
Maui Business Park Phase II
Tax Map Key: 38-8-01:2 (portion); 3-8-06:4 (portion)
3-8-79:13

Thank you for the opportunity to comment on the EISPN for the Maui Business Park Phase II. We note and concur with your Solid Waste, Energy, and Urban Design Goals and Objectives as outlined on pages 25, 26 and 27 of the EISPN. Our comments are addressed to (1) State energy conservation goals, (2) energy saving design practices and technologies, and (3) recycling and recycled-content products.

(1) Energy conservation goals. Project buildings, activities, and site grounds should be designed with energy saving considerations. The mandate for such consideration is found in Chapter 344, HRS ("State Environmental Policy") and Chapter 226 ("Hawaii State Planning Act"). In particular, we would like to call to your attention HRS 226 18(c)(4) which includes a State objective of promoting all cost-effective energy conservation through adoption of energy-efficient practices and technologies. We suggest that you contact Maui Electric Co., Inc., which may offer demand-side management rebates for energy efficient technologies.

(2) Energy saving design practices and technologies. Methods and technologies that could be considered during the design phase of the project include:

- a. Use of site shading, orientation, and use of naturally ventilated areas to reduce cooling load;
- b. Maximum use of day lighting;
- c. Use of high efficiency compact fluorescent lighting;
- d. Exceed Model Energy Code requirements;

A&B Properties, Inc.
June 28, 2004
Page 2

- c. Technologies such as solar water heating systems, roof and wall insulation, radiant barriers, and energy efficient windows
- f. Use of solar parking lot lighting;
- g. Use of light color or "green" roofs;
- h. Use of roof and gutter to divert rainwater for landscaping;
- i. Use of landscaping for dust control and to minimize heat gain to area; and
- j. Use of photovoltaics, fuel cells and other renewable energy sources.

(3) Recycling and recycled-content products.

- a. Develop a job-site recycling plan for the construction phase of the project and recycle as much construction and demolition waste as possible;
- b. Incorporate provisions for recycling into the project - a collection system and space for bins for recyclable;
- c. Specify and use products with recycled-content such as: steel, concrete aggregate fill, drywall, carpet and glass tile; and
- d. Specify and use locally produced products such as plastic lumber, hydromulch, soil amendment and glass tile.

Please do not hesitate to call on us for clarification of any of the above.

Sincerely,

Maurice H. Kaya
Chief Technology Officer

c: State Land Use Commission
PBR Hawaii
OEQC



LAND PLANNING
ORGANIZATIONAL
ENVIRONMENTAL STUDIES

FRANK BLANCHI, PASLA
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SHAW DUNCAN, ASLA
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Executive Director

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ANNE LITVIN, AICP
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Executive Director

ASLA
Executive Director

ASLA
Executive Director

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Executive Director

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Executive Director

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Executive Director

ASLA
Executive Director

ASLA
Executive Director

ASLA
Executive Director

August 9, 2004

Maurice H. Kaya
Chief Technology Officer
Department of Business, Economic Development & Tourism
P.O. Box 2359
Honolulu, Hawaii 96804

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13**

Dear Mr. Kaya:

Thank you for your letter (addressed to Dan Yasui) dated June 28, 2004 regarding the Environmental Impact Statement Preparation Notice (EISPN) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we offer the following responses to your comments:

- (1) Energy conservation goals. Maui Business Park Phase II buildings, activities, and grounds will be designed with energy saving considerations. Maui Electric Co., Inc. will be contacted to see if any demand-side management rebates for energy efficient technologies are being offered.
- (2) Energy saving design practices and technologies. Where applicable, the following methods and technologies will be considered during the design phase of Maui Business Park Phase II:
 - a. Use of site shading, orientation, and use of naturally ventilated areas to reduce cooling load;
 - b. Maximum use of day lighting;
 - c. Use of high efficiency compact fluorescent lighting;
 - d. Exceeding Model Energy Code requirements;
 - e. Technologies such as solar water heating systems, roof and wall insulation, radiant barriers, and energy efficient windows;
 - f. Use of solar parking lot lighting;
 - g. Use of light color or "green" roofs;
 - h. Use of roof and gutters to divert rainwater for landscaping;
 - i. Use of landscaping for dust control and to minimize heat gain to area; and
 - j. Use of photovoltaics, fuel cells and other renewable energy sources.
- (3) Recycling and recycled-content products. Regarding your concerns:
 - a. A Solid Waste Management Plan has been prepared for Maui Business Park Phase II. This plan includes, a job-site recycling plan for the construction phase of the project and provisions to recycle as much construction and demolition waste as possible;

Mr. Maurice H. Kaya
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
3-8-79:13
August 9, 2004
Page 2

- b. Provisions for recycling will be incorporated into Maui Business Park Phase II. Architects for individual businesses will be encouraged to provide space for individual dumpsters to separate recyclable materials, such as cardboard, from municipal solid waste;
- c. As practical, individual businesses will be requested to specify and use products with recycled-content such as steel, concrete aggregate fill, drywall, carpet and glass tile; and
- d. As practical, individual businesses will be requested to use products such as plastic lumber, hydromulch, soil amendment, and glass tile.

Thank you for reviewing the EISPN. Your comments will be included in the draft environmental impact statement.

Sincerely,

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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LINDA LIKOLE
COMMISSIONER OF PERMITS



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 9, 2004

PETER T. YOUNG
COMMISSIONER OF LAND AND NATURAL RESOURCES
LAND DIVISION
DEPUTY DIRECTOR - LAND
TYOMME Y. IZU
DEPUTY DIRECTOR - WATER

ADJUTANT GENERAL
STATE OF HAWAII
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSTRUCTION AND RESTORATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES
HONOLULU, HAWAII 96809
EST. 1978

LD-RWV
MAUIBUSINESSPARK.RCH

PBR Hawaii
Mr. Tom Schnell
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

SUBJECT: Environmental Impact Statement Preparation Notice for the Proposed Maui Business Park Phase II (June 2004) EISP
Applicant: A&R Properties, Inc.
Location: Wailuku, Maui, Hawaii
THKS: (2) 3-8-001: 002 (por), 3-8-006: 004 (por)
3-8-079: 013
Consultant: PBR Hawaii

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

The Department of Land and Natural Resources' (DLNR) Land Division distributed a copy of the EISP (June, 2004) to the following DLNR Divisions for their review and comment:

- Division of Forestry and Wildlife
- Division of State Parks
- Engineering Division
- Commission on Water Resource Management
- Office of Conservation and Coastal Lands
- Land-Haui District Land Office
- Land-Planning and Development

Enclosed please find a copy of the Commission on Water Resource Management and Engineering Division comments.

Based on the attached responses, the Department of Land and Natural Resources has no other comment to offer.

If you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 1-800-587-0384.

Very truly yours,

DIERDRE S. MAMIYA
Administrator

C: HDJO

LINDA LIKOLE
COMMISSIONER OF PERMITS



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSTRUCTION AND RESTORATION DIVISION
STATE OF HAWAII
HONOLULU, HAWAII 96809

July 7, 2004

TO: Ms. Dede Mamiya, Administrator
Land Division

FROM: Yvonne Y. Izu, Deputy Director
Commission on Water Resource Management (CWRM)

SUBJECT: Maui Business Park Phase II EISP

FILE NO.: MAUIBUSINESSPARK.CMT

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

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

- We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.
- We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
- A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.
- The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.
- Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams in this project. We recommend that approvals for this project be conditioned upon a review by the corresponding county Board of Health and the developer's acceptance of any resulting requirements related to erosion control.
- If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).
- If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.
- OTHER:

The prep notice identifies two potential sources of water for this project, which is estimated to require between 0.45 and 0.85 mgd of potable water. (1) An Ground-water Aquifer - This is now a ground-water management area under the State Commission on Water Resource Management (CWRM). Water Use Permits will initially be issued for uses existing as of July 21, 2003. Uses initiated after that will be addressed after existing uses are considered. If pumping from the aquifer is restricted, it could result in restrictions of use within the service area. New uses within the Central Maui Service Area not relying on lago sources may also be affected if lago sources are restricted; (2) Surface waters flowing in Waialeale and Spreckels Ditches. A petition to amend the existing interim instream flow standard to maximize stream restoration was filed June 25, 2004 by parties riparian to Waialeale, Waiehu, Iao, and Waikapu Streams.

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



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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
BOARD OF LAND AND NATURAL RESOURCES
COMMISSIONER OF WATER RESOURCES MANAGEMENT
DAN DAYTONSON
DEPUTY DIRECTOR - LAND
TYOMBE K. EOI
DEPUTY DIRECTOR - WATER
ADRIAN REYNOLDS
SPECIAL ASSISTANT TO THE COMMISSIONER
COMMISSIONER ON WATER RESOURCES MANAGEMENT
CONSTRUCTION AND RESOURCES DEVELOPMENT
ENGINEERING
POST OFFICE BOX 621
HONOLULU, HAWAII 96809
REGULATORY AND RESERVE COMMISSION
STATE PARKS

LD/NAV
June 23, 2004

Suspense Date 7/7/04

HAWAII BUSINESS PARK, CMT

MEMORANDUM:

TO: *XXX Division of Forestry & Wildlife
*XXX Engineering Division
*XXX Division of State Parks
*XXX Commission on Water Resource Management
*XXX Office of Conservation and Coastal Lands
*XXX Land-Maui District Land Office
*XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Environmental Impact Statement Preparation Notice for the Proposed Maui Business Park Phase II (June 2004)
Applicant: A&B Properties, Inc.
Location: Wailuku, Maui, Hawaii
TMKS: (2) 3-8-001: 002 (por), 3-8-006: 004 (por)
3-8-079: 013
Consultant: PBR Hawaii

Please review the document pertaining to the subject matter and submit your comment (if any) on Division letterhead signed and dated by the suspense date.

*Note: One copy of the document is available for your review in the Land Division Office, Room 220.

Should you have any questions, please contact Nicholas A. Vaccaro at 587-0384. If this office does not receive your comments by the suspense date, we will assume there are no comments.

We have no comments.
Division: _____
Date: JUN 28 2004

Comments attached.
Signed: *[Signature]*
Print Name: MICHAEL G. BUCK, ADMINISTRATOR
DIVISION OF FORESTRY AND WILDLIFE

LAND DIVISION
OFFICE OF HAWAII



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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
BOARD OF LAND AND NATURAL RESOURCES
COMMISSIONER OF WATER RESOURCES MANAGEMENT
DAN DAYTONSON
DEPUTY DIRECTOR - LAND
TYOMBE K. EOI
DEPUTY DIRECTOR - WATER
ADRIAN REYNOLDS
SPECIAL ASSISTANT TO THE COMMISSIONER
COMMISSIONER ON WATER RESOURCES MANAGEMENT
CONSTRUCTION AND RESOURCES DEVELOPMENT
ENGINEERING
POST OFFICE BOX 621
HONOLULU, HAWAII 96809
REGULATORY AND RESERVE COMMISSION
STATE PARKS

LD/NAV
June 23, 2004

Suspense Date 7/7/04

HAWAII BUSINESS PARK, CMT

MEMORANDUM:

TO: *XXX Division of Forestry & Wildlife
*XXX Engineering Division
*XXX Division of State Parks
*XXX Commission on Water Resource Management
*XXX Office of Conservation and Coastal Lands
*XXX Land-Maui District Land Office
*XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Environmental Impact Statement Preparation Notice for the Proposed Maui Business Park Phase II (June 2004)
Applicant: A&B Properties, Inc.
Location: Wailuku, Maui, Hawaii
TMKS: (2) 3-8-001: 002 (por), 3-8-006: 004 (por)
3-8-079: 013
Consultant: PBR Hawaii

Please review the document pertaining to the subject matter and submit your comment (if any) on Division letterhead signed and dated by the suspense date.

*Note: One copy of the document is available for your review in the Land Division Office, Room 220.

Should you have any questions, please contact Nicholas A. Vaccaro at 587-0384. If this office does not receive your comments by the suspense date, we will assume there are no comments.

We have no comments.
Division: Engineering
Date: _____

Comments attached.
Signed: _____
Print Name: ERIC T. HIRANO, CHIEF ENGINEER

LEGAL COUNSEL RECEIVED
LAND DIVISION
July 1
2004
A 10 21



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 121
HONOLULU, HAWAII 96809

June 23, 2004

MAUIBUSINESSPARK.CMT

LD/RNAV
Suspense Date 7/7/04

MEMORANDUM:

TO: *XXX Division of Forestry & Wildlife
*XXX Engineering Division
*XXX Division of State Parks
*XXX Commission on Water Resource Management
*XXX Office of Conservation and Coastal Lands
*XXX Land-Maui District Land Office
*XXX Land-Planning and Development

FROM: Dierdre G. Mamiya, Administrator
Land Division

SUBJECT: Environmental Impact Statement Preparation Notice for the
Proposed Maui Business Park Phase II (June 2004)

Applicant: A&B Properties, Inc.
Location: Wailuku, Maui, Hawaii
TRKS: (2) 3-8-001: 002 (por), 3-8-006: 004 (por)
3-8-079: 013
Consultant: PBR Hawaii

Please review the document pertaining to the subject matter and submit your comment (if any) on Division letterhead signed and dated by the suspense date.

*Note: One copy of the document is available for your review in the Land Division Office, Room 220.

Should you have any questions, please contact Nicholas A. Vaccaro at 587-0384. If this office does not receive your comments by the suspense date, we will assume there are no comments.

() We have no comments. () Comments attached.

Division: MDLO
Date: 6-21-04
Signed: [Signature]
Print Name: Jason K. Keays

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

Ref: MAUIBUSINESSPARK.CMT

COMMENTS

- (X) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in areas of minimal flooding.
- () Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone _____.
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is _____.
- () Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyeu-Beau, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0767.
- () Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:
- () Mr. Robert Suminoto at (808) 523-4254 or Mr. Mario Sin Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.
- () Mr. Kelly Gomes at (808) 961-8327 (1110) or Mr. Kiran Ember at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works
- () Mr. Francis Cerizzo at (808) 270-7771 of the County of Maui, Department of Planning.
- () Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.
- () The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter. The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.
- (X) Other: Please correct information indicated on Figure 12 of the EISPN document, Legend). According to the Flood Insurance Rate Map # 15003 190D (3/16/95), the darkened areas on Figure 12 indicate Zone B. These are areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. Medium shaded areas indicate Zone A. These are areas of 100-year flood; base flood elevations and flood hazard factors not determined.

Should you have any questions, please call Mr. Andrew Menden of the Planning Branch at 587-0329.

Signed: [Signature]
For ERIC T. HIRANO, CHIEF ENGINEER
Date: 7/2/04



LAND PLANNING
RESOURCES
CONSULTANTS

FRANK BLANCK, FASLA
Chairman

OLAV S. WITEN, ASLA
President

SHAN DUCANG, ASLA
Technical Director

YVES-SI SWEA LUN
Principal

DAVID LEONARD, AICP
Principal
City Office

DAVID HURAKAWA, AICP
Senior Associate

TOM SCHNELL, AICP
Associate

ATYANG T. HOA, ASLA
Associate

PAT HONOKAWA, ASLA
Associate

August 9, 2004

Ms. Dierdre S. Mamiya
Administrator
State of Hawaii
Department of Land and Natural Resources, Land Division
P.O. Box 621
Honolulu, Hawaii 96809

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13**

Dear Ms. Mamiya:

Thank you for your letter dated July 9, 2004 regarding the Environmental Impact Statement Preparation Notice (EISP) for Maui Business Park Phase II, with attached memorandums from:

- Commission on Water Resource Management
- Division of Forestry and Wildlife
- Engineering Division
- Land-Maui District Land Office

As the planning consultant for the applicant, A&B Properties, Inc., we offer the following responses:

Commission on Water Resource Management

A&B Properties, Inc., will coordinate with the County of Maui to incorporate Maui Business Park Phase II into the County's Water Use and Development Plan.

We acknowledge:

- 1) The Iao Ground-water Aquifer is a ground-water management area under the State Commission on Water Resource Management. Water Use Permits will initially be issued for uses existing as of July 21, 2003. Uses initiated after that will be addressed after existing uses are considered. If pumpage from Iao is restricted, it could result in restrictions of use within the service area. New uses within the Central Maui Service Area not relying on Iao sources may also be affected if Iao sources are restricted; and

Ms. Dierdre S. Mamiya
**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
3-8-79:13**
August 9, 2004
Page 2

- 2) Regarding surface waters flowing in Waieae and Spreckels Ditches, a petition to amend the existing interim instream flow standard to maximize stream restoration was filed June 25, 2004 by parties riparian to Waieae, Waiehu, Iao, and Waikapu Streams.

Division of Forestry & Wildlife

We acknowledge that the Division of Forestry & Wildlife has no comments.
Engineering Division

Thank you for confirming that the project site is located in an area of minimal flooding. We will correct the information indicated on Figure 12 (FIRM) and include the corrected figure in the draft EIS.

Land-Maui District Land Office

We acknowledge that the Land-Maui District Land Office has no comments.

Thank you for reviewing the EISP. Your comments will be included in the draft environmental impact statement.

Sincerely,

Tom Schnell, AICP
Associate

- cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

LINDA LEMBLE
COMMISSIONER OF PUBLIC LANDS



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
KAKULIWEWA BUILDING, ROOM 666
601 KAMOHILA BOULEVARD
KAPOLEI, HAWAII 96707



HAWAII HISTORIC PRESERVATION
DIVISION REVIEW

Log #: 2004.2317
Doc #: 0407CD55
Received: 27 June 2004

Applicant/Agency: Dan Yasui
A & B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

SUBJECT: Chapter 6E-42 Historic Preservation Review - Environmental Impact Statement
Preparation Notice for the Proposed Maui Business Park Phase II
Ahupua'a: Wailuku
District, Island: Wailuku
TMK: (2) 3-8-001:002 portion; 3-8-006:004 portion; 3-8-079:013

1. We believe there are no historic properties present, because:

- a) intensive cultivation has altered the land
- b) residential development/urbanization has altered the land
- c) previous grubbing/grading has altered the land
- d) an acceptable archaeological assessment or inventory survey found no historic properties
- e) other: see SHPD DOC NO.: 9308KD01/LOG NO.: 9086; SHPD DOC NO.: 9308AG35/LOG NO.: 9147; SHPD DOC NO.: 9310AG43/LOG NO.: 9851; SHPD DOC NO.: 9401AG23/LOG NO.: 10576; SHPD DOC NO.: 9406KD37/LOG NO.: 11896; SHPD DOC NO.: 9704SC35/LOG NO.: 19217; SHPD DOC NO.: 0004CD05/LOG NO.: 25198; SHPD DOC NO.: 0107CD34/LOG NO.: 27908; SHPD DOC NO.: 0309CD38/LOG NO.: 2003.1772.

2. This project has already gone through the historic preservation review process, and mitigation has been completed.

Thus, we believe that "no historic properties will be affected" by this undertaking

In the event that historic sites (human skeletal remains, etc.) are identified during the construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be

LINDA LEMBLE
COMMISSIONER OF PUBLIC LANDS



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
KAKULIWEWA BUILDING, ROOM 666
601 KAMOHILA BOULEVARD
KAPOLEI, HAWAII 96707



HAWAII HISTORIC PRESERVATION
DIVISION REVIEW

Log #: 2003.0700
Doc #: 0305CT59

Applicant/Agency: Tom Schnell
PBR Hawaii
1001 Bishop Street
Pacific Tower, Suite 650
Honolulu, Hawaii 96813-3429

SUBJECT: Chapter 6E-42 Historic Preservation Review - Information Request for the
Proposed Maui Business Park Phase II
Ahupua'a: Kahului
District, Island: Wailuku, Maui
TMK: (2) 3-8-001:002 (portion) and 3-8-079:013

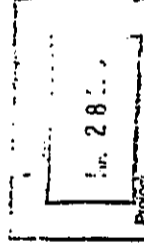
1. We believe there are no historic properties present, because:

- a) intensive cultivation has altered the land
- b) residential development/urbanization has altered the land
- c) previous grubbing/grading has altered the land
- d) an acceptable archaeological assessment or inventory survey found no historic properties
- e) other: see SHPD DOC NO.: 9308KD01/LOG NO.: 9086; SHPD DOC NO.: 9308AG35/LOG NO.: 9147; SHPD DOC NO.: 9310AG43/LOG NO.: 9851; SHPD DOC NO.: 9401AG23/LOG NO.: 10576; SHPD DOC NO.: 9406KD37/LOG NO.: 11896; SHPD DOC NO.: 9704SC35/LOG NO.: 19217; SHPD DOC NO.: 0004CD05/LOG NO.: 25198; SHPD DOC NO.: 0107CD34/LOG NO.: 27908.

2. This project has already gone through the historic preservation review process, and mitigation has been completed.

Thus, we believe that "no historic properties will be affected" by this undertaking

Staff: Cathleen A. Dagher
Assistant Maui/Lana'i Island Archaeologist
(808) 692-8023
Date: 25 May 2003



protected from additional disturbance, and the State Historic Preservation Office needs to be contacted immediately at 243-5169, on Maui, or at (808) 692-8023, on O'ahu.

Staff: Cathleen A. Dagher Date: 27 July 2017
Cathleen A. Dagher
Assistant Maui/Lana'i Island Archaeologist
(808) 692-8023

c: Anthony Ching, State Land Use Commission P.O. Box 2359 Honolulu, Hawaii 96804
Tom Schnelli, PBR Hawaii, 1001 Bishop Street ASB Tower, Suite 650 Honolulu, Hawaii
96813



LAND PLANNING
AND
ENVIRONMENTAL STUDIES

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August 10, 2004

Ms. Cathleen A. Dagher
Assistant Maui/Lana'i Island Archaeologist
State of Hawaii
Department of Land and Natural Resources, Land Division
Historic Preservation Division
Kakuhineva Building, Room 555
601 Karmokila Blvd.
Kapolei, Hawaii 96707

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
-NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13

Dear Ms. Dagher:

Thank you for your letter (addressed to Dan Yasui) dated July 27, 2004 regarding the Environmental Impact Statement Preparation Notice (EISPN) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your letter.

We acknowledge that the State Historic Preservation Division has completed its Chapter 6B-42 Historic Preservation Review of the site and believes that there are no historic properties present on the site and that no historic properties will be affected by the undertaking.

In the event that historic sites (human skeletal remains, etc.) are identified during construction activities, all work will cease in the immediate vicinity of the find, the find will be protected from additional disturbance, and the State Historic Preservation Office will be contacted immediately.

Thank you for reviewing the EISPN. Your comments will be included in the draft environmental impact statement.

Sincerely,

Tom Schnelli, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.



STATE OF HAWAII
DEPARTMENT OF HEALTH
1600 ALI'OLE DRIVE
HONOLULU, HAWAII 96813-3378

OFFICE OF THE
DIRECTOR OF HEALTH

REGISTRATION
DIVISION

07089PKP-04

July 22, 2004

Mr. Dan Yasui
A&B Properties
822 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Yasui:

Subject: **Maui Business Park Phase II**

The Department of Health (DOH), Clean Water Branch (CWB), has reviewed the subject document and offers the following comments:

1. The Army Corps of Engineers should be contacted at (808) 438-9258 to identify whether a Federal license or permit (including a Department of Army permit) is required for this project. Pursuant to Section 401(b)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act"), a Section 401 Water Quality Certification is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters...."
2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following activities:
 - a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).
 - b. Construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the commencement of the construction activities.
 - c. Discharges of treated effluent from leaking underground storage tank remedial activities.
 - d. Discharges of once through cooling water less than one (1) million gallons per day.
 - e. Discharges of hydrotesting water.
 - f. Discharges of construction dewatering effluent.

Mr. Dan Yasui
July 22, 2004
Page 2

- g. Discharges of treated effluent from petroleum bulk stations and terminals.
- h. Discharges of treated effluent from well drilling activities.
- i. Discharges of treated effluent from recycled water distribution systems.
- j. Discharges of storm water from a small municipal separate storm sewer system.
- k. Discharges of circulation water from decorative ponds or tanks.

The CWB requires that a Notice of Intent (NOI) to be covered by an NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities. The NOI forms may be picked up at our office or downloaded from our website at:

<http://www.hawaii.gov/health/environmental/water/cleanwater/index.html>

3. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible (i.e. NPDES general permits do not cover discharges into Class 1 or Class AA State waters). An application for the NPDES permit is to be submitted at least 180 days before the commencement of the respective activities. The NPDES application forms may also be picked up at our office or downloaded from our website at:

<http://www.hawaii.gov/health/environmental/water/cleanwater/index.html>

4. Hawaii Administrative Rules, Section 11-55-38, also requires the owner to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD. Please submit a copy of the request for review by SHPD or SHPD's determination letter for the project.

If you have any questions, please contact Ms. Kris Poomtis of the Engineering Section, CWB, at 586-4309.

Sincerely,

DENIS R. LAU, P.E., CHIEF
Clean Water Branch

KP:bt

c: OEQC, DOH
Mr. Anthony Ching, State Land Use Commission
Mr. Tom Schmeil, PBR Hawaii



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JAMES L. LINDEN, AICP
Principal

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Principal

ARON T. HERR, ASLA
Principal

JAMES HARRISON, ASLA
Principal

August 9, 2004

Mr. Denis R. Lau, P.E., Chief
Clean Water Branch
State of Hawaii
Department of Health
P. O. Box 3378
Honolulu, Hawaii 96801

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TRAK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13**

Dear Mr. Lau:

Thank you for your letter (addressed to Dan Yasui) dated July 22, 2004 regarding the Environmental Impact Statement Preparation Notice (EISPN) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we offer the following responses to your comments:

- 1) The Army Corps of Engineers was provided with a copy of the EISPN, but did not provide comments. We will contact the Corps to identify whether a Federal license or permit (including a Department of Army permit) is required.
- 2) We acknowledge that a National Pollutant Discharge Elimination System (NPDES) permit will be required for Maui Business Park. A Notice of Intent (NOI) to be covered by an NPDES general permit will be submitted at least 30 days before commencement of construction activities.
- 3) It is not anticipated that there will be discharges into Class I or Class AA State waters, however, if at a later time, it is determined that this is necessary, A&B Properties, Inc., will apply for an individual NPDES permit. In the event that Maui Business Park Phase II requires an individual NPDES permit, the permit application will be submitted at least 180 days before the commencement of the activities.
- 4) The State Historic Preservation Division (SHIPD) has completed their Chapter 6E-42 Historic Preservation Review of the Maui Business Park site and in their letter state "...we believe that 'no historic properties will be affected' by this undertaking." A copy of SHIPD's determination letter is attached.

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101 West Street
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Fax: (808) 521-1101
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Head Office
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West Coast Office
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Mr. Denis R. Lau, P.E., Chief
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR MAUI
BUSINESS PARK PHASE II, TRAK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13
August 9, 2004
Page 2

Thank you for reviewing the EISPN. Your comments will be included in the draft environmental impact statement.

Sincerely,

Tom Schnell, AICP
Associate

Attachment

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmons, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

LINDA LUMBLE
OFFICE OF HEALTH



NB DIH LNA JAC PWH VR DHH
LR CWL
SMAK AUG 16 2004 SKM STATE OF HAWAII
DMS JP DEPARTMENT OF HEALTH
DVL E.O. BOX 3378
HONOLULU, HAWAII 96801-3378
RKS SWR CC SG JY DTY RDS

CURTIS L. FURUKO, M.D.
OFFICE OF HEALTH

1000 Kalia Rd
HONOLULU, HI 96813

August 10, 2004

Mr. Dan Yasui
A&B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Yasui:

**SUBJECT: Maui Business Park Phase II
Environmental Impact Statement Preparation Notice**
Waialuku, Maui

Thank you for the opportunity to offer comments on the above document. Your request has been reviewed by the Solid Waste, Underground Storage Tank, and Hazardous Waste programs within the Solid and Hazardous Waste Branch.

We have no comments to offer at this time.

Sincerely,

STEVEN Y.K. CHANG, P.E., CHIEF
Solid and Hazardous Waste Branch



LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

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E-Mail: info@pbr.com

September 3, 2004

Mr. Steven Y.K. Chang, P.E., Chief
Solid and Hazardous Waste Branch
State of Hawaii
Department of Health
P. O. Box 3378
Honolulu, Hawaii 96801-3378

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13**

Dear Mr. Chang:

Thank you for your letter (addressed to Dan Yasui) dated August 10, 2004 regarding the Environmental Impact Statement Preparation Notice (EISP/N) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we note that you have no comments to offer at this time.

Thank you for reviewing the EISP/N. Please note that the public comment for the EISP/N was from June 23 to July 23, 2004 and the draft environmental impact statement (EIS) was completed before your comments were received. Accordingly, your comments will be included in the final EIS.

Sincerely,

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

0:\90802-06\185-272\Comment Letter Request\EISP\N\011 Solid & Hazardous Waste.doc

Page 2
Maui Business Park Phase II

128D, Environmental Response Law, HRS, and Title 11, Chapter 451, HAR, State Contingency Plan.

3. If the land has a history of previous releases of petroleum, hazardous substances, pollutants, or contaminants, we recommend that the applicant request a "no further action" (NFA) letter from the Hawaii State Department of Health (DOH)/Hazard Evaluation and Emergency Response (HEER) Office prior to the approval of the land use change or permit approval.

Please contact the Hazard Evaluation and Emergency Response Office at 586-4249 if there are any questions regarding these comments.

Cc: SDAR Supervisor
State Land Use Commission (Anthony Ching)
PBR Hawaii (Tom Schmel)



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

August 10, 2004

2004-328 KHIS

CYNDEL RYONG, M.D.
DIRECTOR OF HEALTH

1000, KAHULUI
P.O. BOX 2000
KAHULUI, HAWAII 96731

TO: Mr. Dan Yasui
A&B Properties, Inc.
822 Bishop Street
Honolulu, HI 96813

FROM: Keith Kawaoaka, D.Env., Manager
Hazard Evaluation & Emergency Response Office (HEER)

SUBJECT: Project: Maui Business Park Phase II
Location: Kahului, Maui, Hawaii
Applicant: A&B Properties, Inc.
TMK: 3-8-01:2 (portion)
3-8-06:4 (portion)
3-8-79:13

Existing Use: Sugar cultivation or fallow fields

Thank you for allowing us to review and comment on the subject Environmental Impact Statement Preparation Notice (EISP/N). We provide the following comments:

1. A Phase I Environmental Site Assessment (ESA) should be conducted for developments or redevelopments. If the investigation shows that a release of petroleum, hazardous substance, pollutants or contaminants occurred at the site, the site should be properly characterized through an approved Hawaii State Department of Health (DOH)/Hazard Evaluation and Emergency Response Office (HEER) soil and or groundwater sampling plan. If the site is found to be contaminated, then all removal and remedial actions to clean up hazardous substance or oil releases by past and present owners/tenants must comply with Chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 451, HAR, State Contingency Plan.
2. All lands formerly in the production of sugarcane should be characterized for arsenic contamination. If arsenic is detected above the US EPA Region 9 preliminary remediation goal (PRG) for non-cancer effects, then a removal and or remedial plan must be submitted to the Hazard Evaluation and Emergency Response (HEER) Office of the State Department of Health for approval. The plan must comply with Chapter



LAND PLANNING
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CHURCH

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PARTNER

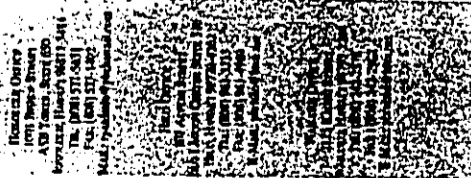
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ARCHITECT

RAYMOND T. HAN, ASIA
ARCHITECT

KERRY NICHOLS, ASIA
ARCHITECT



September 3, 2004

Mr. Keith Kawaka, D.Env, Manager
Hazard Evaluation & Emergency Response Office (HEER)
State of Hawaii
Department of Health
P. O. Box 3378
Honolulu, Hawaii 96801-3378

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13**

Dear Mr. Kawaka:

Thank you for your letter (addressed to Dan Yasui) dated August 10, 2004 regarding the Environmental Impact Statement Preparation Notice (EISP/N) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we offer the following response to your comments:

A Phase I Environment Site Assessment was conducted for Maui Business Park Phase II. The area covered in the search of available environmental records includes all of the Maui Business Park South Project Area and the majority of the North Project Area. There are no records of any spills, dumping, or other evidence of petroleum, hazardous substances, pollutants, contaminants, regulated, or toxic substances within the area covered by the report. The report covering the search of available environmental records meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E1527-00.

Thank you for reviewing the EISP/N. Please note that the public comment for the EISP/N was from June 23 to July 23, 2004 and the draft environmental impact statement (EIS) was completed before your comments were received. Accordingly, your comments will be included in the final EIS.

Sincerely,

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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LINDA LINDLE
GOVERNOR OF HAWAII



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

225 SOUTH KOLEA AVENUE
HONOLULU, HAWAII 96813
TELEPHONE: (808) 551-1145
FACSIMILE: (808) 551-1142
E-MAIL: oeq@hawaii.gov

July 22, 2004

Mr. Dan Yasui
A & B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Mr. Anthony Ching, Executive Director
Land Use Commission, Department of Business, Economic Development and Tourism
State of Hawaii
P.O. Box 2339
Honolulu, Hawaii 96804

Mr. Thomas Schnell
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

Dear Messrs. Yasui, Ching and Schnell:

The Office of Environmental Quality Control has reviewed the final environmental assessment and environmental impact statement preparation notice for the Maui Business Park Phase II Project, Tax Map Keys: 3-8-01, portion of parcel 2; 3-8-06, portion of parcel 4; and 3-8-79, parcel 13, situated at Kahului, in the judicial district of Waiuku, and offers the following comments for your consideration and response.

1. **ENVIRONMENTAL SETTING NEEDS TO INCLUDE THE KANAHUA STATE WILDLIFE REFUGE:** The environmental setting in the final environmental assessment and the upcoming draft environmental impact statement needs to include the Kanaha State Wildlife Refuge, a possible habitat for rare, threatened or endangered species. Please consult with the U.S. Fish and Wildlife Service and the Division of Forestry and Wildlife of the Department of Land and Natural Resources of the State of Hawaii. The absence in the environmental setting of the Kanaha State Wildlife Refuge will compromise the completeness of the draft environmental impact statement since subsequent analyses for direct, indirect and cumulative environmental impacts on the Wildlife Refuge, and the formulation of appropriate mitigative measures would not have been done. Please refer to our Internet Website¹ for appropriate guidance on conducting Biological Surveys.

2. **INDIRECT AND CUMULATIVE IMPACT ANALYSIS:** In addition to the analysis of direct impacts on the environment, please include in the draft environmental impact statement analyses of indirect (secondary) and cumulative (long-term space-time) impacts of the proposed Maui Business Park Phase II Project on the environment as disclosed in the environmental setting. Please especially discuss the growth, placement and air and groundwater quality impacts from industrial and manufacturing activities in the Business Park on sensitive habitats such as the Kanaha State Wildlife Refuge. For an example of such

¹ See the following Uniform Resource Locator (URL): <http://www.state.hi.us/health/oeqp/index.html>

analyses, please refer to the final environmental impact statement prepared for the *Kaloalo Industrial Park Phases III and IV*.¹

3. **DIRECT, INDIRECT AND CUMULATIVE IMPACTS TO CULTURAL RESOURCES AND PRACTICES:** Act 50, Session Laws of Hawaii Regular Session of 2000, requires that impacts to cultural resources and practices be assessed. As you know, impacts consist of three types: "direct," "indirect," and "cumulative." The requirements of Act 50 are distinct from the requirements of the State Historic Preservation law found in Chapter 6E, Hawaii Revised Statutes and administrative rules promulgated thereunder. Page 44 of the final environmental assessment appears to disclose the results of Chapter 6E analyses and concludes that "(t)he Maui Business Park is not expected to affect cultural resources of the area." While Chapter 6E data forms an integral part of the cultural impact analyses required under Act 50, it does not in and of itself satisfy the Act 50 requirements, primarily since Chapter 6E is concerned with the past, with no requirement to assess contemporary (i.e., current) cultural resources and practices. Please refer to our Internet Website² for guidance on Cultural Impact Analysis.

Thank you for the opportunity to comment. If there are any questions on this letter, please contact Mr. Leslie Segundo, Environmental Health Specialist, at (808) 586-4185.

Sincerely,

Genevieve Salmonson
GENEVIEVE SALMONSON
Director

August 9, 2004

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

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13**

Dear Ms. Salmonson:

Thank you for your letter dated July 22, 2004 regarding the Environmental Impact Statement Preparation Notice (EISPN) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

The draft environmental impact statement (DEIS) will include:

1. Discussion of Maui Business Park Phase II in relation to the Kanaha State Wildlife Refuge;
2. Analysis of indirect and cumulative impacts of the proposed Maui Business Park Phase II; and
3. A new section on the impact of Maui Business Park Phase II in relation to cultural resources and practices. As stated, in the EISPN, a cultural impact assessment for Maui Business Park Phase II has been conducted and will be included in the DEIS.

Thank you for reviewing the EISPN. Your comments will be included in the DEIS.

Sincerely,



Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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LAND PLANNING
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W.H. FRANK BRADSHAW, FASLA
CIVIL ENGINEER

TIMOTHY S. WITTON, ASLA
PLANNING

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RICHARD V. DEGEN, ASLA
EXECUTIVE VICE PRESIDENT

VINCENT SPECTOR
PRINCIPAL

JAMES LUTHEMAN, AICP
PRINCIPAL
LAND OFFICE

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TOM SORRELL, AICP
ASSOCIATE

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ASSOCIATE

KRYN NISHIKAWA, ASLA
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¹ Wilson Ohamoto & Associates, Inc., *Final Environmental Impact Statement for Kaloalo Industrial Park, Phases III & IV*, Kaloalo, North Kona, prepared for TSA International, Limited, October 2000. This EIS analyzes the impacts of the proposed industrial park on a hydrologically down-gradient sensitive habitat, the Kaloalo Honokohau National Historic Park.

² <http://www.pbr.com>



STATE OF HAWAII
DEPARTMENT OF HEALTH
PO BOX 3378
HONOLULU, HAWAII 96813-3378

August 2, 2004

Mr. Dan Yasui
A&B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Yasui:

SUBJECT: MAUI BUSINESS PARK PHASE II
ENVIRONMENTAL IMPACT STATEMENT
PREPARATION NOTICE, DATED JUNE 2004

Thank you for the opportunity to review the subject EISPN. We apologize for the lateness of this response.

The Department of Health offers the following comments specific to pages 51-52, 5.7.1 Water System Potential Impacts and Mitigative Measures:

1. This EIS' evaluation is assumed to include both the "...construction of adequate water source, storage, and transmission facilities and improvements to accommodate water use generated by Maui Business Park Phase II" and water line extensions to the north and south project areas. The EIS must therefore provide a detailed description of the funding (A&B and County DMS participating?) and construction of all new water system improvements. The EIS must also thoroughly evaluate impacts and mitigative measures of the proposed water treatment plant, storage and transmission line sites, which are assumed to be outside of the immediate business park property.

2. Projects involving the expenditure of State or County funds or the use of State or County lands must be evaluated under Chapter 343 of the Hawaii Revised Statutes (HRS). Although this project's EISPN document implies these triggers, neither the State nor the County is listed as an applicant on the EIS document. Waiting for OEQC determination

CHERYL L. FURUKAWA
DIRECTOR OF HEALTH

In reply, please refer to
EISPN#04

Mr. Dan Yasui
August 2, 2004
Page 2

3. Projects developing a new water source for potable use must be approved by the Director of Health prior to its use. This approval is based primarily upon the submission of a satisfactory engineering report which addresses the requirements set in Administrative Rules (HAR) Title 11 Chapter 20 Section 29.

The engineering report must identify all potential sources of contamination and evaluate alternative control measures which could be implemented to reduce or eliminate the potential for contamination, including treatment of the water source. In addition, water quality analyses, performed by a laboratory certified in the state of Hawaii, must be submitted as part of the report to demonstrate compliance with all drinking water standards. Additional tests may be required by the Director upon his review of the information submitted.

4. Water treatment plants utilizing surface water sources must also be approved by the DOH under HAR 11-20-46 and 46.1.

If you have any questions, please call Mr. Michael Miyahira of the Safe Drinking Water Branch, Engineering Section at 586-4258.

Sincerely,

William Wong

WILLIAM WONG, P.E., Chief
Safe Drinking Water Branch
Environmental Management Division

MM:slm

c: Gordon Muraoka, Maui SDWB Sanitarian
Mr. Les Segundo, Office of Environmental Quality Control
Mr. Anthony Ching, State Land Use Commission
Mr. Tom Schnell, PBR Hawaii



LAND PLANNING
AND ENVIRONMENTAL
CONSTRUCTION
CONSULTANTS

FRANK DELONDI, ASLA
Principal

DAVID S. WITMAN, ASLA
Principal

STACY DRUCKER, ASLA
Senior Planner

WILLIAM J. CHING, ASLA
Senior Planner

VICTOR SHERIDAN
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AMBER LINDSAY, AICP
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August 9, 2004

Mr. William Wong, P.E., Chief
Safe Drinking Water Branch
Environmental Management Division
State of Hawaii
Department of Health
P. O. Box 3378
Honolulu, Hawaii 96801-3378

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13**

Dear Mr. Wong:

Thank you for your letter (addressed to Dan Yasui) dated August 2, 2004 regarding the Environmental Impact Statement Preparation Notice (EISP/N) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we offer the following responses to your comments:

1. A&B Properties, Inc., will be participating in the funding and construction of adequate water source, storage and transmission facilities and improvements to accommodate water demand generated by Maui Business Park Phase II. It is currently anticipated that an off-site surface water treatment plant will be developed to allow the County to supply water to Maui Business Park Phase II. Transmission lines from the new surface water treatment plant will deliver water into the County Department of Water Supply's (DWS) Central Maui System. Once in the Central Maui System, water will be conveyed via existing transmission lines through Kalahele to the site. New on-site transmission lines will be developed to provide water to individual businesses.

While preliminary analysis of source improvements is underway, specific plans have yet to be formulated. A&B Properties, Inc., will work closely with the County DWS, the State Department of Health (DOH), and other applicable agencies in preparing these plans and constructing these facilities.

2. As noted above, specific plans for the proposed surface water treatment facilities have yet to be formulated. Accordingly, Maui Business Park Phase II is an applicant action by A&B Properties, Inc. The accepting authority is the State Land Use Commission (LUC) due to the application for incremental districting.

3. We acknowledge that new water sources require approval by the Director of Health. An engineering report meeting all requirements of Title 11, Chapter 20,

Mr. William Wong, P.E., Chief
**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
3-8-79:13**
August 9, 2004
Page 2

Section 29, Hawaii Administrative Rules will be submitted for DOH review prior to the use of the surface water treatment plant.

4) We acknowledge that water treatment plants using surface water sources must be approved by DOH under HAR 11-20-46 and 46.1.

Thank you for reviewing the EISP/N. Your comments will be included in the draft environmental impact statement.

Sincerely,

Tom Schmidt, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

O:\WORK\04\080904\Environmental Letter Response\EISP\WJ\011 Safe Drinking Water.doc



STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 329
HONOLULU, HAWAII 96813

August 9, 2004

M3 8 001 002 STD
W11 W640705

LAURENCE J. YEE
DIRECTOR OF PHS

In reply, please refer to
EAO/190

Mr. Wm. Frank Brandt, FASIA
Chairman, PBR Hawaii
1001 Bishop Street
Pacific Tower, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Brandt:

Subject: Environmental Impact Statement Preparation Notice (EISP/N)
Maui Business Park Phase II
Wailuku, Maui, Hawaii 179 acres
TMK: (2) 3-8-001: 002 (portion); 3-8-006: 004 (portion); and 3-8-079: 013

We have reviewed the subject notification which proposes to develop the Maui Business Park Phase II light industrial project comprising approximately 179 acres located in Kahului, Maui, Hawaii.

As the project can be served by the County's sewer system, we have no objections to the development. We encourage the developer to work with the County and utilize recycle water for irrigation and other non-potable water purposes.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

Sincerely,

Harold K. Yee
HAROLD K. YEE, P.E., CHIEF
Wastewater Branch

LNM:cm

c: J. Hanigan-Lum, ETO



LAND PLANNING
LAW/PLANNING ARCHITECTURE
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Tom Scovell, AICP
Associate

Ralph M. T. Hsu, ASLA
Associate

Karen Nomura, ASLA
Associate



September 3, 2004

Mr. Harold K. Yee, P.E., Chief
Wastewater Branch
State of Hawaii
Department of Health
P. O. Box 3378
Honolulu, Hawaii 96801-3378

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13

Dear Mr. Yee:

Thank you for your letter (addressed to Frank Brandt) dated August 9, 2004 regarding the Environmental Impact Statement Preparation Notice (EISP/N) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we offer the following responses to your comments:

We acknowledge that you have no objections to the Maui Business Park Phase II project. A&B Properties, Inc., will be evaluating the feasibility of developing a dual water system for Maui Business Park Phase II using non-potable water for landscape irrigation.

All wastewater plans will conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems."

Thank you for reviewing the EISP/N. Please note that the public comment for the EISP/N was from June 23 to July 23, 2004 and the draft environmental impact statement (EIS) was completed before your comments were received. Accordingly, your comments will be included in the final EIS.

Sincerely,

Tom Schnell

Tom Schnell, AICP
Associate

cc: Mr. Anthony Cluing, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

PHONE (808) 594-1855

FAX (808) 594-1865



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPOLANI BOULEVARD, SUITE 600
HONOLULU, HAWAII 96813

HRD04-1458

June 13, 2004

Tom Schnell
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, HI 96813

Subject: Maui Business Park Phase II; Environmental Impact Statement
Preparation Notice, Prepared for Alexander & Baldwin, Inc. by PBR Hawaii, and
Reclassification of a Portion of the Proposed Project Lands (179 Acres) from
Incremental to the Urban District by the State Land Use Commission, Wailuku,
Kahului, Maui, Hawaii, TMK: (2) 3-8-01: Portion of 2; TMK: (2) 3-8-06: Portion of
4; and TMK: (2) 3-8-79: Portion of 13

Dear Mr. Schnell:

Thank for your letter dated June 22, 2004 regarding the Maui Business Park Phase
II: Environmental Impact Statement Preparation Notice, prepared for Alexander &
Baldwin, Inc. by PBR Hawaii, and the reclassification of a portion of the proposed
project lands (179 Acres) from Incremental to the Urban District by the State Land
Use Commission, located at Wailuku, Kahului, Maui, Hawaii, TMK: (2) 3-8-01:
Portion of 2; TMK: (2) 3-8-06: Portion of 4; and TMK: (2) 3-8-79: Portion of 13. Your
letter requests that the Office of Hawaiian Affairs (OHA) review and comment on the
proposed project.

Project Scope

The project description notes the project is a continuation of A&B Properties, Inc.'s
existing Maui Business Park Phase I. The project will provide light industrial and
commercial space in Maui's central commercial and business district in close
proximity to the Kahului Airport and Kahului Harbor. Additionally, the proposed
action description notes the following: "the development will include all necessary

onsite and offsite infrastructure, including roadways, water, sewer, drainage,
electrical and communication systems."

Archaeological Sites

The EIS Preparation Notice notes the lands underlying the project were previously
disturbed because "historically, Hawaiian Commercial & Sugar Company (HC&S), a
subsidiary of Alexander and Baldwin, Inc., has grown sugarcane on the majority of
lands of the Maui Business Park Phase II site." As a consequence, the area
appears to have been heavily impacted by previous agricultural activities.

It is still important to note, as the project proceeds, in accordance with Hawaii
Revised Statutes (HRS), §6E-43.6 and Hawaii Administrative Rules (HAR), Title 13,
Subtitle 13, Chapter 300, Rules of Practice and Procedure Relating to Burial Sites
and Human Remains, if any significant cultural deposits or human burials are
encountered on the site¹, work will cease in this particular area and the SHPD will be
contacted.

Cultural Impacts

Despite impacts to the subject parcel, it is recommended that the project developers
consult with Native Hawaiian practitioners (individuals and organizations) to
determine the impact of the proposed project on cultural practices.

Additionally, as the project proceeds, if additional practitioners or native Hawaiians
come forward, their interest in the subject parcel should be accommodated. Steps
should also be taken to locate other Native Hawaiians and organizations in the
project vicinity.

Water Supply Availability/Requirements

Potable water supply requirements for the Maui Business Park Phase II are
estimated at 860,000 GPD based on the project's net acreage. The EIS Preparation
Notice indicates that Alexander & Baldwin, Inc. has substantial rights to the water
flowing through the Waihee and Spreckels Ditches. Please clarify: (1) How much
water Alexander & Baldwin, Inc. is currently withdrawing from those ditches; and (2)
Which ditch will provide the primary source of water supply for the proposed project?

Flora and Fauna

The EIS Preparation Notice indicates no threatened or endangered plant species of
concern have been found on the Maui Business Park Phase II properties.
Additionally, the consultant for the applicant notes a total of 67 plant species were
observed on the site (which will be specified in detail in the botanical survey
prepared for the draft EIS). In the interim, the EIS Preparation Notice notes the
following:

¹OHA staff notes that during the trenching, digging, grading, grubbing for the proposed project burials
sites may be found on (subsurface) portions of the parcel.

The only native species observed were the ilima (*Sida Fallax*), popolo (*Solanum americanum*), and uhaloa (*Waltheria indica*).

As a consequence, it may be appropriate (where possible) to preserve some of these species.

If you have questions or concerns please contact Matthew Myers, Policy Advocate at 594-1945 or matthewm@oha.org.

O wau iho nō,

Clyde W. Namu'o
Administrator

Cc: Anthony Ching, State Land Use Commission



LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

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TOM SCHWELL, AICP
Advisor

RYAN T. HALL, ASLA
Advisor

KERRY HERRMAN, ASLA
Advisor



August 10, 2004

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

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13**

Dear Mr. Namu'o:

Thank you for your letter regarding the Environmental Impact Statement Preparation Notice (EISP/N) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we offer the following responses to your comments:

Archaeological Sites

A&B Properties, Inc., and its contractors will comply with all state and county laws and rules regarding the preservation of archaeological and historic sites. Should historic remains such as artifacts, burials, or concentrations of shell or charcoal be encountered during the construction activities, work shall cease immediately and the State Historic Preservation Division will be contacted.

Cultural Impacts

A cultural impact assessment was conducted for Maui Business Park Phase II and will be included in the draft environmental impact statement (EIS). Native Hawaiian practitioners were contacted in the course of conducting the assessment, including Mr. Sam Ka'ai and Mr. William Kanekona, who both practice la'au lapa'au. Both practitioners stated that they know of no current practitioners that gather or undertake other cultural practices within the Maui Business Park Phase II site. While not mentioned in the cultural impact assessment, Mr. Leslie Kuloiolo, a member of the Maui Island Burial Council was also contacted and did not express any concerns about the site, including any concerns regarding gathering or access.

As the project proceeds, if additional practitioners or native Hawaiians come forward, their concerns will be addressed.

Water Supply Availability/Requirements

Over the last 10 years, A&B's use of the flows in the Waihe'e and Spreckels Ditches has averaged almost 42 MGD. It is currently envisioned that a small portion of this water will be withdrawn from the Waihe'e Ditch and processed at a future water treatment plant

Mr. Clyde Namu'o
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
3-8-79:13
August 10, 2004
Page 2

for delivery into the County Department of Water Supply's Central Maui System, allowing the
County to supply water to Maui Business Park Phase II.

Flora and Fauna

Native plants will be included in the landscaping of Maui Business Park Phase II, to the
extent practical. In particular it may be possible to incorporate the use of 'ilima (Sida
Fallax) within the project, as this is a commonly used ground cover on Maui. Please note
that *popolo* (*Solanum americanum*) and *'ihai'oa* (*Waltheria indica*) are weedy type plants
that are abundant throughout Hawaii'i.

Thank you for reviewing the EISPN. Your comments will be included in the draft EIS.

Sincerely,



Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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LINDA SINGLE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5087

August 30, 2004

RODNEY K. HARAHA
DIRECTOR

Deputy Directors
BRUCE V. MATSUDA
LAWREN K. JOHNSON
FRANK H. BECKHOFF

INTERLY REFER TO:

STP 8.1331

Mr. Dan Yasui
A&B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Yasui:

Subject: Maui Business Park Phase II
Environmental Impact Statement Preparation Notice (EISPN)
TMK: 3-8-01:2 (portion), 3-8-06:4 (portion), and 3-8-79:13

Thank you for your transmittal requesting our review of the subject proposal.

As noted in our three prior letters to the State Office of Planning in 2003 (attached), the
development will have an adverse impact on our highway and airport transportation facilities and
we continue to stress that careful consideration of the mitigation measures and implementation
strategies are important.

Our previous letters stating our initial concerns are still applicable. Additional comments that we
offer at this time are:

1. The EIS should include a full drawing of the entire drainage system and a new FEMA
flood insurance map so we can properly evaluate the drainage impacts of your project.
The A&B Properties ditch runs into our Kaliaimui Ditch at Alahco Street just below the
mouth. Increases in the A&B flow will affect our 100-year storm capacity into the
Kaliaimui Channel.
2. We would need to further evaluate the DEIS and its airport noise level contours in the
environmental noise impact assessment report to be able to comment on the noise
impacts. A&B has stated the majority of the Maui Business Park is between 55 and 65
DNL airport noise contours. It appears, however, that based on the 1995 Kahului Airport
FAA Part 150 Noise Compatibility Program, a portion of the North Project may lie
within noise contours that exceeds 65 DNL. We are not able to fully evaluate all of the
project areas without more detailed information regarding the applicable noise level
contours.

Mr. Dan Yasui
Page 2
August 30, 2004

STP 8.1331

3. We will also be requesting that A&B Properties grant an aviation and noise easements and dedicate land to the Department of Transportation, Airports Division.
4. As noted in prior letters, the applicant should revise their traffic impact analysis report (TIAR) to include our concerns and comments as discussed previously in our outline.

We have just received the applicant's DEIS and will assess the overall development in the area in further detail.

We appreciate the opportunity to provide comments.

Very truly yours,



RODNEY K. HARAGA
Director of Transportation

Attach.

- c: Anthony Ching, State Land Use Commission
Mary Lou Kobayashi, Office of Planning, DIR/DT
Tom Schnell, PBR Hawaii

LINDA LINGLE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
889 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-6097

September 17, 2003

TO: MS. MARY LOU KOBAYASHI, PLANNING PROGRAM ADMINISTRATOR
OFFICE OF PLANNING
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

FROM: RODNEY K. HARAGA
DIRECTOR OF TRANSPORTATION

SUBJECT: A03-739, A & B PROPERTIES, INC.
MAUI BUSINESS PARK PHASE II

It is the mission of the Department of Transportation to provide for the safe, economic, and efficient movement of people and goods. To this end, and in connection with the above petition filed by A&B Properties, Inc., I would like to clarify the position of the State Department of Transportation ("DOT") as it relates to the Kahului Airport and the roadway requirements in the area.

1. Kahului Airport. The lands south of Hana Highway in line with the existing Runway 2-20, must be reserved to accommodate future expansion of airport operations, including a possible runway extension. This would allow for greater capacity and safety at the Kahului Airport. Under one of our planning options, the primary runway at Kahului Airport would be extended to 9600 feet. To preserve our ability to do this, we would need to acquire about four acres of land for approach lights and navigation aids and aviation easements over an area of about 45 acres, all to establish a runway protection zone in accordance with FAA rules and regulations. I would like to emphasize that we have not made any final decisions regarding any runway extension at Kahului Airport; the possible runway extension up to 9600 feet is just one of a number of planning options the DOT is considering.

2. Airport Access Road. Our highway master plans identify a number of roadway projects to accommodate the traffic demands in the area. Among them is the Airport Access Road, a new roadway extending Kuilani Highway to the vicinity of Halekaha Highway, with a major crossing at Hana Highway. This is a priority project for the DOT, and construction is anticipated to begin within three years; the project is contained within our short term CIP.

3. Fair share contribution. Major developers should provide their fair share contribution for transportation improvements required to mitigate the impact of their development.

We need to proceed with the above to protect our future. Good planning principles and practice require this. Your support and assistance would be greatly appreciated.

HALEIWA
MAYOR



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

July 7, 2003

RODNEY K. HARAGA
DIRECTOR

Acting Deputy Director
GLENN H. OKAMOTO

IN REPLY REFER TO:
STP 8.0813

TO: MS. MARY LOU KOBAYASHI, PLANNING PROGRAM ADMINISTRATOR
OFFICE OF PLANNING
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND
TOURISM

FROM: RODNEY K. HARAGA
DIRECTOR OF TRANSPORTATION

SUBJECT: CORRECTION TO LETTER STP 8.0804 DATED 6/27/03
A03-739/A & B PROPERTIES, INC.
MAUI BUSINESS PARK PHASE II
TMK: 3-8-01: 2 POR., 3-8-06: 4 POR., 3-8-79: 13 POR.

This is to correct an error in the first page of our letter to you covering comment item No. 2, which should have referred to Petition Area A rather than Area B.

The corrected comment should read:

"2. For Petition Area A (South Project Area), the applicant should submit Federal Aviation Administration (FAA) Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA's Hawaii District Office, for their review of proposed structures. A copy of the submittal should be provided to our Airports Division."

We apologize for the error.

HALEIWA
GOVERNOR



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

June 27, 2003

RODNEY K. HARAGA
DIRECTOR

Acting Deputy Director
GLENN H. OKAMOTO

IN REPLY REFER TO:
DIR 0859
STP 8.0804

TO: MS. MARY LOU KOBAYASHI, PLANNING PROGRAM ADMINISTRATOR
OFFICE OF PLANNING
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND
TOURISM

FROM: RODNEY K. HARAGA
DIRECTOR OF TRANSPORTATION

SUBJECT: A03-739/A & B PROPERTIES, INC.
MAUI BUSINESS PARK PHASE II
TMK: 3-8-01: 2 POR., 3-8-06: 4 POR., 3-8-79: 13 POR.

Thank you for your transmittal of June 10, 2003, requesting our review of the subject proposal.

The development will impact our highway and airport facilities, and careful consideration of the mitigation measures and implementation strategies are important. Because of the magnitude of this project and the short review time, we hope to have other opportunities to submit more definitive recommendations. The following are our comments:

1. The applicant should have a program to control any bird nesting or occupation in the proposed drainage retention basin. Standing water in these basins would become bird attractants and can become a safety hazard for aircraft using the airport.
2. For Petition Area B (North Project Area), the applicant should submit Federal Aviation Administration (FAA) Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA's Hawaii District Office, for their review of proposed structures. A copy of the submittal should be provided to our Airports Division.
3. Airport, navigational and aircraft safety and clearances may necessitate certain restrictions or covenants on lands near or in the project area. Further coordination with our Airports Division should be required.
4. The applicant should implement recommended roadway improvements as part of its development.

5. Planned roadway improvements in the area should not be assumed to be placed by the implementation of this project. Due to the tremendous demand on our resources, and the limited funds available, many projects have been delayed, including the Airport Access Road (from Hana Highway to Puunene Avenue). Also, there are open issues associated with the specific requirements for improvements in this area. Further coordination with our Highways Division should be encouraged.
6. The petitioner should revise the Traffic Impact Analysis Report (TIAR) for the project and resubmit it for our review.
 - a. The methodology to reduce trip generation does not seem appropriate. A 20% reduction for retail followed by the use of a .025 floor area ratio (FAR) appears to be a double reduction. The FAR should already take into consideration, roadways, utilities, etc.
 - b. The analysis of Hana Highway with Hookele Street should be revised. For the AM condition with project, the amount of time allowed for northbound movement, which has 238 left-turns and 349 right-turns may not be a reasonable assumption of what will happen in the field. Also, lost time and change/clearance interval assumptions should be justified for all worksheets.
 - c. The report should provide a figure showing laneage for existing conditions, without project conditions, and proposed laneage with the project for each of the two phases.
 - d. Field observations of traffic conditions should be documented in the report to verify traffic level of service (LOS) analysis.
 - e. The TIAR should also reanalyze the Maui Business Park Phase IB project access driveway intersection with Puunene Avenue, and the First Assembly of God driveway intersection with Puunene Avenue. The additional traffic from Phase II should be reflected and recommendations for any additional improvements should be provided.
7. The applicant should coordinate its project with our Maui Highway District Office regarding submittal and approval of construction plans.

Project traffic detouring and staging of construction work to accommodate existing traffic should be fully planned and coordinated.
8. The applicant should incorporate the appropriate noise reduction measures in the design of its buildings due to the project's proximity to Kahului Airport.

The proposed project and the overall development are at an important junction of transportation facilities. We would like the ability to monitor the project's progress as part of the overall development in the area to ensure that both local and regional impacts can be assessed and guided as updated or new information comes forth.

We appreciate the opportunity to provide comments.



LAND PLANNING
SOCIAL ARCHITECTURE
ENVIRONMENTAL STRATEGIES

1. FRANK BEAVER, PASLA
Chairman

2. DAVID S. WINTER, ASLA
President

3. STAN DUNCAN, ASLA
Executive Vice-President

4. KELLY YI, CHENG, ASLA
Executive Vice-President

VICTOR SIKORICH
President

JAMES LEONARD, AICP
President

THOMAS SCHUBERT, AICP
President

JAYWANT T. IYER, ASLA
President

GREEN NICHOLS, ASLA
President

Executive Office
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September 9, 2004

Mr. Rodney K. Haraga, Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT PREPARATION NOTICE (EISP/N); TMK:
3-8-01: 2 (PORTION), 3-8-06: 4 (PORTION), 3-8-79: 13**

Dear Mr. Haraga:

Thank you for your letter of August 30, 2004 commenting on the EISP/N for Maui Business Park Phase II. As noted in your letter, the Department of Transportation (DOT), under State Land Use Commission (SLUC) Docket No. A03-739, participated in the review of the subject project. Comments and concerns expressed by the DOT and cited in the attachments to your August 30, 2004 letter related to two primary areas: impacts relating to Kahului Airport and the project's traffic impact upon State highway facilities. As a result of the DOT's participation, the SLUC imposed several conditions to address the concerns expressed by the DOT. These conditions were incorporated in the SLUC's decision and order of March 2004 under Docket No. A03-739 and are summarized below:

- The imposition of covenants to address notification and liability issues due to potential adverse impacts from noise, emissions, vibrations, and other incidences of aircraft operations at Kahului Airport.
- The imposition of covenants requiring the submittal of Federal Aviation Administration Form 7460-1 for proposed construction or alterations at the project site.
- Restrictions on future use within the proposed runway protection zone (based on the possible extension of the primary runway at Kahului Airport to 9,600 feet in length) within the South Project Area.
- Providing DOT acquisition rights to project lands within the designated runway protection zone within the South Project Area at agricultural land values.
- Requiring A&B Properties, Inc., to control bird nesting, insect, pest, or wildlife infestation in drainage basins to minimize hazards to aircraft operations.
- Requiring that the project's traffic impact analysis report be revised to include among other things, plans for the Airport Access Road and assumptions concerning the proportion of retail and light industrial uses developed at the project.
- Requiring that A&B Properties, Inc. contribute its fair share of the cost of regional transportation improvements in the area.

Mr. Rodney K. Haraga
SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
STATEMENT PREPARATION NOTICE (EISP/N); TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13
September 9, 2004
Page 2

A&B Properties, Inc. will comply with the conditions imposed by the SLUC to address the concerns expressed by the DOT. As noted below, the traffic impact analysis report completed in May 2003 has since been revised and updated per the requirements of the DOT.

In response to the specific comments in your August 30, 2004 letter, we note the following:

1. A preliminary drainage report has been prepared and is included in the Draft Environmental Impact Statement (DEIS) for the project. The increased flow from the South Project Area will be accommodated by the two existing drainage retention basins near Wal-Mart, which have an estimated combined capacity of 80 acre-feet. The estimated flow volume into these basins, with existing Maui Business Park Phase II and build-out of the South Project Area, will be about 48 acre-feet for a 100-year, 24-hour storm. Therefore, there will be capacity for the flows from the proposed developed area. Drainage alternatives for the North Project Area are being evaluated. One alternative under consideration is to redirect current flows from Phase IA of Maui Business Park to the existing retention basins near the South Project Area. This would free up capacity within the existing drainage channel that runs near K-Mart and Costco to accommodate flows from the North Project Area. Other options include the construction of retention basins within the North Project Area to retain the 100-year, 24-hour storms. These and other alternatives are being evaluated in a more detailed drainage study.
2. An environmental noise impact assessment was prepared for the Maui Business Park Phase II site by D.L. Adams Associates, Ltd., to examine the potential noise impact due to the project and to suggest possible mitigation measures. The full environmental noise impact assessment is included in the DEIS. Currently, the Maui Business Park Phase II site and vicinity are exposed to daytime ambient noise levels of 50 to 73 dBA, with the dominant noise sources being aircraft from the nearby Kahului Airport and roadway traffic. The majority of the Maui Business Park site is between the 55 to 70 L₅₀ airport noise level contours. Due to its proximity to Kahului Airport, the Maui Business Park site is exposed to a significant amount of aircraft noise; however, commercial, industrial, and manufacturing uses are compatible with airport areas.
3. As indicated above, to address the impact of aircraft operations at Kahului Airport upon future occupants of the project, the SLUC, in consultation with the DOT, under Docket No. A03-739 has prescribed procedures and covenants to address notification and liability issues arising from potential adverse impacts from noise, right of flight, emissions, vibrations and other incidences of aircraft operation resulting from operations at the Kahului Airport. Also, under the conditions imposed by the SLUC the DOT has acquisition rights to project lands within the designated runway protection zone within the South Project Area at agricultural land values.



DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

ALANAL ARAKAWA
Mayor
ALICK L. LEE
Director
HERNANI T. ANDAYA
Deputy Director

200 SOUTH HINGI STREET • WAILUKU, HAWAII 96793 • PHONE: (808) 270-7265 • FAX: (808) 270-7163

July 19, 2004

Mr. Rodney K. Haraga
SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISPN); TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13
September 9, 2004
Page 3

4. A traffic impact analysis report (TIAR) for Maui Business Park Phase II was prepared in May of 2003 and revised in July of 2004. The TIAR was revised in response to comments received from the DOT and conditions imposed by the SLUC in March 2004 as part of the decision and order under Docket No. A03-739. Specifically, the revised TIAR differs from the May 2003 TIAR by including analysis considering:

- a. Completion of the Airport Access Road, and
- b. Development scenarios with a higher percentage of industrial versus retail uses.

The proposed Airport Access Road was not included in the May 2003 TIAR because, at that time, there was no specific timetable for its completion. However, as noted in your attached letter of September 17, 2003 the DOT has since indicated that the Airport Access Road is now a priority project. In addition, the SLUC also indicated a preference for light industrial development at Maui Business Park Phase II by requiring that at least 50 percent of the area be developed for non-retail, light industrial use. The revised TIAR analyzes several different development scenarios with various mixes of industrial versus retail uses combined with various assumptions regarding the completion of the Airport Access Road. The complete TIAR with analysis of all development scenarios is included in the D/HIS.

Thank you for reviewing the EISPN. Please note that the public comment for the EISPN was from June 23, 2004 to July 23, 2004 and the draft environmental impact statement (EIS) was completed before your comments were received. Accordingly, your comments will be included in the final EIS.

Sincerely,

Tom Schnell, AICP
Associate

- cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.
Mr. Phillip Rowell, Phillip Rowell and Associates

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Mr. Dan Yasui
A & B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

SUBJECT: MAUI BUSINESS PARK PHASE II

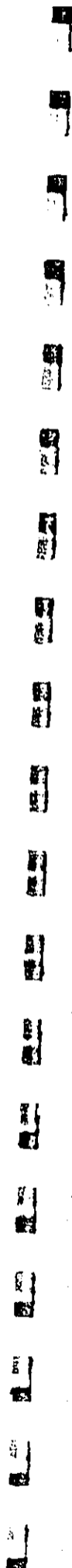
We have reviewed the Environmental Impact Statement Preparation Notice (EISPN) for the subject project and would like to offer the following comments:

1. The first sentence of the last paragraph on page 50 of the EISPN states that A & B Properties has agreed to contribute a minimum of 10 acres of land in the Central Maui region toward the development of employee/affordable housing, as part of the State Land Use Commission's Decision and Order under Docket No. A03-739.

When preparing the EIS, please provide the following information regarding the contribution of land:

- a. The actual acreage to be contributed.
 - b. To whom it will be contributed.
 - c. The parcel's location and configuration.
2. The second sentence of the last paragraph on page 50 of the EISPN states that the State Land Use Commission also required A & B Properties to prepare and submit for its approval, a housing study addressing the impact of Maui Business Park Phase II on employee/affordable housing and potential mitigation measures.

TO SUPPORT AND ENHANCE THE SOCIAL WELL-BEING OF THE CITIZENS OF MAUI COUNTY

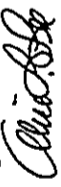


Mr. Dan Yasui
Page 2
July 19, 2004

When preparing the housing study, please include information on the rents and/or selling prices that would be considered affordable for the population that needs to be served.

Thank you for the opportunity to comment.

Very truly yours,



ALICE L. LEE
Director

ETO:hs

Enclosure

c: Ms. Genevieve Salmonson
Mr. Anthony J. H. Ching
✓ Mr. Tom Schnell
Mr. Edwin Okubo



LAND PLANNING
LANDSCAPE ARCHITECTURE
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R. Stan Durkin, ASLA
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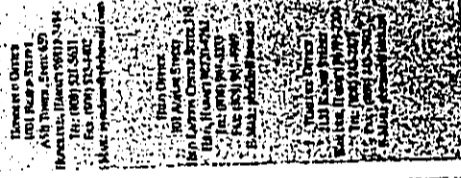
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Principal
HBO Office

Grant Alukalau, AICP
Senior Associate

Tim Schnell, AICP
Associate

Ralph T. Ilika, ASLA
Associate

Kyle Nishikawa, ASLA
Associate



August 9, 2004

Ms. Alice L. Lee, Director
Department of Housing and Human Concerns
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13

Dear Ms. Lee:

Thank you for your letter (addressed to Dan Yasui) dated July 19, 2004 regarding the Environmental Impact Statement Preparation Notice (EISP) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

As noted in your letter, the State Land Use Commission (SLUC), under Docket No. A03-739, imposed a requirement for A&B Properties, Inc. to contribute a minimum of 10 acres of land in the Central Maui region toward the development of employee/affordable housing. Specifics concerning the location, project specifications (i.e. number of units, unit types, etc.), timing, eligibility parameters, and the participation of other parties have yet to be formulated. It is anticipated that these specifics will be worked out with the County of Maui and other applicable parties in conjunction with the Maui Business Park Phase II change in zoning application. Also, the housing study required by the SLUC will include, among other things, pricing information based on household incomes within defined need groups.

Thank you for reviewing the EISP. Your comments will be included in the draft environmental impact statement.

Sincerely,



Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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ALAN M. AFANAWA
Mayor
MICHAEL W. FOLEY
Director
WAYNE A. BOTELHO
Deputy Director



COUNTY OF MAUI
DEPARTMENT OF PLANNING

July 26, 2004

Mr. Dan Yasui
A&B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Yasui:

RE: Environmental Impact Statement Preparation Notice for
Maui Business Park Phase II located at TMK 3-8-001: 002 (portion),
3-8-006: 004 (portion), and 3-8-079: 013, Kahului, Island of Maui,
Hawaii (LIR 2004/2212)

The Maui Planning Department (Department) received your request for comments on the Environmental Impact Statement Preparation Notice (EISP/N) prepared for the proposed development of the Maui Business Park Phase II light industrial project comprising approximately 179 acres located in Kahului, Maui, Hawaii. The Department submits the following comments:

1. Proposed uses within the North Project Area include airport support activities, such as car rental companies, airline service areas, flight kitchens, freight forwarding centers, and cargo warehousing. Discuss how these proposed activities relate to the State Department of Transportation (DOT) Airport Masterplan.
2. Discuss the estimated area of paved (or impermeable) surface and the impacts of non-point source pollution on water quality (surface and groundwater). Discuss mitigative measures including an analysis as to the feasibility of using oil/water separators.
3. Please be advised that although a portion of the North Project Area is located within the Special Management Area (SMA), the project within the property boundaries will be reviewed in its entirety at the time of processing.

250 SOUTH HIGH STREET, WAILUKII, MAUI, HAWAII 96793
PLANNING DIVISION (PHONE) 270-7735; ZONING DIVISION (PHONE) 270-7253; FACSIMILE (PHONE) 270-7634

Mr. Dan Yasui
July 26, 2004
Page 2

4. Market Analysis (Hallstrom 2003)

Section 2.5, Project Need notes that a market study prepared for the project forecasts a shortfall of light industrial acreage on Maui within one to two years and that a demand for approximately 290 acres of new industrial acres is forecasted over the next two (2) decades. Further, the report indicates that less than 20 acres of industrial land is currently available in the Central Maui region, and approximately 57 acres of additional light industrial development is currently proposed in Central Maui.

- a. Distinguish whether the forecast prediction is based on lands designated "Light and Heavy Industrial" in the community plan or by Title 19, Maui County Code (MCC).
- b. Provide a demand breakout of land acreage as follows:
 - i. Industrial Lands - Light Industrial is warehousing, light assembly, service and craft-type industrial operations. Heavy Industrial is for major industrial operations whose effects are potentially noxious due to noise, airborne emissions or liquid discharges.
Applicable Zoning Districts include: M-1 -- Heavy Industrial and M-2 -- Light Industrial.
For example, Honsador Lumber and Associated Steel Workers, Ltd. located within the Kahului Industrial Subdivision.
 - ii. Wholesale/Retail Lands - This includes warehouses and retail stores with a gross floor area of 100,000 ft² or greater.
Applicable Zoning Districts include: M-2 -- Light Industrial, B-1 -- Neighborhood Business District, B-2 -- Community Business District, and B-3 -- Central Business District.
For example, the "big box" retail stores such as, Costco, K-Mart, Wal-Mart, Home Depot, and Lowe's.

iii. Commercial Uses - This includes retail stores, offices, professional services, entertainment enterprises, restaurants, etc.

Applicable Zoning Districts include: M-2 - Light Industrial, B-1 - Neighborhood Business District, B-2 - Community Business District, and B-3 - Central Business District

For example, Banks, Borders Bookstore, Gas Stations, fast food restaurants, etc.

5. Traffic, Roadways, and Parking

- a. The Traffic Impact Analysis Report (TIAR) should include a regional analysis.
- b. Discuss parking allowances within the proposed project area. If on-street parking is proposed within the proposed project, discuss roadway design in order to allow for adequate traffic movements in both directions.
Please be advised that the Department recommends establishing off-street parking lots and/or vehicle storage areas within the proposed project in lieu of allowing on-street parking.
- c. Provide a Master Plan of the Roadway System should the proposed project be approved. Clarify internal traffic circulation and movements.
- d. Provide a discussion and analysis of alternative alignments of the Airport Access Road. Include the following alignments as discussed in previous Land Use Commission meetings: (i) using Hookele Sireel, and (ii) a new alignment located south of the proposed project's South Project Area.
6. Discuss potential impacts of proposed runway expansion plans for Kahului Airport on the proposed project, specifically the portion of the South Project Area located nearest the expansion plans. Delineate the area of potential concern and provide a discussion of uses appropriate within the area. Discuss whether the project will require an Aviation Right-of-Flight Easement and what the easement allows.

7. Provide maps illustrating the State land use, community plan, and zoning designations as proposed and in relation to surrounding properties.

a. The delineated area designated as "Open Space" in Figure 4, Conceptual Master Plan, does not appear to match the boundary alignment of the area designated as "Open Space" on the Community Plan Map attached as Figure 7. Please be advised that any change in the boundary alignment from that shown on the map will require a Community Plan Amendment.

8. Drainage

- a. In addition to a project specific analysis, provide a regional analysis and discuss cumulative impacts of increasing the area of impermeable surfaces.
- b. Provide a Regional Master Plan of drainage improvements associated with Maui Business Park Phase 1A, 1B, and the proposed project. Identify where the system outlets.
- c. Discuss any drainage impacts that the proposed project may have on the Maui Business Park Phase 1A and 1B drainage system.
9. Identify the areas where reclaimed water from the Puunene Mill is recycled for irrigation water of the agricultural fields.
 - a. Discuss any potential odor impacts to the proposed project area.
 - b. If the areas identified include the proposed project area, discuss the proposed measures for recycling or disposing of the reclaimed water with the development.
 - c. Discuss the feasibility for using reclaimed water for irrigation of landscaping for the proposed project.
10. Include the Housing Study as referred to on Page 50 of the EISPN in the Draft EIS for the proposed project.

11. The proposed District Boundary Amendment will expand and merge urbanized lands of Kahului Town with the community of Puunene. As such, include a discussion and analysis as to the following objective and policy of the Waiuku-Kahului Community Plan:
 - a. LAND USE - Objective and Policies
 14. *Maintain physical separation between traditional towns and villages in the region. Where possible, provide specific design or landscape elements, such as open space buffers or changes in streetscape, to clearly delineate the boundary between Kahului and Waiuku. Maintain open space around traditional rural areas, such as Waikapu and Wahee, to provide a sense of community and to prevent envelopment of these areas by urban expansion.*
12. Provide an environmental analysis determining whether the North and South Project Area may be contaminated with hazardous, regulated, and/or toxic substances or wastes resulting from past and current activities, unauthorized dumping or disposal, or the migration of contaminants from adjacent or nearby properties. The Department recommends the analysis be comparable to the American Society of Testing and Materials Standard 1527-00 for Phase I Environmental Site Assessments.
13. The EISPN indicates design standards will be developed for the subdivision. Standards are to include a unified streetscape planting theme and program, underground utilities, low-impact lighting, and alternative energy.
 - a. Provide landscape planting plans for the buffer areas extending along Hookele Street and the proposed Kahului Airport Access Road.
 - b. Please be advised that the Department will require review by the Urban Design Review Board (UDRB) as part of the Change in Zoning request.

Thank you for the opportunity to comment. Please include the Department on the mailing list for comment on the Draft EIS. Should you require additional clarification, please contact Ms. Kiveite A. Caigoy, Environmental Planner, of this office at 270-7735.

Sincerely,



MICHAEL W. FOLEY
Planning Director

MWF:kac:lar

c: Wayne Botelho, Deputy Planning Director
Clayton I. Yoshida, AICP, Planning Program Administrator
Kiveite A. Caigoy, Environmental Planner
Mr. Anthony Ching, State Land Use Commission
Mr. Tom Schnell, PBR Hawaii
Project File
General File
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LAND PLANNING
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August 10, 2004

Mr. Michael W. Foley, Director
Department of Planning
County of Maui
250 South High Street
Waikoloa, Hawaii 96793

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13**

Dear Mr. Foley:

Thank you for your letter (addressed to Dan Yasui) dated July 26, 2004 regarding the Environmental Impact Statement Preparation Notice (EISP/N) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your concerns in the order noted in your letter.

1. The potential uses (car rental agencies, airline service areas, flight kitchens, freight forwarding centers, and cargo warehousing) cited in the EISP/N for the North Project Area are representative of that which may be developed in this area, in part due to its proximity to the Kahului Airport. Market forces will largely determine actual uses developed.

State Department of Transportation Airports Division has reviewed plans for Maui Business Park Phase II as part of the State Land Use District Boundary Amendment (Docket A03-739) process. Their concerns included: 1) impacts on land uses due to airport noise; 2) compliance with Federal Aviation Requirements; and 3) restrictions on future uses within the Runway Protection Zone in the South Project area. Subsequently, the Land Use Commission imposed conditions to address these concerns.

The North Project Area is not within the Kahului Airport Master Plan (Plan DOT 1993) area. All land within the Kahului Airport Master Plan area is owned by the State of Hawaii, with the exception of a 3.5-acre parcel owned by the Postal Service. Between 1993 and 2010 the Plan projects the need for approximately 22 additional acres for ground transportation services (car rental agencies, bus facilities, etc.). The Plan also projects the need for a flight kitchen facility, additional air cargo and other facilities. While the Plan suggests potential areas for these facilities, in many cases new access and infrastructure will be necessary. In particular, the preferred alternative for expanded ground transportation facilities is to extend Mokuauka Place across Kaliahuni Gulch. However, bridging the gulch will require substantial fill and a relatively expensive

Mr. Michael W. Foley
**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
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Page 2

engineered structure. The more economical alternative is to provide a separate ground transportation area south of the gulch with access from Koolani Place. Much of this land currently is leased for non-airport related uses and would be displaced for the expansion of ground transportation facilities. The Plan also recommends that a private entity should develop a flight kitchen facility in this area.

2. A preliminary drainage plan has been prepared for Maui Business Park Phase II and will be included in the Draft Environmental Impact Statement (DEIS). This plan estimates surface runoff volume. A more detailed drainage master plan for the site and the region will be prepared and submitted to the County before beginning engineering design.

A&B Properties, Inc., will implement best management practices to reduce non-point source pollution. On-site runoff will be directed to on-site retention basins or existing drainage systems, furthering limiting runoff to the ocean. In the development of specific drainage plans, A&B Properties, Inc., will consult with applicable agencies concerning the feasibility of other mitigative measures such as oil/water separators. Also please note that the Maui Business Park Phase II site is not situated over a potable water aquifer.

3. We acknowledge that although a portion of the North Project Area is located within the Special Management Area, the project within the property boundaries will be reviewed in its entirety at the time of processing.

4a. The demand for additional light industrial land on Maui stated in the market study is based on uses allowed under the Light Industrial (M-1) District as defined in Chapter 19.24 of Title 19 of the Maui County Code. The uses forecast in the market study are allowed in the M-1 zoning district.

4b. The market study projects an approximately 50/50 split between light industrial uses and commercial/retail uses. This is generally consistent with other light industrial subdivisions on Maui. It is also consistent with the State Land Use Commission's (LUC) Decision and Order reclassifying a majority of the property to the Urban district. Specifically, the LUC imposed a condition stating that at least 50 percent of the project acreage shall be used for "non-retail, light industrial use" for a period of eight years from the date of the County's approval of zoning for the project. The LUC defined "Light Industrial" as "warehousing, and distribution types of activity as well as compounding, assembly, or treatment of articles or materials with the exception of heavy manufacturing and processing of raw materials".

5a. The study area of the Traffic Impact Analysis Report (TIAR) was developed based on input from the State Department of Transportation. The roadway network surrounding the Maui Business Park Phase II site comprises the regional "hub" of Maui. As such the

Mr. Michael W. Foley
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
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August 10, 2004
Page 3

TIAR takes into account all intersections in the vicinity of the site. The complete TIAR will be included in the DEIS.

5b. All parking requirements will be in conformance with Chapter 19.36 of the Maui County Code (MCC). In addition, all streets will be designed per the design requirements of Chapter 18.16, MCC. On-street parking restrictions will be reviewed and approved by applicable agencies. Parking on certain major thoroughfares, such as the extended Hookele Street, may be restricted based on established safety and other standards. A total restriction of on-street parking within all areas of Maui Business Park Phase II may not be reasonable nor appropriate and may be a burden to business owners.

5c. A conceptual master plan for Maui Business Park Phase II was included in the EISPN and will be included in the DEIS. In addition, the TIAR (to be included with the DEIS) provides assumptions for major internal intersections and proposed intersections connecting with the existing roadway network. A detailed subdivision plan, and subsequently the internal roadway system, has not been developed at this point. Specific roadways, lanes, and turning movements will be developed prior to subdivision approval in consultation with appropriate agencies.

5d. The proposed Airport Access Road (AAR) is a State Department of Transportation (DOT) facility. DOT acquired the right-of-way for the AAR some years ago, and has commenced design on a portion of the road. It is assumed that the AAR alignment was chosen based on DOT's plans for the region and specifically to provide more direct access to Kahului Airport. We have no basis to question DOT's determination of the appropriate alignment.

Through our communications and correspondence with DOT regarding the TIAR, we were provided specific direction concerning assumptions in regard to the AAR. DOT has never indicated a preference for the two alignments noted in your letter, therefore there is no basis for us to consider these alternatives, as they are inconsistent with the direction provided to us from DOT. Please also note that we were required by the LUC to revise the TIAR per the comments of the DOT.

6. One of the conditions imposed by the LUC under Docket No. A03-739 is that approximately 25 acres of the South Project Area abutting Hana Highway are restricted in use due to the potential designation of this area as a runway protection zone (RPZ) by the State DOT, Airports Division. This RPZ is a requirement of the proposed extension of the Kahului Airport runway to 9,600 feet in length. Uses in this area are restricted to those that do not entail the congregation of people and as may be approved by the Federal Aviation Administration (FAA). In addition, before any construction, a FAA Form 7460-1, Notice of Proposed Construction or Alteration, will be submitted to the FAA and the

Mr. Michael W. Foley
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
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Page 4

DOT Airports Division. The runway protection zone will be shown the project concept plan included in the DEIS.

To further address the impact of aircraft operations at Kahului Airport upon future occupants of Maui Business Park Phase II, the LUC, as recommended by the State DOT, imposed a condition prescribing procedures and covenants to address notification and liability issues arising from potential adverse impacts from noise, right of flight, emissions, vibrations and other incidences of aircraft operation resulting from operations at the Kahului Airport.

7a. The EISPN included maps showing State Land Use Districts (Figure 5), the Community Plan designations (Figure 7) and Zoning (Figure 8). These maps will be updated to provide the most current available information regarding the designations as proposed and in relation to surrounding properties.

7b. The open space area reflected on Figure 4 includes two existing drainage retention basins. The area designated as open space on Figure 4 is in fact larger (33 acres) than the area shown as open space on the Community Plan map (28 acres). The 33 acres shown on Figure 4 are not included in the MBP Phase II development area or the Project's land use applications and will remain in the State Land Use and County zoning Agricultural Districts.

8a. As previously indicated, a preliminary drainage plan has been prepared for Maui Business Park Phase II and will be included in the DEIS. A more detailed drainage master plan for the site and the region will be prepared and submitted to the County before beginning engineering design. A&B Properties, Inc., will implement best management practices to reduce non-point source pollution.

8b. As stated above, a more detailed drainage master plan for the site and the region will be prepared and submitted to the County before beginning engineering design. Section 5.7.3, "Drainage System" of the EISPN discusses previous drainage improvements constructed in relation to Maui Business Park Phases IA and IB. Drainage from Phase IA flows into a channel that runs from the north area of Phase IA, across Hana Highway, behind Kmart and Costco, and is connected to the Airport Industrial Area's concrete open channel, which crosses Haleakala Highway and Keolani Place and eventually drains to the ocean. Drainage from Phase IB flows to the two retention basins previously mentioned and behind Wal-Mart. The basins have the capacity to retain runoff from the South Project Area.

8c. Maui Business Park Phase II will not have an impact on the Phase IA and IB drainage system. As stated above, drainage from the South Project Area will flow into the two existing drainage basins behind Wal-Mart. The basins have the capacity necessary to

Mr. Michael W. Foley
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
3-8-79:13
August 10, 2004
Page 6

There are no records of any spills, dumping, or other evidence of hazardous, regulated or toxic substances within the area covered by the report. The report covering the search of available environmental records meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E1527-00. In addition a section on fertilizers, herbicides, and pesticides associated with sugar cultivation will be included in the DEIS.

- 13a. A visual analysis study, which includes a section drawing of the extended Hookele Street along with planting and landscape areas will be included in the DEIS. Detailed landscape plans for Maui Business Park Phase II will be prepared at a later time.
- 13b. We acknowledge that the Planning Department will require review by the Urban Design Review Board as part of the Change in Zoning request.

Thank you for reviewing the EISPN. Your comments will be included in the draft environmental impact statement.

Sincerely,



Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salomonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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Mr. Michael W. Foley
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
3-8-79:13
August 10, 2004
Page 5

handle the additional drainage. Drainage from the North Project area will be retained on site, either by individual drainage basins on each lot, or as recommended in the forthcoming detailed drainage master plan.

- 9a. As stated in Section 4.4 "Agricultural Impact" of the EISPN, a portion Maui Business Park Phase II (South Project Area) and the re-alignment of Mokualele Highway will withdraw approximately 150 acres (out of 1,606 acres) of the land used for the release of mill process water. This area is near the south-east edge of the South Project Area and the re-aligned Mokualele Highway.

- 9b. The release of mill process water is not expected to pose significant odor problems given the proposed light industrial uses within Maui Business Park Phase II. All prospective lot purchasers will be informed of possible odor, noise, and dust resulting from nearby agricultural operations and of the Hawaii Right-to-Farm Act, Chapter 165, HRS, which limits the circumstances under which preexisting farming activities may be deemed a nuisance.

- 9c. Hawaii Commercial & Sugar (HIC&S) is currently taking steps to reduce mill process water through recycling, mill improvements, and other efforts. In addition, mill water will be redirected to locations away from Maui Business Park Phase II.

- 9d. The LUC imposed a condition requiring A&B Properties, Inc., to evaluate the feasibility of developing a dual water system for Maui Business Park Phase II using non-potable water for landscape irrigation. A&B Properties, Inc., will comply with this condition.

10. The housing study is a requirement of the LUC under Docket No. A03-739. The study is under preparation and is required to be approved by the LUC. Copies of the study will be submitted to the County Departments of Planning and Housing and Human Concerns, as well as the State Office of Planning, as required by the LUC.

11. Discussion concerning the community plan policy referenced in your letter will be included in the DEIS. Maui Business Park Phase II will not merge with developed portions of Paunene. While a portion of land from Hansen Road toward Kahului (see figure 5 of the EISPN) is in the State Urban District, this Urban area was not part of the recent reclassification of the majority of the Maui Business Park Phase II site. This area has been designated Urban District for many years, is planted in sugar cane, and will remain in sugar cultivation for the foreseeable future. Thus, an open space buffer will be maintained between Maui Business Park Phase II and Paunene.

12. A Phase I Environment Site Assessment was conducted for Maui Business Park Phase II. The area covered in the search of available environmental records includes all of the Maui Business Park South Project Area and the majority of the North Project Area.

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

Mr. Michael W. Foley
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
3-8-79:13
August 10, 2004
Page 5

handle the additional drainage. Drainage from the North Project area will be retained on site, either by individual drainage basins on each lot, or as recommended in the forthcoming detailed drainage master plan.

9a. As stated in Section 4.4 "Agricultural Impact" of the EISP, a portion Maui Business Park Phase II (South Project Area) and the re-alignment of Mokuale Highway will withdraw approximately 150 acres (out of 1,606 acres) of the land used for the release of mill process water. This area is near the south-east edge of the South Project Area and the re-aligned Mokuale Highway.

9b. The release of mill process water is not expected to pose significant odor problems given the proposed light industrial uses within Maui Business Park Phase II. All prospective lot purchasers will be informed of possible odor, noise, and dust resulting from nearby agricultural operations and of the Hawaii Right-to-Farm Act, Chapter 165, HRS, which limits the circumstances under which preexisting farming activities may be deemed a nuisance.

9c. Hawaii Commercial & Sugar (HIC&S) is currently taking steps to reduce mill process water through recycling, mill improvements, and other efforts. In addition, mill water will be redirected to locations away from Maui Business Park Phase II.

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12. A Phase I Environment Site Assessment was conducted for Maui Business Park Phase II. The area covered in the search of available environmental records includes all of the Maui Business Park South Project Area and the majority of the North Project Area.


Mr. Michael W. Foley
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
3-8-79:13
August 10, 2004
Page 6

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13a. A visual analysis study, which includes a section drawing of the extended Hookele Street along with planting and landscape areas will be included in the DEIS. Detailed landscape plans for Maui Business Park Phase II will be prepared at a later time.

13b. We acknowledge that the Planning Department will require review by the Urban Design Review Board as part of the Change in Zoning request.

Thank you for reviewing the EISP. Your comments will be included in the draft environmental impact statement.

Sincerely,

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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AUG 27 '04 12:25PM

P.2

AUG 27 '04 12:25PM

RAULPH M. MADAMORE, L.S., P.E.
 Development Services Administration
 Highway Division
 TRACY TAMAMONE, P.E.
 Highway Division
 LLOYD RICHMOND, P.E.
 Engineering Division
 BRIAN HARRIS, P.E.
 Highway Division
 JOHN D. HARRIS
 Soil Water Division



AUG 26 2004
 DEPARTMENT OF PUBLIC WORKS
 ENVIRONMENTAL MANAGEMENT
 DEVELOPMENT SERVICES ADMINISTRATION
 250 SOUTH HIGH STREET
 WAILUKU, MAUI, HAWAII 96793

AUG 24 06
 DEPT OF PLANNING
 COUNTY OF MAUI
 RECEIVED

August 18, 2004

Mr. Dan Yasui
 A & B PROPERTIES INC.
 822 Blahop Street
 Honolulu, HI 96813

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
 MAUI BUSINESS PARK PHASE II
 TMK: (2) 3-8-001:002 (POR), 3-8-008:004 (POR), 3-8-078:013

Dear Mr. Yasui:

- We reviewed the subject application and have the following comments:
1. A 30' radius shall be provided at the intersection of proposed Subdivision road/driveway and the adjoining subdivision roads and State roads.
 2. A verification shall be provided by a Registered Civil Engineer that the grading and runoff water generated by the project will not have an adverse effect on the adjacent and downstream properties.
 3. A detailed and final drainage report and a Best Management Practices Plan (BMP) shall be submitted with the grading plans for review and approval prior to issuance of grading permits. The drainage report shall include hydrologic and hydraulic calculations and the schemes for disposal of runoff waters. It must comply with the provisions of the "Rules and Design of Storm Drainage Facilities in the County of Maui" and must provide verification that the grading and runoff water generated by the project will not have an adverse effect on adjacent and downstream properties. The BMP plan shall show the location and details of structural and non-structural measures to control erosion and sedimentation to the maximum extent practicable.
 4. A site plan and sight distance report to determine required sight distance and available sight distance at existing and proposed street intersections shall be provided for our review and approval.

August 19, 2004
 Mr. Dan Yasui
 SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
 MAUI BUSINESS PARK PHASE II
 TMK: (2) 3-8-001:002 (POR), 3-8-008:004 (POR), 3-8-078:013

Page 2 of 3

6. All roads anticipated to be dedicated to the County shall be built to County standards. Roads proposed to be dedicated shall be identified.
6. Identify any intersection proposed to be (dedicated to the County and) signalized as part of this project. Such information is vital to assess our maintenance requirements.
7. Hookele Street is projected to intersect/close a portion of Pulehu Road within the South Project area. Please describe how traffic will be handled. Pulehu Road is a heavily used road by heavy truck traffic going to/from the Central Maui Sanitary Landfill as well as by vehicular traffic coming/going Upcountry.
8. Hookele Street is proposed to have landscaped medians and landscaped berms. If this road is dedicated to the County, the landscaped medians would normally be maintained by the County Parks and Recreation Department. Would you recommend that this proposal be reviewed by the Parks Department as to their maintenance capability. Future property owners along Hookele Street shall be advised of their maintenance requirements for the landscaped berms forming their respective property.
9. Any drainage system outside of the road right of way (if such roadway is dedicated to the County of Maui) shall remain under private ownership and maintenance. The existing retention basins shall remain under private ownership and maintenance.
10. Should there be any pedestrian ways/bicycle ways that are provided outside of the road right of way (if such roadway is dedicated to the County of Maui), such pedestrian/bike ways shall remain under private ownership and maintenance.
11. It is suggested in the notice that some lots will be used to service Kahului Airport. Please describe how traffic will access the Airport, especially in regards to the North Project Area. We note that under the State's Advisory Threat Level of orange or higher that Aalele Street is closed off to through traffic. Would there be other streets utilized by this development to be closed off?
12. Although wastewater capacity is available as of July 27, 2004, the developer should be informed that wastewater capacity cannot be ensured until the issuance of the building permit.

August 19, 2004

Mr. Dan Yasui

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
MAUI BUSINESS PARK PHASE II
TMK: (2) 3-8-001:002 (POR), 3-8-006:004 (POR), 3-8-079:013**

Page 3 of 3

- 16. The developer shall pay assessment fees for treatment plant expansion costs in accordance with ordinance setting forth such fees.
- 17. Wastewater contribution calculations are required before a building permit is issued.
- 18. Non-contact cooling water and condensate should not drain to the wastewater system.
- 19. Provide discussion and calculation (sewer impact study) to substantiate that the existing wastewater system is adequate to serve this project.
- 20. Developer is required to fund any necessary off-site improvements to collection system and wastewater pump stations.
- 21. Plans should show the installation of a single service lateral and advanced riser for each lot. Large facilities may require a service manhole.
- 22. Indicate on the plans the ownership of each easement (in favor of which party). Note: County will not accept sewer easements that traverse private property.
- 23. Kitchen facilities within the proposed project shall comply with pre-treatment requirements (including grease interceptors, sample boxes, screens, etc.).
- 24. Submit a solid waste management plan for the recycling and disposal of construction waste and cleared and grubbed material.

If you have any questions regarding this memorandum, please call Milton Arakawa at 270-7846.

Yours truly,

Gilbert S. Coloma-Agaran
for Gilbert S. Coloma-Agaran
Director

Public Works and Environmental Management

MA:da
c:\work\public\Business Park Phase II\24_0801002_04.rpt
OEQC
State Land Use Commission
PBR Hawaii



LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

Wu, Frank Blazoff, FASLA
Consultant

Thomas S. Wittox, ASLA
Principal

R. Stan Decker, ASLA
Principal

Russell Y. O'Neil, ASLA
Executive Vice President

Vernon S. Starnam
Principal

James L. Leonard, AICP
Principal

Grant M. Malar, AICP
Senior Associate

Toni S. Schell, AICP
Associate

Raymond T. Hsu, ASLA
Associate

Kathy M. Hume, ASLA
Associate

Howard R. O'Neil
1001 Kalia Street
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Tel: (808) 531-2411
Fax: (808) 531-1400
E-mail: hro@hawaii.com

John D. O'Neil
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Richard O'Neil
1001 Kalia Street
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Fax: (808) 531-1400
E-mail: ro@hawaii.com

September 2, 2004

Mr. Gilbert S. Coloma-Agaran, Director
Department of Public Works and Environmental Management
County of Maui
250 South High Street
Wailuku, Hawaii 96793

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13**

Dear Mr. Coloma-Agaran:

Thank you for your letter (addressed to Dan Yasui) dated August 19, 2004 regarding the Environmental Impact Statement Preparation Notice (EISP/N) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments in the order noted in your letter.

- 1. All roads and intersections within Maui Business Park Phase II and all roads and intersections adjoining State roads will be designed in accordance with Chapter 18.16 (Design Standards) of the Maui County Code (MCC) and all applicable State Highway standards.
- 2. Maui Business Park Phase II will be designed and constructed in compliance with Chapter 20.08 (Soil and Sedimentation Control), MCC, and all applicable Federal and State regulations and rules regarding grading, drainage, erosion control, and non point source pollution. Civil design will be undertaken by a Registered Civil Engineer to insure that the grading and runoff water generated by Maui Business Park Phase II will not have an adverse effect on adjacent and downstream properties.
- 3. A preliminary drainage plan has been prepared for Maui Business Park Phase II and is included in the Draft Environmental Impact Statement (DEIS). A more detailed drainage master plan for the site and the region will be prepared and submitted to the County before beginning engineering design. A Best Management Practices (BMP) Plan will be submitted with the grading plans. The final drainage plan will include hydrologic and hydraulic calculations and schemes for disposal of runoff water. The plan will comply with the provisions of the "Rules and Design of Storm Drainage Facilities in the County of Maui" will provide verification that the grading and runoff water generated will not have an adverse effect on adjacent and downstream properties. The BMP plan will show the location and details of structural and non-structural measures to control erosion and sedimentation to the maximum extent possible.

Mr. Gilbert S. Coloma-Agaran
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
3-8-79:13
September 2, 2004
Page 3

It is envisioned that access to and from the North Project Area and the airport could be accommodated by Koolani Place in the immediate future and by the Airport Access Road via Haleakala Highway, when the Airport Access Road is built by the State. Future businesses within the project would follow the directives and requirements mandated under applicable State Advisory Threat Levels.

12. We acknowledge that wastewater capacity is available as of July 27, 2004, but the capacity cannot be ensured until the issuance of building permits.
13. A&B Properties, Inc., will pay applicable assessment fees for treatment plant expansion costs in accordance with all applicable County laws.
14. A detailed sewer impact study evaluating the wastewater system requirements for Maui Business Park Phase II will be prepared and submitted to the County for review prior to commencing engineering design. This study will include wastewater contribution calculations.
15. Measures will be undertaken to ensure that non-contact cooling water and condensate does not drain to the wastewater system.
16. A detailed sewer impact study evaluating the wastewater system requirements for Maui Business Park Phase II will be prepared and submitted to the County for review prior to commencing engineering design.
17. A&B Properties, Inc., in consultation with the Department, will determine and fund applicable off-site improvements to collection system and wastewater pump stations.
18. While detailed plans have not yet been prepared, when prepared, the plans will show the installation of a single service lateral and advanced riser for each lot. We acknowledge that large facilities may require a service manhole.
19. When detailed plans are prepared, the ownership of easements (if any) will be indicated. We acknowledge that the County will not accept sewer easements that transverse private property.
20. Kitchen facilities within Maui Business Park Phase II will comply with pre-treatment requirements, including the installing grease interceptors, sample boxes, and screens as appropriate.
21. A solid waste management plan for the recycling and disposal of construction waste and cleared and grubbed material is included in the DEIS.

Mr. Gilbert S. Coloma-Agaran
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
3-8-79:13
September 2, 2004
Page 2

4. A site plan and sight distance report to determine required sight distance and available sight distance at existing and proposed street intersections will be provided for the Department's review.
5. All roads within Maui Business Park Phase II will be designed in accordance with Chapter 18.16 (Design Standards) of the Maui County Code (MCC) and all applicable State Highway Standards. Roads anticipated to be dedicated to the County will be identified in subdivision plans provided to the County for approval.
6. Intersections proposed to be signalized and dedicated to the County will be identified in subdivision plans provided to the County for approval.
7. As shown on the Conceptual Master Plan (Figure 4 of the EISPN), Pulehu Road will be realigned within Maui Business Park Phase II to intersect with the extended Hookele Street. When extended, Hookele Street will intersect with Hana Highway. With the realignment of Pulehu Road, traffic on Hana Highway bound for Pulehu Road will enter Hookele Street at the intersection of Hana Highway/Hookele Street and then make a left turn from Hookele Street on to Pulehu Road. Please note that provisions for a land exchange have been agreed upon to allow the State of Hawaii, the County of Maui, and A&B to exchange land to implement this realignment (see attached).
8. The DEIS has been provided to the Department of Parks and Recreation for review and comment. At the appropriate time, discussion will be undertaken with the Department of Parks and Recreation concerning the maintenance of landscaped medians along Hookele Street. Landscaped berms within private property will be privately maintained.
9. We acknowledge that any drainage system outside of the road right of way (if the roadway is dedicated to the County) shall remain under private ownership and maintenance. In addition, the existing retention basins shall remain under private ownership.
10. We acknowledge that any pedestrian ways or bikeways provided outside of the road right of way (if the roadway is dedicated to the County) shall remain under private ownership and maintenance.
11. The potential uses (car rental agencies, airline service areas, flight kitchens, freight forwarding centers, and cargo warehousing) cited in the EISPN for the North Project Area are representative of that which may be developed in this area, in part due to its proximity to the Kahului Airport. Market forces will largely determine actual uses developed.

Mr. Gilbert S. Coloma-Agaran
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
3-8-79:13

September 2, 2004
Page 4

Thank you for reviewing the EISPN. Please note that the public comment for the EISPN was from June 23 to July 23, 2004 and the draft environmental impact statement (EIS) was completed before your comments were received. Accordingly, your comments will be included in the final EIS.

Sincerely,



Tom Schnell, AICP
Associate

Attachments

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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ALAN M. ARAKAWA
Mayor

GILBERT S. COLOMA-AGARAN
Director

MILTON M. ARAKAWA, A.L.C.P.
Deputy Director

Telephone: (808) 270-7745
Fax: (808) 270-7875



COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND ENVIRONMENTAL MANAGEMENT
ENGINEERING DIVISION
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96783

July 15, 2003

RAJPHI HAGANIE, L.B., P.E.
Development Services Administration

TRACY TAKAMURE, P.E.
Wastewater Reclamation Division

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

BRIAN HERRERO, P.E.
Highways Division

JOHN D. HARBER
Soil Water Division

Rock Stack

FOR OFFICIAL USE ONLY
CIVIL

DATE: JUL 24 2003

TIME: 10:00 AM

BY: JAV

RE: A&B PROP. CC. 50 11 DYY 185

RECEIVED

SUBJECT: Maui Business Park - Phase II
Petition for District Boundary Amendment JUL 2 2 2003
TMK: (2) 3-8-006:004 (Portion)

A&B PROPERTIES-HAUI

Dear Mr. Kawahara:

We have reviewed the subject petition and have no objections to include the portion of Pulehu Road within the District Boundary Amendment. Please note, the attached minutes from a previous meeting with A&B, State Department of Transportation, and County Public Works Engineering Division, show this section of Pulehu Road to be part of a land exchange to A&B when the Airport Access Road is developed.

If you have any questions, please call me at 270-7845.

Sincerely,



Gilbert Coloma-Agaran, Director
Department of Public Works and
Environmental Management

LL/jk(ED03-616)
Engineering-5440



Edward K. Noda
and
Associates, Inc.

Minutes of Kahului Airport New
Access Road-Hansen/Pulehu Roads
Land Exchange Meeting of May 9, 1996

May 14, 1996

Engineers
and
Environmental
Consultants
Engineering
Surveying
Planning
Mapping
615 Pepee Street
Suite 300
Honolulu, Hawaii
96814-3116
Telephone
(808) 591-6553
Facsimile
(808) 573-8551

RECEIVED
COUNTY OF MAUI

Persons Attending:

County of Maui, Dept. of Public Works, Engineering Division

Joe Krueger 243-7745
Cary Yamashita

Department of Transportation, Airports Division

Property Management Section - David Shimokawa 838-8673 (Oahu)
Engineering Planning - Ben Schlapak 838-8821 (Oahu)
Kahului Airport - Jason Koga and Jim Johnson

A&B Hawaii, Inc. - Paul Hallin 525-8461 (Oahu)
Edward K. Noda & Associates, Inc. - Jim Dittmar 591-8553
Ext. 201 (Oahu)

The meeting was held on May 9, 1996 at 10:30 a.m. to discuss the proposed Land Exchange. The land to be exchanged is shown on Attachments 1 and 2, and Exhibits 1, 2 and 3.

The Draft EIS for the Kahului Airport Improvements is now out for circulation and review. It is expected that the Final EIS will be completed in October 1996. Barring, legal challenges, construction of the New Access Road could begin in 1997.

The first construction phase will be the construction of the new Hansen Road. Therefore, it was agreed that the State of Hawaii, County of Maui and A&B Hawaii, Inc. would enter into a Land Exchange Agreement, pending the actual exchange of deeds. This Agreement would provide for the Right-of-Entry by the State of Hawaii for construction of the New Hansen Road and the New Access Road on the County of Maui and A&B Hawaii, Inc. lands.

The Airports Division will undertake the coordination of the Land Exchange. The tasks to be undertaken at this time are listed below.

1. Draft the Land Exchange Agreement.
2. Subdivide the remaining Parcels.
3. Draft Quitclaim Deeds.
4. Coordinate the Land Exchange with Legal and Engineering.

Attachments

c: Attendees

May 9, 1996

NEW ACCESS ROAD- HANSEN/PULEHU ROADS LAND EXCHANGE

COUNTY OF MAUI

Trades 10.61 Acres to the State of Hawaii and A&B Hawaii, Inc.
Receives 4.93 Acres from A&B Hawaii, Inc.
State of Hawaii relocates Hansen/Pulehu Roads at a cost of \$1,568,000.

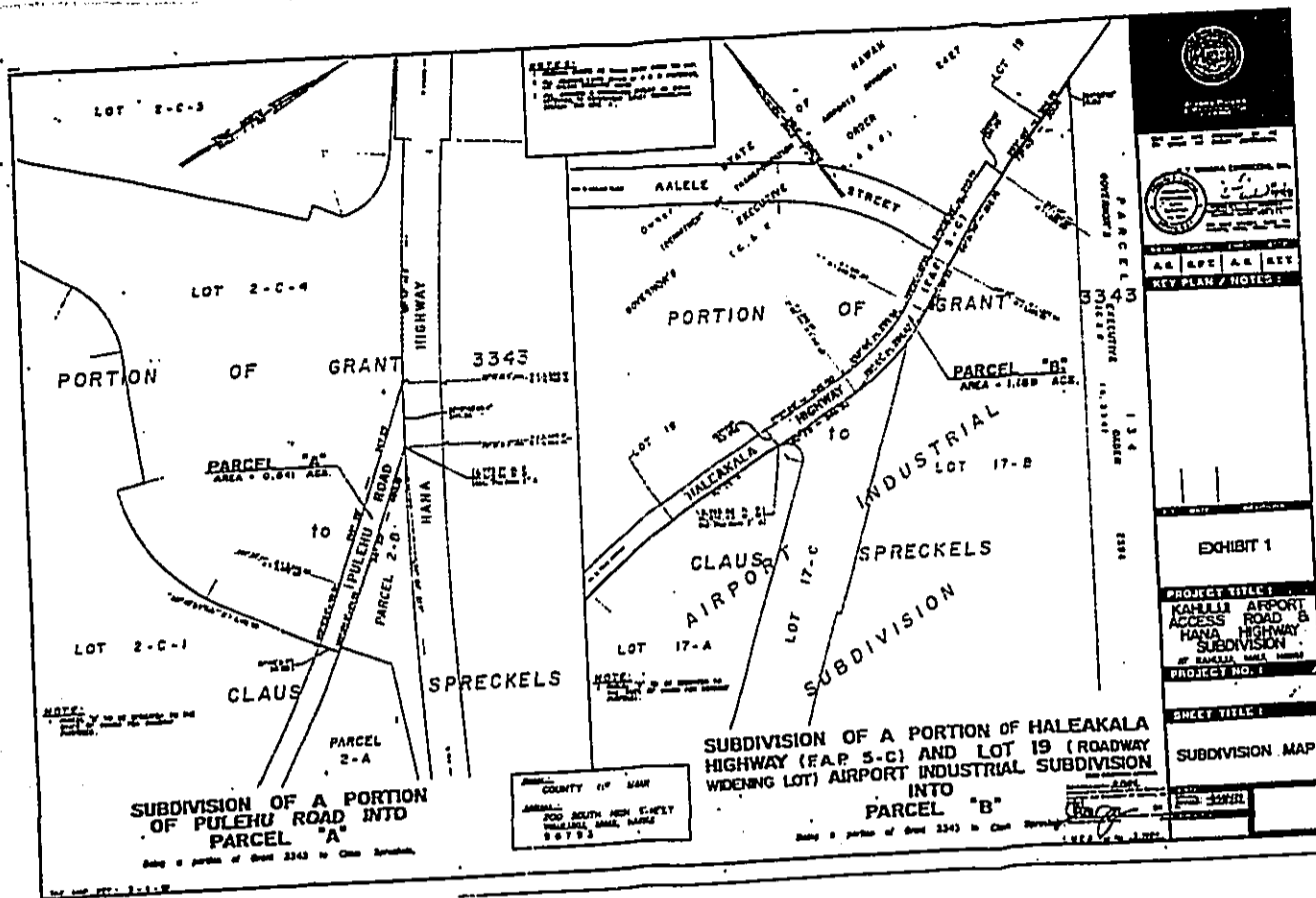
STATE OF HAWAII

Receives 2.01 Acres from the County of Maui for the Kahului Airport New Access Road.
Relocates Hansen/Pulehu Roads at a cost of \$1,568,000. Road dedicated to County of Maui.

A&B HAWAII, Inc.

Trades 4.93 Acres to County of Maui.
Receives 8.60 Acres from the County of Maui.

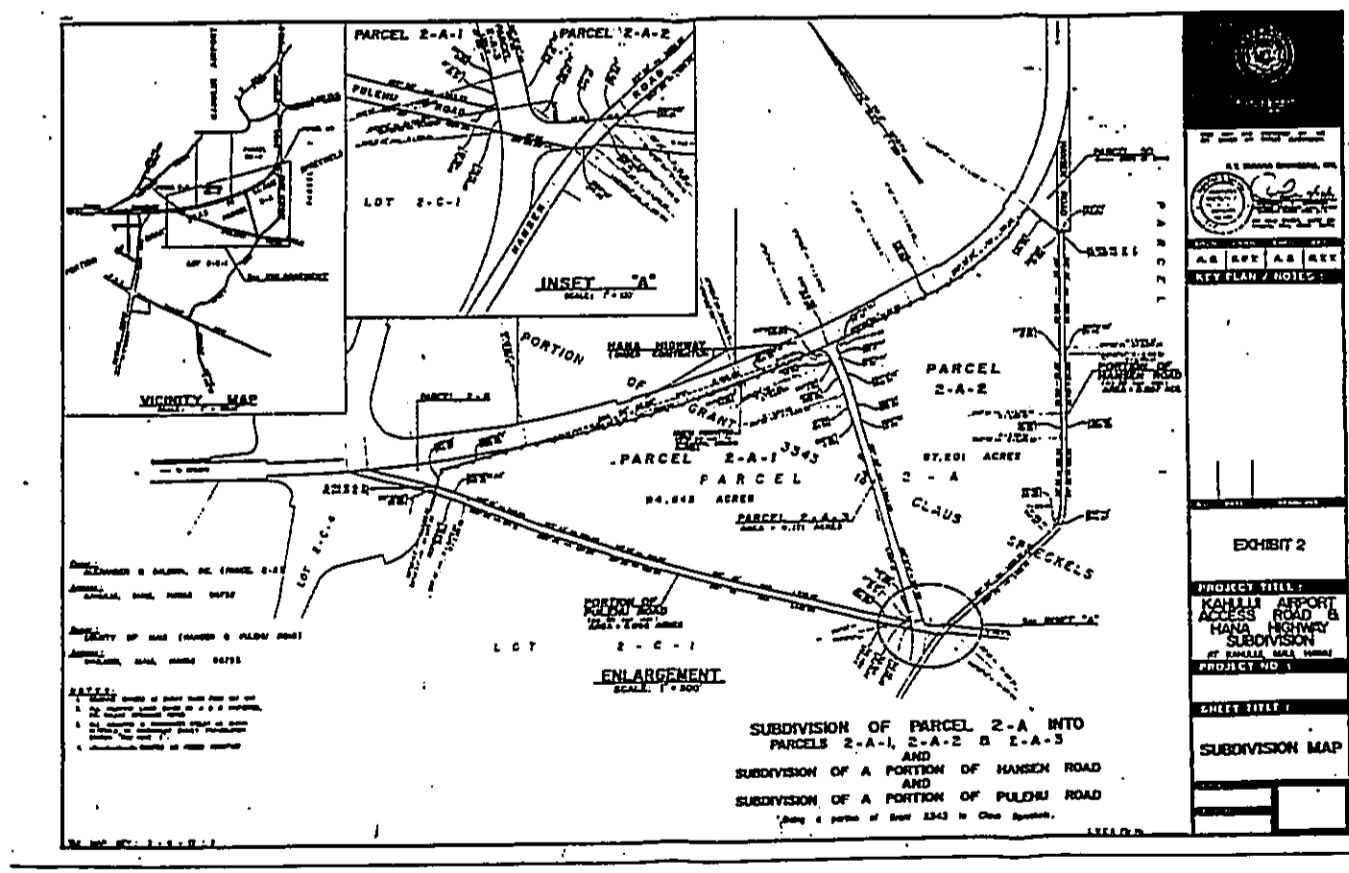
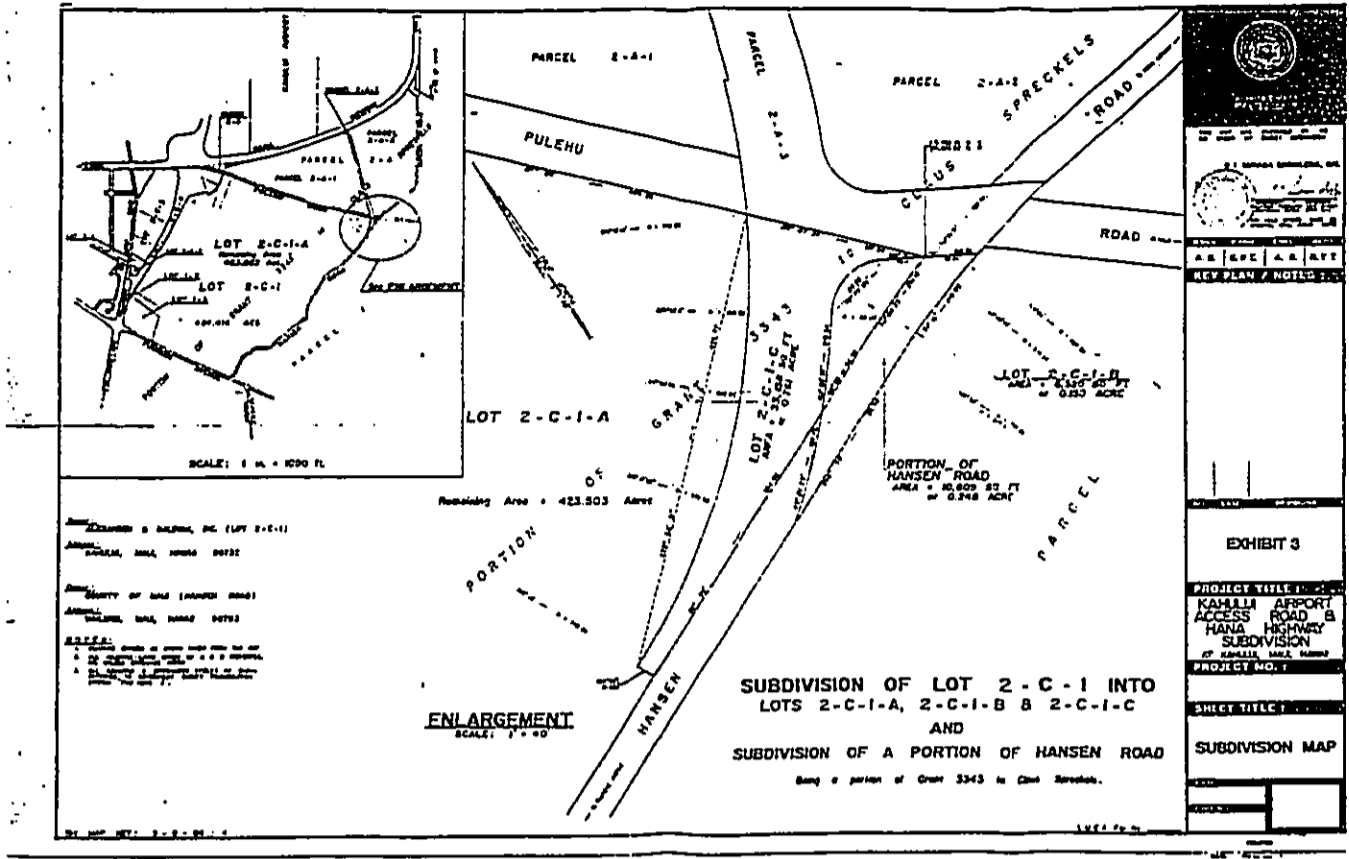
ATTACHMENT 2



NEW ACCESS ROAD-HANSEN/PULEHU ROADS LAND EXCHANGE

Parcel/Lot	Owner	Acres	Recipient
Parcel A	County of Maui	0.841	State of Hawaii
Parcel B	County of Maui	1.169	State of Hawaii
Por. of Pulehu Rd.	County of Maui	5.092	A&B Hawaii, Inc.
Por. of Hansen Rd.	County of Maui	3.257	A&B Hawaii, Inc.
Por. of Hansen Rd.	County of Maui	0.248	A&B Hawaii, Inc.
Parcel 2-A-3	A&B Hawaii, Inc.	4.171	County of Maui
Lot 2-C-1-C	A&B Hawaii, Inc.	0.761	County of Maui

ATTACHMENT 1





GLENN T. CORREA
Director
JOHN L. BUCK III
Deputy Director
(808) 270-7230
Fax (808) 270-7234

ALAN M. ARAKAWA
Mayor

DEPARTMENT OF PARKS & RECREATION
700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793

July 2, 2004

Mr. Dan Yasui
A&B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Yasui:

SUBJECT: Environmental Impact Statement Preparation Notice
Maui Business Park Phase II
TMK: 3-8-01:2 (portion), 3-8-06:4 (portion), 3-8-79:13

We have reviewed the Environmental Impact Statement Preparation Notice for the subject project and have no comments or objections to the proposed action.

Thank you for the opportunity to review and comment. If there are any questions, please contact Mr. Patrick Matsui, Chief of Parks Planning and Development, at (808) 270-7387.

Sincerely,

GLENN T. CORREA
Director

c: Patrick Matsui, Chief of Planning and Development
Anthony Ching, State Land Use Commission
Tom Schnell, PBR Hawaii



LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

Mr. Glenn T. Correa, FASLA
President

THOMAS S. WITTMER, ASLA
President

R. SIMS THOMPSON, ASLA
Executive Vice President

RUSSELL Y.J. CHENG, ASLA
Executive Vice President

VINCENT SIMONSON
President

JAMES LAWRENCE, AICP
Principal

GEORGE MIZOGUCHI, AICP
Senior Associate

TOM SCHNELL, AICP
Associate

RAYMOND T. IMAI, ASLA
Associate

KERRY NAKAZAWA, ASLA
Associate

Head Office
1001 Pepee Street
ASB Plaza, Suite 400
Honolulu, Hawaii 96813-3414
Tel: (808) 331-5411
Fax: (808) 331-1199

Maui Office
1001 Pepee Street
ASB Plaza, Suite 400
Honolulu, Hawaii 96813-3414
Tel: (808) 331-5411
Fax: (808) 331-1199

Wailuku Office
1001 Pepee Street
ASB Plaza, Suite 400
Honolulu, Hawaii 96813-3414
Tel: (808) 331-5411
Fax: (808) 331-1199

August 9, 2004

Mr. Glenn T. Correa, Director
Department of Parks & Recreation
700 Halia Nakoa Street, Unit 2
Wailuku, Hawaii 96793

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(PORTION), 3-8-06:4 (PORTION), 3-8-79:13

Dear Mr. Correa:

Thank you for your letter (addressed to Dan Yasui) dated July 2, 2004 regarding the Environmental Impact Statement Preparation Notice (EISP) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we acknowledge that you have no comments or objections to the proposed action.

Thank you for reviewing the EISP. Your comments will be included in the draft environmental impact statement.

Sincerely,

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yeshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

ALAN M. ARAKAWA
Mayor



GEORGE Y. TENGAH
Director
JEFFREY T. PEARSON, P.E.
Deputy Director

DEPARTMENT OF WATER SUPPLY

COUNTY OF MAUI

200 South High Street

WAILUKU, MAUI, HAWAII 96793-2155

Telephone (808) 270-7818 • Fax (808) 270-7833

www.mauiwater.org

July 22, 2004

Mr. Dan Yasui
A & B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Subject: Environmental Impact Statement for Maui Business Park Phase II

Dear Mr. Yasui:

Thank you for the opportunity to provide comments on the preparation of this Environmental Impact Statement (EIS). Please find attached our comments of September 3, 2003 to the State Land Use Boundary Amendment of this project.

Source Availability and Consumption

Using system standards, the estimated use for the project would be in the range of 0.828 MGD - 1.074 MGD. The applicant proposes to participate in the funding and construction of adequate water source, storage and transmission facilities to accommodate demand for this project.

Estimated flows in the ditches probably include flow to the Wailuku Shaft and reliable flows may be significantly less than an average of 42 MGD. The Mean Flow, minus standard deviation in all Wailuku Sugar Company ditches between 1955 - 1977, excluding the Wailuku Shaft pump, totaled 32.05 MGD.

Neither the Weiala Reservoir nor the Spreckels Ditch is an appropriate raw storage location for potable supply due to potential pollution from urban and agricultural sources in the area. We recommend that the applicant participate in raw water storage at a more appropriate location upstream, as well as enclosed transmission to the plant.

Pollution Prevention

The project overwrites the Kahului aquifer. The Department of Water Supply strives to protect the integrity of surface and groundwater resources by encouraging the applicant to adopt best management practices (BMPs) designed to minimize infiltration and runoff from all construction and vehicle operations. We have attached sample BMPs for principle operations for reference. Additional information can be obtained from the State Department of Health.

Conservation

We recommend that the following water conservation measures be included in the EIS and implemented in project design and construction:
Eliminate Single-Pass Cooling: Single-pass, water-cooled system should be eliminated per Maui County Code Subsection 14.21.20. Although prohibited by code, single-pass water cooling is still manufactured into some models of air-conditioners, freezers, and commercial refrigerators.
Utilize Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20A.680 requires the use of low-flow water fixtures and devices in faucets, showerheads, urinals, water closets and hose bibs. Water

ALAN M. ARAKAWA
Mayor

GEORGE Y. TENGAH
Director
JEFFREY T. PEARSON, P.E.
Deputy Director

conserving washing machines, ice-makers and other units are also available.
Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Refer to the attached handout, "The Costly Drop". The applicant should establish a regular maintenance program.
Use Climate-adapted Plants: The project is located in the "Maui County Planting Plan" - Plant Zone 3. Native plants adapted to the area conserve water and protect the watershed from degradation due to invasive alien species. Please refer to the attached brochure: "Saving Water in The Yard - What and How to Plant In Your Area" for landscaping of common areas and for distribution to future homeowners.
Prevent Over-Watering By Automated Systems: Provide rain-sensors on all automated irrigation controllers in common areas. Check and reset controllers at least once a month to reflect the monthly changes in evapotranspiration rates at the site. As an alternative, provide the more automated, soil-moisture sensors on controllers.

Should you have any questions, please contact our Water Resources and Planning Division at 270-7199.

Sincerely,

George Y. Tengah
Director
emb

cc: Office of Environmental Control
State Land Use Commission
PBR Hawaii
DWS Engineering Division

Attachments: (with original only)
DWS letter of Sept 3, 2003
The County DWP
Maui County Planting Plan - Saving Water in the Yard-What and How to Plant in your Area
Ordinance No. 2108 - A Bill for an Ordinance Amending Chapter 16.20 of the Maui County Code, Pertaining to the Plumbing Code
A Checklist of Water Conservation Ideas For Commercial Buildings
Selected BMP's from "Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters" EPA

C:\Myth\WP Final\00C00L\U\Head Bus Park II EIS wpt

By Water All Things Find Life

If one partner exceeded its allocation, this additional amount would be subtracted from the total amount to be distributed by the department. We are not currently allocating water on the basis of the CMJV agreement. Even if we were, A & B's remaining allocation would be equal to or less than 480,000 GPD.

Using system standard guidelines, estimated usage for the entire 179 acre project site would be in the range of 0.828 MGD - 1.074 MGD. Anticipated consumption in these range will require source development. The applicant estimates a total project consumption of 446,000 gpd based on the Interim Water Use Standard for Central Maui of 2,477 gpd per acre for light industrial use. This is an underestimate when compared with State System Standard of 6,000 GPD per acre which has been used since 1985. According to our records water usage in large industrial establishments in the Central Maui area is in the range of 5,000 to 6,000 gallons per acre. The standard used by the applicant is therefore inconsistent with the statewide system standard and is considerably lower than the empirical data.

The department is taking steps to protect the long term viability and sustainability of Iao and Waikae aquifers by developing new sources, groundwater protection, watershed protection as well as water conservation awareness through the distribution of low flow fixtures and requiring low flow fixtures for new developments, to name a few.

Recommendations:

1. Deny, or
2. If approved, the applicant should implement either a or b below.
 - a. Develop new source outside of the study area - Source development in Iao at this time, though necessary will only serve to distribute withdrawals and not add to capacity. The situation in Waikae is similar. The only potentially viable "additional" groundwater source option in Waikae which is outside the study area are north of the Waikae Valley - such as Waiwai or Waipohia wells or Makamakaele on the north, or
 - b. Dedication of surface water collection and transmission systems within the study area, and construction of treatment facilities to enable use and dedication to DWS.

Should you have any questions, please call our Water Resources and Planning Division at 270-7199.

Sincerely,


George Y. Yoshida
Director

Water Resources and Planning Division
Land Use Commission
Department of Water Resources and Planning
100 South King Street, Honolulu, HI 96813



DEPARTMENT OF WATER SUPPLY

COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 270-7816 • Fax (808) 270-7833

September 3, 2003

Mr. Clayton Yoshida
Planning Program Administrator
Planning Department
County of Maui
250 South High Street
Wailuku HI 96793

Dear Mr. Yoshida:

Project Name: Maui Business Park Phase 2 - Reclassification of 138,158 of 179 acre lots from agricultural to urban district
TMK: (2) 3-8-001-002 per, 3-8-006:004 per, & 3-8-079:013 per
ID: A03 - 739

Thank you for the opportunity to comment on this project proposal. The Department of Water Supply provides the following information which supersedes our comments dated July 3, 2003.

In July, 1975, the Central Maui Joint Venture (CMJV) entered into an agreement with BWS to study and develop water sources in the Central Maui area from Iao Valley to Waikae Valley (study area) to provide at least 19 MGD additional water to the Central Maui System owned by BWS. This agreement expired in 1985. CMJV completed development of water sources and BWS accepted the dedication from the joint venture on December, 1989. Three wells with 2,800, 2,800 and 3,480 gpm pumps and aggregate capacity of 13,075 MGD were added to the Central Maui System. However, the wells developed only produce an average of 5 MGD and for reasons of aquifer protection should not be pumped over 9 MGD even considering pump capacity. The 13.5 MGD indicated in the document is therefore an overestimate in light of installed capacity as well as wellfield integrity. No surveyor of water, neither the developer nor the Department of Water Supply, can obtain average day use equal to fully installed capacity. This would ignore system standards for safety and peaking capacities. System standards require that sources be able to meet maximum day demand (1.5 x average demand) in 16 hours, with the largest pump out. Applying these standards to the CMJV wells, the total average day capacity of the three pumps would come to 3,584,000. Two thirds (2/3) of two thirds would be 5,811,200 gpd.

Over the entire period of record - 1988 to present - the average use of wellfield has been 7,512 MGD. In earlier years estimates of aquifer capacity were much more optimistic. Due to aquifer deterioration from the beginning of 2000 to present, average withdrawals were reduced. Average wellfield withdrawals over the entire period from January, 2000 through the present have been 5,409 MGD. The only periods in which pumpage over 9 MGD average was sustained over an extended period were in 1998 and part of 1999. During these periods, the aquifer suffered. We have attached a chart showing Waikae Wellfield Water and Chloride levels for reference.

The Petitioner states that 1,960 MGD remain in the A & B allocation. Staff facilities of constructed and pending projects in recent years for A & B have ranged from 765,463 gpd to 1,080,841 gpd. The most recent of these facilities was in November, 2002 and did not include the subject proposed project. Under the CMJV agreement, the Department of Water Supply had the responsibility of providing the total CMJV allotment to the partners collectively.

"THE COSTLY DRIP"

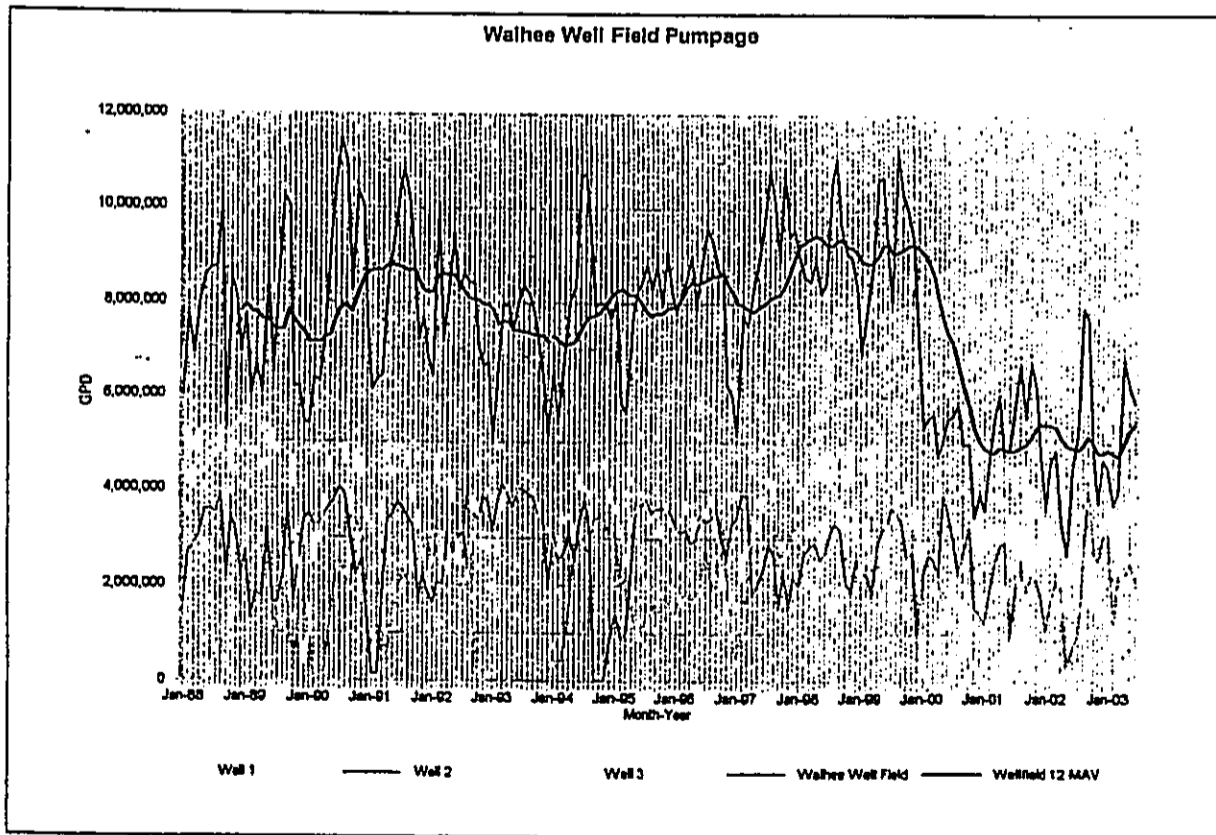


Slowly Dripping
Spigot Wastes
15 Gallons a day.

1/32" Leak Wastes
25 Gallons a day.

1/16" Stream Wastes
100 Gallons a Day.

1/8" Stream Wastes
400 Gallons a day.



Zone-specific Native and Polynesian plants for Maui County

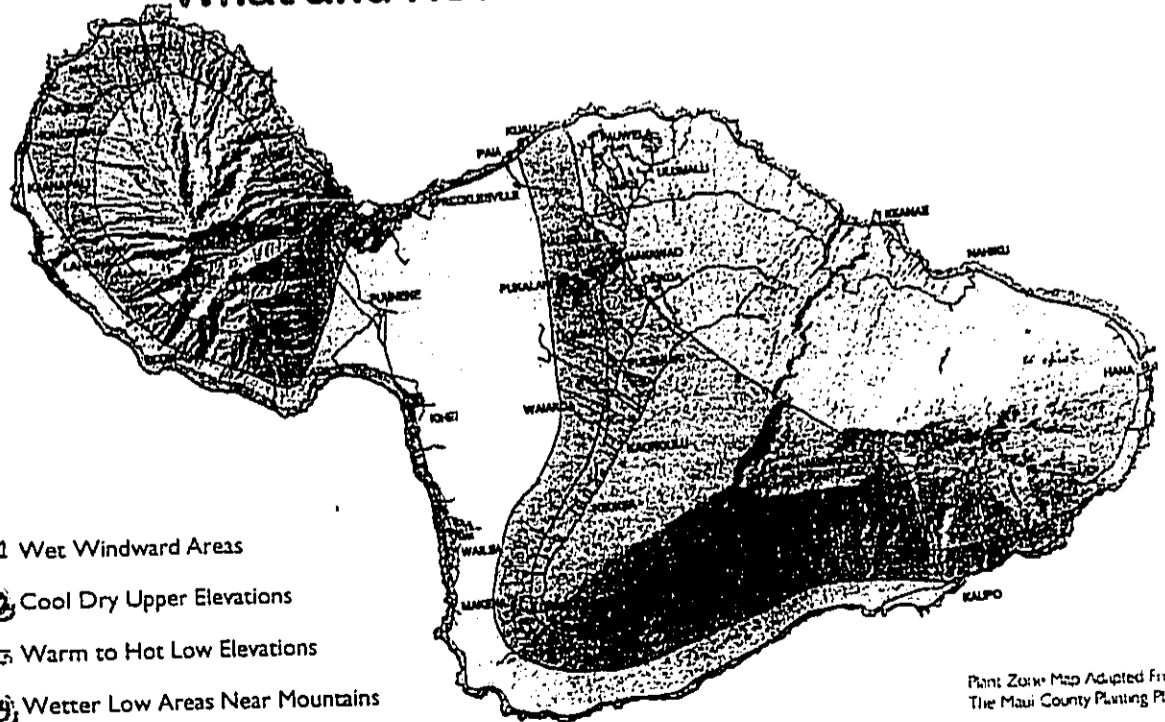
Zone 1

TYPE: F Fern G Grass Gr Ground Cover Sh Shrub P Palm S Sedge Tr Tree V Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	<i>Palaetium nudum</i>	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
F	<i>Sadleria cyathoides</i>	ama'u, ama'uma'u			sea to 1,000'	Dry to Wet
Gr - Sh	<i>Lipochaeta succulenta</i>	nehe	2'	5'	sea to 1,000'	Dry to Wet
P	<i>Cocos nucifera</i>	coconut, nuu	100'	30'	sea to 1,000'	Dry to Wet
P	<i>Pritchardia eracina</i>	lo'ulu, hawane	40'	10'	1,000' to 3,000'	Dry to Wet
P	<i>Pritchardia forbesiana</i>	lo'ulu	15'			
P	<i>Pritchardia hillebrandii</i>	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
P	<i>Pritchardia hillebrandii</i>	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
P	<i>Pritchardia hillebrandii</i>	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	<i>Marsicus javanicus</i>	marsh cypress, ahua'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium
S	<i>Marsicus javanicus</i>	marsh cypress, ahua'awa	0.5'	0.5'	sea to 1,000'	Dry to Wet
Sh	<i>Bidens hillebrandiana</i> ssp. <i>hillebrandiana</i>	ko'oko'olau	1'	2'	sea to 1,000'	Dry to Wet
Sh	<i>Cordylone fruticosa</i>	8, k	8'			
Sh	<i>Cordylone fruticosa</i>	8, k	8'			
Sh	<i>Hedyotis</i> spp.	au, pio	3'	2'	1,000' to 3,000'	Dry to Wet
Sh - Tr	<i>Broussonetia papyrifera</i>	wauke, paper mulberry	8'	6'	sea to 1,000'	Dry to Medium
Tr	<i>Acacia koa</i>	koa	50' - 100'	40' - 80'	1,500' to 4,000'	Dry to Medium
Tr	<i>Aleurites moluccana</i>	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	<i>Calophyllum inophyllum</i>	kamani, alexandrian laurel	80'	40'	sea to 3,000'	Medium to Wet
Tr	<i>Charpentiera obovata</i>		15'			
Tr	<i>Cordia subcordata</i>	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	<i>Cordia subcordata</i>	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	<i>Hibiscus furcillatus</i>	'iki'ohala, hau-hau	8'			
Tr	<i>Metrosideros polymorpha</i> var. <i>macrophylla</i>	c'hi'a lehua	25'	25'	sea to 1,000'	Dry to Wet
Tr	<i>Morinda citrifolia</i>	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet
Tr	<i>Pandanus tectorius</i>	haha, puhala (HALEDIST)	35'	25'	sea to 1,000'	Dry to Wet
V	<i>Alyxia oliviformis</i>	male	Vine		sea to 5,000'	Medium to Wet

Saving Water in The Yard

What and How to Plant in Your Area



- 1 Wet Windward Areas
- 2 Cool Dry Upper Elevations
- 3 Warm to Hot Low Elevations
- 4 Wetter Low Areas Near Mountains
- 5 Windward Coastal Salt Spray Zones

Plant Zone Map Adapted From
The Maui County Planting Plan

Tips From The Maui County Department of Water Supply
By Water All Things Find Life

Zone-specific Native and Polynesian plants for Maui County

Zone 2

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Tr	<i>Nestegia sandwicensis</i>	olopus	15'	15'	1,000' to 3,000'	Dry to Medium
Tr	<i>Pisonia auwahiensis</i>	halapepe	20'			
Tr	<i>Rauvolfia sandwicensis</i>	hao	20'	15'	sea to 3,000'	Dry to Medium
Tr	<i>Santalum ellipticum</i>	coastal sandalwood, 'li-ahi	8'	8'	sea to 3,000'	Dry to Medium
Tr	<i>Sophora chrysophylla</i>	mamane	15'	15'	1,000' to 3,000'	Medium
V	<i>Alyxia oliviformis</i>	mala	Vine		sea to 5,000'	Medium to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 2

TYPE: F Fern G Grass Gr Ground Cover Sh Shrub P Palm S Sedge Tr Tree V Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	<i>Pellotum nudum</i>	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
F	<i>Sadleria cystheoides</i>	'ama'u, 'ama'uma'u				
G	<i>Eragrostis monticola</i>	kalamalo	1'	2'	sea to 3,000'	Dry to Medium
Gr	<i>Ipomoea tuboides</i>	Hawaiian moon flower, 'uala	1'	10'	sea to 3,000'	Dry to Medium
Gr	<i>Peperomia leptostachya</i>	'ala'ala-wai-nui	1'	1'	sea to 3,000'	Dry to Medium
Gr	<i>Plumbago zeylanica</i>	'lie'e	1'			
Gr - Sh	<i>Hibiscus calyphyllus</i>	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	<i>Lipochaeta rockii</i>	nehe	2'	2'	sea to 3,000'	Dry to Medium
Sh	<i>Argemone glauca</i> var. <i>decipiens</i>	pus kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	<i>Artemisia mauiensis</i> var. <i>diffusa</i>	Maui wormwood, 'ahinahina	2'	3'	1,000' to higher	Dry to Medium
Sh	<i>Chenopodium oahuense</i>	'aheshea, 'awoo-weo	6'		sea to higher	Dry to Medium
Sh	<i>Dianella sandwicensis</i>	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	<i>Lipochaeta laevatum</i>	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	<i>Osteomeles anthyllifolia</i>	'ulei, eluehe	4'	8'	sea to 3,000'	Dry to Medium
Sh	<i>Senna gaudichaudii</i>	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	<i>Styphelia tameiameia</i>	pukawe	6'	6'	1,000' to higher	Dry to Medium
Sh	<i>Vitex rotundifolia</i>	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh - Tr	<i>Myoporum sandwicense</i>	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh - Tr	<i>Notobrichium sandwicense</i>	kulu'i	8'	8'	sea to 3,000'	Dry to Medium
Sh - Tr	<i>Dodonaea viscosa</i>	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	<i>Acacia koa</i>	koa	50' - 100'	40' - 80'	1,500' to 4,000'	Dry to Medium
Tr	<i>Charpentiera obovata</i>		15'			
Tr	<i>Erythrina sandwicensis</i>	wiwiwi	20'	20'	sea to 1,000'	Dry
Tr	<i>Metrosideros polymorpha</i> var. <i>macrophylla</i>	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 3

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Sh	<i>Argemone glauca</i> var. <i>decipiens</i>	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	<i>Bidens mauiensis</i>	ko'oko'oleu	1'	3'	sea to 1,000'	Dry to Medium
Sh	<i>Bidens menziesii</i> ssp. <i>menziesii</i>	ko'oko'oleu	1'	3'		
Sh	<i>Bidens micrantha</i> ssp. <i>micrantha</i>	ko'oko'oleu	1'	3'		
Sh	<i>Chenopodium oahuense</i>	ahehehe, awowow	6'		sea to higher	Dry to Medium
Sh	<i>Dianella sandwicensis</i>	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	<i>Gossypium tomentosum</i>	mao, Hawaiian cotton	5'	6'	sea to 1,000'	Dry to Medium
Sh	<i>Hedyotis</i> spp.	au, piko	3'	2'	1,000' to 3,000'	Dry to Wet
Sh	<i>Lipochaeta lavarum</i>	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	<i>Osteomeles anhyllidifolia</i>	'olei, elushe	4'	6'	sea to 3,000'	Dry to Medium
Sh	<i>Scaevola sericea</i>	naupaka, naupaka-kahakai	6'	6'	sea to 1,000'	Dry to Medium
Sh	<i>Senna gaudichaudii</i>	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	<i>Solanum nelsonii</i>	'aka, beach solanum	3'	3'	sea to 1,000'	Dry to Medium
Sh	<i>Styphelia tameiameia</i>	pukawe	6'	6'	1,000' to higher	Dry to Medium
Sh	<i>Vitex rotundifolia</i>	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh	<i>Wikstroemia urva-ursi</i> kauaiensis <i>kauaiensis</i>	'aka, Molokai osmanthus				
Sh - Tr	<i>Broussonetia papyrifera</i>	wauke, paper mulberry	8'	6'	sea to 1,000'	Dry to Medium
Sh - Tr	<i>Myoporum sandwicense</i>	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh - Tr	<i>Nototrichium sandwicense</i>	kulu'i	8'	8'	sea to 3,000'	Dry to Medium
Sh - Tr	<i>Dodonaea viscosa</i>	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	<i>Aleurites moulucana</i>	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	<i>Calophyllum inophyllum</i>	kamani, alexandrian laurel	80'	40'	sea to 3,000'	Medium to Wet
Tr	<i>Canthium odoratum</i>	Alaha'e, 'oha'u, waha'e	12'	8'	sea to 3,000'	Dry to Medium
Tr	<i>Cordia subcordata</i>	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	<i>Diospyros sandwicensis</i>	'ama	12'	15'	sea to 3,000'	Dry to Medium
Tr	<i>Erythrina sandwicensis</i>	wikwii	20'	20'	sea to 1,000'	Dry
Tr	<i>Metrosideros polymorpha</i> var. <i>macrophylla</i>	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 3

TYPE: F Fern G Grass Gr Ground Cover Sh Shrub P Palm S Sedge Tr Tree V Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	<i>Paspalum nudum</i>	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
G	<i>Colubrina asiatica</i>	'anapanapa	3'	10'	sea to 1,000'	Dry to Wet
G	<i>Eragrostis monticola</i>	kalamalo	1'	2'	sea to 3,000'	Dry to Medium
G	<i>Eragrostis vanabilis</i>	'amo-ia	1'	2'	sea to 3,000'	Dry to Medium
G	<i>Himbnstylis cymosa</i> ssp. <i>spathacea</i>	mau'u'aki'aki fimbriatilis	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	<i>Boerhavia repens</i>	alena	0.5'	4'	sea to 1,000'	Dry to Medium
Gr	<i>Chamaesyce colastroides</i> var. <i>laehensis</i>	'akoko	2'	3'	sea to 1,000'	Dry to Medium
Gr	<i>Cressa truxillensis</i>	cressa	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	<i>Heliotropium anomalum</i> var. <i>argentatum</i>	hinahina ku kahakai	1'	2'	sea to 1,000'	Dry to Medium
Gr	<i>Ipomoea tuboides</i>	Hawaiian moon flower, 'uala	1'	10'	sea to 3,000'	Dry to Medium
Gr	<i>Jacquemontia ovalifolia</i> ssp. <i>sandwicensis</i>	pe'u o hi'laka	0.5'	6'	sea to 1,000'	Dry to Medium
Gr	<i>Lipochaeta integrifolia</i>	nehe	1'	5'	sea to 1,000'	Dry to Medium
Gr	<i>Peperomia leptostachya</i>	'aia'ala-wai-nui	1'	1'	sea to 3,000'	Dry to Medium
Gr	<i>Plumbago zeylanica</i>	'ile'e	1'			
Gr	<i>Sesuvium portulacastrum</i>	'akulikuli, sea-purilane	0.5'	2'	sea to 1,000'	Dry to Wet
Gr	<i>Sida fallax</i>	'ama	0.5'	3'	sea to 1,000'	Dry to Medium
Gr	<i>Tephrosia purpurea</i> var. <i>purpurea</i>	'auhuhu	2'	2'	sea to 1,000'	Dry to Medium
Gr - Sh	<i>Hibiscus calyphyllus</i>	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	<i>Lipochaeta rockii</i>	nehe	2'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	<i>Lipochaeta succulenta</i>	nehe	2'	5'	sea to 1,000'	Dry to Wet
Gr - Sh	<i>Lycium sandwicense</i>	'ohelo-kai, 'ae'ae	2'	2'	sea to 1,000'	Dry to Medium
P	<i>Cocos nucifera</i>	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	<i>Pritchardia hillebrandii</i>	to'u'u, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	<i>Manacus javanicus</i>	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium

Zone-specific Native and Polynesian plants for Maui County

Zone 4

TYPE: F Fern G Grass Gr Ground Cover Sh Shrub P Palm S Sedge Tr Tree V Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	<i>Pellaea nudum</i>	moa, moa kuta	1'	1'	sea to 3,000'	Dry to Wet
F	<i>Sedonia cyathoides</i>	'ama'u, ama'uma'u				
G	<i>Columbina asiatica</i>	'anapanapa	3'	10'	sea to 1,000'	Dry to Wet
G	<i>Eragrostis monticola</i>	kalamalo	1'	2'	sea to 3,000'	Dry to Medium
G	<i>Eragrostis variabilis</i>	'emo-iaa	1'	2'	sea to 3,000'	Dry to Medium
G	<i>Fimbristylis cymosa</i> ssp. <i>spathacea</i>	mau'urak'aku fimbriatilis	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	<i>Chamaesyce celastroides</i> var. <i>laehionalis</i>	'akoko	2'	3'	sea to 1,000'	Dry to Medium
Gr	<i>Ipomoea tuboides</i>	Hawaiian moon flower, 'uata	1'	10'	sea to 3,000'	Dry to Medium
Gr	<i>Jacquemontia ovalifolia</i> ssp. <i>sandwicensis</i>	pa'u o hi'aka	0.5'	5'	sea to 1,000'	Dry to Medium
Gr	<i>Lipochaeta integrifolia</i>	nehe	1'	5'	sea to 1,00'	Dry to Medium
Gr	<i>Peperomia leptostachya</i>	'ala'ala-wai-nui	1'	1'	sea to 3,000'	Dry to Medium
Gr	<i>Plumbago zeylanica</i>	'lie'e	1'			
Gr	<i>Sida fallax</i>	'uma	0.5'	3'	sea to 1,000'	Dry to Medium
Gr	<i>Tephrosia purpurea</i> var. <i>purpurea</i>	'auhuhu	2'	2'	sea to 1,000'	Dry to Medium
Gr-Sh	<i>Hibiscus calyphyllus</i>	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr-Sh	<i>Lipochaeta rockii</i>	nehe	2'	2'	sea to 3,000'	Dry to Medium
Gr-Sh	<i>Lipochaeta succulenta</i>	nehe	2'	5'	sea to 1,000'	Dry to Wet
P	<i>Cocos nucifera</i>	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	<i>Pritchardia arecina</i>	io'uku, hawane	40'	10'	1,000' to 3,000'	Dry to Wet
P	<i>Pritchardia forbesiana</i>	io'uku	15'			
P	<i>Pritchardia hillebrandii</i>	io'uku, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	<i>Mariscus javanicus</i>	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium
Sh	<i>Argemone glauca</i> var. <i>deciens</i>	pua kals	3'	2'	sea to 3,000'	Dry to Medium
Sh	<i>Artemisia australis</i>	ahinahina	2'	3'	sea to 3,000'	Dry to Medium

Zone-specific Native and Polynesian plants for Maui County

Zone 3

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Tr	<i>Morinda citrifolia</i>	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet
Tr	<i>Neoloma polynesianum</i>	keehi	15'	15'	sea to 3,00'	Dry
Tr	<i>Nestegis sandwicensis</i>	olopua	15'	15'	1,000' to 3,000'	Dry to Medium
Tr	<i>Pandanus tectorius</i>	hale, puhale (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
Tr	<i>Pleomele auwahiensis</i>	halapepe	20'			
Tr	<i>Rauvoila sandwicensis</i>	hae	20'	15'	sea to 3,000'	Dry to Medium
Tr	<i>Reynoldsia sandwicensis</i>	'ohe makai	20'	20'	1,000' to 3,000'	Dry
Tr	<i>Santalum ellipticum</i>	coastal sandalwood, 'hi-shi	8'	8'	sea to 3,000'	Dry to Medium
Tr	<i>Thespesia populnea</i>	miio	30'	30'	sea to 3,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 4

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Tr	<i>Nestegis sandwicensis</i>	olopua	15'	15'	1,000' to 3,000'	Dry to Medium
Tr	<i>Pandanus toctorius</i>	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
Tr	<i>Pleomele auwahiensis</i>	halapepe	20'			
Tr	<i>Rauvolfia sandwicensis</i>	hao	20'	15'	sea to 3,000'	Dry to Medium
Tr	<i>Santalum ellipticum</i>	coastal sandalwood, 'ii-ahi	8'	8'	sea to 3,000'	Dry to Medium
Tr	<i>Sophora chrysophylla</i>	mamane	15'	15'	1,000' to 3,000'	Medium
Tr	<i>Thespesia populnea</i>	miko	30'	30'	sea to 3,000'	Dry to Wet
V	<i>Alyda claviformis</i>	malle	Vine		sea to 8,000'	Medium to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 4

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Sh	<i>Artemisia mauiensis</i> var. <i>diffusa</i>	Maui wormwood, 'ahinahina	2'	3'	1,000' to higher	Dry to Medium
Sh	<i>Bidens hillebrandiana</i> ssp. <i>hillebrandiana</i>	ko'oko'olau	1'	2'	sea to 1,000'	Dry to Wet
Sh	<i>Bidens menziesii</i> ssp. <i>menziesii</i>	ko'oko'olau	1'	3'		
Sh	<i>Bidens micrantha</i> ssp. <i>micrantha</i>	ko'oko'olau	1'	3'		
Sh	<i>Cordyline fruticosa</i>	ti, ki	8'			
Sh	<i>Dianella sandwicensis</i>	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	<i>Lipochaeta lanarum</i>	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	<i>Osteomeles anthyridifolia</i>	'ulei, euehe	4'	8'	sea to 3,000'	Dry to Medium
Sh	<i>Scaevola sericea</i>	naupaka, naupaka-kahakai	8'	8'	sea to 1,000'	Dry to Medium
Sh	<i>Solanum nelsonii</i>	'akia, beach solanum	3'	3'	sea to 1,00'	Dry to Medium
Sh	<i>Styphelia tameiameia</i>	pukiawe	5'	8'	1,000' to higher	Dry to Medium
Sh	<i>Vitex rotundifolia</i>	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh	<i>Wikstroemia urva-urva</i> kauaiensis <i>kauaiensis</i>	'akia, Moiokele osmanthus				
Sh - Tr	<i>Broussonetia papyrifera</i>	wauke, paper mulberry	8'	8'	sea to 1,000'	Dry to Medium
Sh - Tr	<i>Myoporum sandwicense</i>	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh - Tr	<i>Nolobolium sandwicense</i>	kukui	8'	8'	sea to 3,000'	Dry to Medium
Sh-Tr	<i>Dodonaea viscosa</i>	'a'alii	5'	8'	sea to higher	Dry to Medium
Tr	<i>Acacia koa</i>	koa	50' - 100'	40' - 80'	1,500' to 4,000'	Dry to Medium
Tr	<i>Aleurites moluccana</i>	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	<i>Calophyllum inophyllum</i>	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	<i>Canthium odoratum</i>	Aiahe'e, 'ohe'e, walahe'e	12'	8'	sea to 3,000'	Dry to Medium
Tr	<i>Charpentiera obovata</i>		15'			
Tr	<i>Cordia subcordata</i>	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	<i>Diospyros sandwicensis</i>	lama	12'	15'	sea to 3,000'	Dry to Medium
Tr	<i>Hibiscus furcatus</i>	'akohala, hau-hale	8'			
Tr	<i>Metrosideros polymorpha</i> var. <i>macrophylla</i>	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet
Tr	<i>Morinda citrifolia</i>	Indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 5

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Sh	Hedyotis spp.	'au, pilo	3'	2'	1,000' to 3,000'	Dry to Wet
Sh	Lipocheaeta lavarum	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	Ostromeles anthyridifolia	'uie, eluehe	4'	5'	sea to 3,000'	Dry to Medium
Sh	Scaevola sericea	naupaka, naupaka-kahakai	5'	8'	sea to 1,000'	Dry to Medium
Sh	Senna gaudichaudii	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	Solanum nelsonii	'akia, beach solanum	3'	3'	sea to 1,000'	Dry to Medium
Sh	Vitex rotundifolia	pohinahua	3'	4'	sea to 1,000'	Dry to Medium
Sh	Wikstroemia liva-ura/ kausiensis kausiensis	'akia, Molokai oemanthus				
Sh - Tr	Myoporum sandwicense	neio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh-Tr	Dodonaea viscosa	'a'ali'i	8'	8'	sea to higher	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	80'	40'	sea to 3,000'	Medium to Wet
Tr	Cordia subcordata	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	Ribiscus furcillatus	'akiohala, hau-hele	8'			
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
Tr	Thespesia populnea	milo	30'	30'	sea to 3,000'	Dry to Wet
V	Ipomoea pes-caprae	beach morning glory, potuuehue	1'			

Zone-specific Native and Polynesian plants for Maui County

Zone 5

TYPE: F Fern G Grass Gr Ground Cover Sh Shrub P Palm S Sedge Tr Tree V Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
G	Colubrina eschschia	'anapape	3'	10'	sea to 1,000'	Dry to Wet
G	Eragrostis variabilis	'emo-ia	1'	2'	sea to 3,000'	Dry to Medium
G	Fimbristylis cymosa ssp. spathacea	mau'ak'aki fimbriatylis	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Boerhavia repens	alena	0.5'	4'	sea to 1,000'	Dry to Medium
Gr	Chamaesyce colostroides var. laehiensis	'akoko	2'	3'	sea to 1,000'	Dry to Medium
Gr	Cressa truxillensis	cressa	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Heliotropium anomalum var. argenteum	hinahina ku kahakai	1'	2'	sea to 1,000'	Dry to Medium
Gr	Jacquemontia ovalifolia ssp. sandwicensis	pa'u o h'iaka	0.5'	8'	sea to 1,000'	Dry to Medium
Gr	Lipocheaeta integrifolia	nehe	1'	5'	sea to 1,000'	Dry to Medium
Gr	Sesuvium portulacastrum	'akulikuk, see-purslane	0.5'	2'	sea to 1,000'	Dry to Wet
Gr	Sida fallax	'lima	0.5'	3'	sea to 1,000'	Dry to Medium
Gr	Tephrosia purpurea var. purpurea	'auhuhu	2'	2'	sea to 1,000'	Dry to Medium
Gr - Sh	Ribiscus calyphyllus	me'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lycium sandwicense	'ohelo-kai, 'ee'ee	2'	2'	sea to 1,000'	Dry to Medium
P	Cocos nucifera	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	Pritchardia hillebrandii	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	Mariscus javanicus	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium
Sh	Argemone glauca var. decipiens	pus kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	Artemisia australis	'ahinahina	2'	3'	sea to 3,000'	Dry to Medium
Sh	Bidens hillebrandiana ssp. hillebrandiana	ko'oko'olau	1'	2'	sea to 1,000'	Dry to Wet
Sh	Bidens mauiensis	ko'oko'olau	1'	3'	sea to 1,000'	Dry to Medium
Sh	Chenopodium oahuense	'aheshehe, 'awsoweo	5'		sea to higher	Dry to Medium
Sh	Dianella sandwicensis	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	Gossypium tomentosum	mao, Hawaiian cotton	5'	8'	sea to 1,000'	Dry to Medium

DO NOT PLANT THESE PLANTS !!!

Common name	Scientific name	Plant family
	Jasminum huminense	Oleaceae
	Arthrostemum ciliatum	Melastomataceae
	Dissotis rotundifolia	Melastomataceae
	Erigeron karwinianus	Asteraceae
	Eucalyptus robusta	Myrtaceae
	Hedychium gardnerianum	Zingiberaceae
	Juncus planifolius	Juncaceae
	Lophostemon confertus	Myrtaceae
	Medinilla cuminoli	Melastomataceae
	Medinilla magnifica	Melastomataceae
	Medinilla venosa	Melastomataceae
	Melastoma candidum	Melastomataceae
	Melinis minutiflora	Poaceae
	Olea europaea	Melastomataceae
	Oxyphora paniculata	Poaceae
	Panicum maximum	Poaceae
	Paspalum unvillei	Poaceae
	Passiflora edulis	Passifloraceae
	Phormium tenax	Agavaceae
	Pinus taeda	Pinaceae
	Prosopis pallida	Fabaceae
	Pterolepis glomerata	Melastomataceae
	Rhodomyrtus tomentosa	Myrtaceae
	Schellera sclinophylla	Araliaceae
	Syzygium jambos	Myrtaceae
	Acacia melanoxylon	Mimosaceae
Australian blackwood	Cyathea cooperi	Cyatheaceae
Australian tree fern	Sphaeropteris cooperi	Cyatheaceae
Australian tree fern	Bidens pilosa	Asteraceae
Beggar's tick, Spanish needle	Bracharia mutica	Poaceae
California grass	Ficus microcarpa	Moraceae
Chinese banyon, Maylayan banyon	Asystasia gangetica	Acanthaceae
Chinese violet	Schinus molle	Anacardiaceae
Christmasberry, Brazilian pepper	Acacia confusa	Mimosaceae
Formosan koa	Senecio mikanoides	Asteraceae
German ivy	Lonicera japonica	Caprifoliaceae
Japanese honeysuckle	Cnidium hirta	Melastomataceae
Koster's curse	Lantana camara	Verbenaceae
Lantana	Furcraea foetida	Agavaceae
Mauritius hemp	Fraxinus uhdei	Oleaceae
Mexican ash, tropical ash	Hunnemannia tumaridifolia	Papaveraceae
Mexican tulip poppy	Angiotesia evelia	Marattiaceae
Mules foot, Madagascar tree fern	Corynocarpus laevigatus	Corynocarpaceae
New Zealand laurel, karakaranut	Leprospermum scoparium	Myrtaceae
New Zealand tea	Cortaderia jubata	Poaceae
Pampa grass	Casillora elata	Moraceae
Panama rubber tree, Mexican rubber tree	Ardisia elliptica	Myrsinaceae
Shoebuttan ardisia	Passiflora mollissima	Passifloraceae
banana poka		

DO NOT PLANT THESE PLANTS !!!

Common name	Scientific name	Plant family
black wattle	Acacia mearnsii	Mimosaceae
blackberry	Rubus argutus	Rosaceae
blue gum	Eucalyptus globulus	Myrtaceae
bocconia	Bocconia frutescens	Papaveraceae
broad-leaved cordia	Cordia alliodora	Boraginaceae
broomsedge, yellow bluestem	Andropogon virginicus	Poaceae
buffelgrass	Cenchrus ciliaris	Poaceae
butterfly bush, smoke bush	Buddleia madagascariensis	Buddleiaceae
cala claw, Mysore thorn, wait-a-bit	Caesalpinia decapetala	Caesalpinaceae
common ironwood	Casuarina equisetifolia	Casuarinaceae
common velvet grass, Yorkshire fog	Holcus lanatus	Poaceae
fidlewood	Citharexylum spinosum	Verbenaceae
fire tree, faya tree	Myrica faya	Myricaceae
glorybower	Clerodendrum japonicum	Verbenaceae
hairy cat's ear, gosmore	Hypochoeris radicata	Asteraceae
haole koa	Leucaena leucocephala	Fabaceae
ivy gourd, scarlet-fruited gourd	Coccinia grandis	Cucurbitaceae
juniper berry	Citharexylum caudatum	Verbenaceae
kahili flower	Grevillea banksii	Proteaceae
klou popinac	Acacia farnesiana	Mimosaceae
logwood, bloodwood tree	Haematoxylum campechianum	Caesalpinaceae
loquat	Eriobotrya japonica	Rosaceae
meadow ricegrass	Ehrharta stipoides	Poaceae
melaleuca	Melaleuca quinquenervia	Myrtaceae
miconia, velvet leaf	Miconia calvescens	Melastomataceae
narrow-leaved carpetgrass	Axonopus fissifolius	Poaceae
oleaster	Elaeagnus umbellata	Elaeagnaceae
oriental mangrove	Bruquiera gymnorhiza	Rhizophoraceae
podang cassia	Cinnamomum burmanni	Lauraceae
palmgrass	Scleria palmifolia	Poaceae
pearl flower	Heterocentron subtriplinervium	Melastomataceae
quinine tree	Cinchona pubescens	Rubiaceae
salin leaf, camitillo	Chrysophyllum oliviforme	Sapotaceae
silkwood, Queensland maple	Flindersia brayleyana	Rutaceae
silky oak, silver oak	Grevillea robusta	Proteaceae
strawberry queva	Pitcairnia spicata	Myrtaceae
swamp oak, saltmarsh, longleaf ironwood	Casuarina glauca	Casuarinaceae
sweet vernalgrass	Anthoxanthum odoratum	Poaceae
tree of heaven	Alanthus altissima	Simarubaceae
trumpet tree, quarumo	Cecropia obtusifolia	Cecropiaceae
white ginger	Hedychium coronarium	Zingiberaceae
white moho	Heliconia carolinensis	Tiliaceae
yellow ginger	Hedychium flavescens	Zingiberaceae

Selection

As a general rule, it is best to select the largest and healthiest specimens. However, be sure to note that they are not pot-bound. Smaller, younger plants may result in a low rate of plant survival.¹ When selecting native species, consider the site they are to be planted in, and the space that you have to plant. For example: Mountain species such as koa and malle will not grow well in hot coastal areas exposed to strong ocean breezes. Lowland and coastal species such as wiliwili and Kou require abundant sunshine and porous soil. They will not grow well with frequent cloud cover, high rainfall and heavy soil.

Consider too, the size that the species will grow to be. It is not wise to plant trees that will grow too large.² Overplanting tends to be a big problem in the landscape due to the underestimation of a species' height, width or spread.

A large, dense canopy tree such as the kukui is a good shade tree for a lawn. However, its canopy size and density of shade will limit what can be planted in the surrounding area. Shade cast by a koa and ohia lehua is relatively light and will not inhibit growth beneath it.

Keep seasons in mind when you are selecting your plants. Not all plants look good year round, some plants such as ilima will look scraggly after they have flowered and formed seeds. Avoid planting large areas with only one native plant. Mixing plants which naturally grow together will ensure the garden will look good all year round.³ Looking at natural habitats helps to show how plants grow naturally in the landscape.

When planting an area with a mixed-ecosystem, keep in mind the size and ecological requirements of each plant. Start with the hardiest and most easily grown species, but allow space for fragile ones in subsequent plantings.

Acquiring natives

Plants in their wild habitats must be protected and maintained. It is best and easiest to get your plants from nurseries (see list), or friend's gardens. Obtain proper permits from landowners and make sure you follow a few common sense rules:

- collect sparingly from each plant or area
- some plants are on the state or Federal Endangered Species list. Make sure you get permits (see app. A.B)

¹ K. Nagata, P.6

² K. Nagata, P.9

³ Nagata, P.9

Automatic sprinkler systems are expensive to install and must be checked and adjusted regularly. Above-ground systems allow you to monitor how much water is being put out, but you lose a lot due to malfunctioning of sprinkler heads and wind. The most efficient way to save water and make sure your plants get enough water, is to hand-water. This way you are getting our precious water to the right places in the right amounts.⁷

Fertilizer

An all-purpose fertilizer 10-10-10 is adequate for most species. They should be applied at planting time, 3 months later, and 6 months thereafter. Use half the dosage recommended for ornamentals and pay special attention to native ferns which are sensitive to strong fertilizers. Use of organic compost and aged animal manures is suggested instead of chemical fertilizers. In addition, use of cinders for providing trace minerals is strongly recommended.⁸

Natives are plants which were here hundreds of years before the polynesians inhabited the Hawaiian Islands. They were brought here by birds, or survived the harsh ocean conditions to float here. They are well-adapted to Hawaii's varying soil and environmental conditions. This is why they make prime specimens for a xeriscape garden. However, natives will not thrive on their own, especially under harsh conditions. On the other hand, like any other plant, if you over-water and over-fertilize them, they will die. Follow the instructions given to you by the nursery you buy the plant from, or from this booklet. Better yet, buy a book (suggested readings can be found in the bibliography in the back of this pamphlet), read it, and learn more about native plants. I guarantee that you will be pleased with the results.

⁷ Boruborzi, p. 19-20

⁸ Nagata, p. 6

Soil

Once you have selected your site and the plants you wish to establish there, you must look at the soil conditions on the site. Proper soil is necessary for the successful growth of most native plants, which perform poorly in hard pan, clay or adobe soils. If natives are to be planted in these types of soil, it would be wise to dig planting holes several times the size of the rootball and backfill with 50-75% compost.⁴ A large planting hole ensures the development of a strong root system. The plant will have a headstart before the roots penetrate the surrounding poor soil.⁵

It is recommended that native plants not be planted in ground that is more dense than potting soil. If there is no alternative, dig a hole in a mound of soil mixed with volcanic cinder which encourages maximum root development. Fill the hole with water, if the water tends to puddle or drain too slowly, dig a deeper hole until the water does not puddle longer than 1 or 2 minutes.⁶ Well-drained soil is one of the most important things when planting natives as you will see in the next section.

Irrigation

Most natives do very poorly in waterlogged conditions. Do not water if the soil is damp. Water when the soil is dry and the plants are wilting. Once established, a good soaking twice a week should suffice. Deep soaking encourages the development of stronger, and deeper root systems. This is better than frequent and shallow watering which encourage weaker, more shallow root systems.

The following is a watering schedule from Kenneth Nagata's Booklet, *How To Plant A Native Hawaiian Garden*:

WATER REQUIREMENT	WATERING FREQUENCY
Heavy	3x / week
Moderate	2x / week
Light	1x / week

Red clay soils hold more water for a longer period of time than sandy soils do. If your area is very sunny or near a beach, things will dry out faster. Even in the area of one garden, there are parts that will need more or less water. Soils can vary and amount of shade and wind differ. After plants are established (a month or two for most plants, up to a year for some trees), you can back off watering.

⁴ Nagata, p. 6

⁵ Nagata, p. 8

⁶ Nagata, p. 8

Propagation

There are many ways to propagate and plant-out native Hawaiian species. One of the most thorough and helpful book is Heidi Bornhorst's book, *Growing Native Hawaiian Plants*. The easiest, and best way to obtain natives for the novice gardener is to get them from a reputable nursery (see appendix c). That way all you will have to do is know how to transplant (if necessary) and plant-out when you are ready. These are the two methods I have listed here.

Transplanting

1. Use pots that are one size bigger than the potted plant is in.
2. Get your potting medium ready.

Good potting medium is a 1/2, 1/2 mixture of peat moss and perlite. If the plant is from a dry or coastal area, add chunks of cinder or extra perlite. If it is a wet forest species, add more peat moss or compost. Be aware that peat moss is very acidic and certain plants react severely to acidity.

If the plant is to eventually be planted into the ground, make a mix of equal parts peat moss, perlite, and soil from the area in which the plant is to be planted. Slow-release fertilizer can be mixed into the potting medium.

3. Once pots, potting medium, fertilizer and water are ready, you can begin re-potting. Keep the plant stem at the same depth it was in the original pot. Avoid putting the plant in too large a pot, as the plant may not be able to soak up all the water in the soil and the roots may drown and rot.

Mix potting medium and add slow-release fertilizer at this time. Pre-wet the medium to keep dust down and lessen shock to the plant. Put medium in bottom of pot. Measure for the correct depth in the new pot. Make sure there is from 1/2 to 2 inches from the top of the pot so the plant can get adequate water. Try to stand the plant upright and center the stem in the middle of the pot.

Water the plant thoroughly after transplanting. A vitamin B-1 transplanting solution can help to lessen the transplant shock. Keep the plant in the same type of environment as it was before, sun or shade. If roots were broken, trim off some of the leaves to compensate for the loss.⁹

Planting out

1. Plant most native Hawaiian plants in a sunny location in soil that is well-drained.
2. Make the planting hole twice as wide as the root ball or present pot, and just as deep. If the soil is clay-like, and drains slowly, mix in some coarse red or bland cinder, coarse perlite or

⁹ Bornhorst, p.20-21

- course compost. Place some slow-release fertilizer at the bottom of the hole.
- Carefully remove the plant from the container and place it in the hole. The top of the soil should be at the same level as the top of the hole, if it is too high or too low, adjust the soil level so that the plant is at the right depth.
 - Water thoroughly after you transplant.

Mulch

Most natives cannot compete with weeds, and therefore must be weeded around constantly in order to thrive. Mulch is a practical alternative, which discourages and prevents weeds from growing.

Hawaii's hot, humid climate leads to the breaking down of organic mulches. Thick organic mulches such as wood chips and leaves, may also be hiding places for pests.

Stone mulches are attractive, permanent and can help to improve soil quality. Red or black cinder, blue rock chips, smooth river rocks and coral chips are some natural choices.¹⁰ Macadamia nut hulls are also easy to find and can make a nice mulch.¹¹

Never pile up mulch right next to the stem or trunk of a plant, keep it a few inches away.

¹⁰ Bornhorst, p. 24

¹¹ Nagata, p. 7

PLACES TO SEE NATIVES ON:

The following places propagate native Hawaiian plants from seeds and/or cuttings. Their purpose is to protect and preserve these native plants. Please contact them before going to view the sites, they can provide valuable information and referral to other sources.

Maui:

- Hoolawa Farms, P.O. Box 731, Haiku, Hawaii, 96708 572-4835
- The Hawaiian Collection, 1127 Manu St., Kula, Hawaii, 96790 878-1701
- Kula Botanical Gardens, RR 4, Box 228, Kula, Hawaii, 96790 878-1715
- Maui Botanical Gardens, Kanaloa Avenue across from stadium 243-7337
- Kula Forest Reserve, access road at the end of Waipouli Rd.
Call the Maui District Forester 984-8100
- Wailea Point, Private Condominium residence, 4000 Wailea Alanui,
public access points at Four Seasons Resort or Polo Beach 875-9557
- Kahama Gardens, National Tropical Botanical Garden,
Alani Pt, Haana, Hawaii, 96713 248-8912
- Kahului Library Courtyard, 20 School Street, Kahului, Hawaii 873-3097

ZONES

The Maui County Planning Plan has compiled a system of 5 zones of plant growth for Maui County. The descriptions of zones and maps for these zones are as follows:

- Zone 1:** Wet areas on the windward side of the island. More than 40 inches of rain per year. Higher than 3,000 feet.
- Zone 2:** Cool, dry areas in higher elevations (above 1,000 feet). 20 to 40 inches of rain per year.
- Zone 3:** Low, drier areas, warm to hot. Less than 20 inches of rain per year. Sea level to 1,000 feet.
- Zone 4:** Lower elevations which are wetter due to proximity of mountains. 1,000 to 3,000 feet.
- Zone 5:** Salt spray zones in coastal areas on the windward side.

These zones are to be used as a general guide to planning for Maui County. In addition to looking at the maps, read the descriptions of the zones and decide which zone best fits your area. Plants can be listed in more than one zone and can be planted in a variety of conditions. For best results, take notes on the rainfall, wind, sun and salt conditions of your site. Use the zones as a general guide for selection and read about the plants to decide which best fits your needs as far as care and or function.

PLACES TO BUY NATIVES ON:

Maui:

1. Hoolawa Farms
P O Box 731
Haiku HI 96708
The largest and best collection of natives in the state. They will deliver, but it's worth the drive to go and see!
Will propagate upon request
575-5099
2. Kula True Value Nursery
Many natives in stock
Get most of their plants from Hoolawa Farms
They take special requests
878-2551
3. Kihel Garden and Landscape
244-3804
4. Kihana Nursery, Kihel
879-1165
5. The Hawaiian Collection
Specialize in Sandalwood propagation
Will propagate special requests
878-1701

ORDINANCE NO. 2108

BILL NO. 6 (1992)
Draft 1

A BILL FOR AN ORDINANCE AMENDING
CHAPTER 16.20 OF THE MAUI COUNTY
CODE, PERTAINING TO THE PLUMBING CODE

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. Title 16 of the Maui County Code is amended by adding a new section to Chapter 10 of the Uniform Plumbing Code to be designated and to read as follows:

"16.20.675 Section 1050 added. Chapter 10 of the Uniform Plumbing Code is amended by adding a new section, pertaining to low-flow water fixtures and devices, to be designated and to read as follows:

Sec. 1050 low-flow water fixtures and devices. (a) This section establishes maximum rates of water flow or discharge for plumbing fixtures and devices in order to promote water conservation.

(b) For the plumbing fixtures and devices covered in this section, manufacturers or their local distributors shall provide proof of compliance with the performance requirements established by the American National Standards Institute (ANSI) and such other proof as may be required by the director of public works. There shall be no charge for this registration process.

(c) Effective December 31, 1992, only plumbing fixtures and devices specified in this section shall be offered for sale or installed in the County of Maui, unless otherwise indicated in this section. All plumbing fixtures and devices which were installed before December 31, 1992, shall be allowed to be used, repaired or replaced after December 31, 1992.

(1) Faucets (kitchen): All kitchen and bar sink faucets shall be designed, manufactured, installed or equipped with a flow control device or aerator which will prevent a water flow rate in excess of two and two-tenths gallons per minute at sixty pounds per square inch of water pressure.

(2) Faucets (lavatory): All lavatory faucets shall be designed, manufactured, installed or equipped with a flow control device or aerator which will prevent a water flow rate in excess of two and two tenths gallons per minute at sixty pounds per square inch of water

pressure.

(3) Faucets (public rest rooms): In addition to the lavatory requirements set forth in paragraph (2), lavatory faucets located in rest rooms intended for use by the general public shall be of the metering or self-closing types.

(4) Hose bibbs: Water supply faucets or valves shall be provided with approved flow control devices which limit flow to a maximum three gallons per minute.

EXCEPTIONS: (A) Hose bibbs or valves not used for fixtures or equipment designated by the director of public works.

(B) Hose bibbs, faucets, or valves serving fixed demand, timing, or water level control appliances, and equipment or holding structures such as water closets, pools, automatic washers, and other similar equipment.

(5) Showerheads: Showerheads, except where provided for safety or emergency reasons shall be designed, manufactured, or installed with a flow limitation device which will prevent a water flow rate in excess of two and one-half gallons per minute at eighty pounds per square inch of water pressure. The flow limitation device must be a permanent and integral part of the showerhead and must not be removable to allow flow rates in excess of two and one-half gallons per minute or must be mechanically retained requiring force in excess of eight pounds to remove.

(6) Urinals: Urinals shall be designed, manufactured, or installed so that the maximum flush will not exceed one gallon of water. Adjustable type flushometer valves may be used provided they are adjusted so the maximum flush will not exceed one and six tenths gallons of water.

(7) Water Closets (toilets): Water closets shall be designed, manufactured, or installed so that the maximum flush will not exceed one and six tenths gallons of water.

(8) Beginning December 31, 1992, it is unlawful to sell or install any plumbing fixtures or devices not specified in this section, except as permitted under this section.

(9) The director of public works may exempt the use of low-flow water fixtures and devices if there is a finding that the use of such fixtures and devices would not be consistent with accepted engineering practices and would be detrimental to the public health, safety and welfare.

(f) Any person violating this section shall be fined \$250 for each violation and shall correct all instances of non-compliance for which a citation is issued. Violation of this section shall constitute a violation as defined in section 701-107 Hawaii Revised Statutes and shall be enforceable by employees of the department of public works. The foregoing fine may also be imposed in a civil administrative proceeding pursuant to Rules and Regulations adopted by the department of public works in accordance with chapter 91 Hawaii Revised Statutes.

SECTION 2. New material is underscored. In printing this bill, the County Clerk need not include the underscoring.

SECTION 3. This ordinance shall take effect upon its approval.

APPROVED AS TO FORM
AND LEGALITY:

Howard M. Fukushima
Deputy Corporation Counsel
County of Maui
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WE HEREBY CERTIFY that the foregoing BILL NO. 6 (1992), Draft 1

1. Passed FINAL READING at the meeting of the Council of the County of Maui, State of Hawaii, held on the 1st day of May, 1992, by the following votes:

Howard S. Kihune Chair	Aye	Patrick S. Kawano Vice-Chair	Aye	Vince G. Budofo, Jr.	Excused	Gene Hokama	Excused	Alton L. Lee	Aye	Ricardo Medina	Aye	Wayne K. Hishino	Aye	Joe E. Tamaka	Aye	Leinani Teruya Drummond	Aye
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2. Was transmitted to the Mayor of the County of Maui, State of Hawaii, on the 1st day of May, 1992.

DATED AT WAILUKU, MAUI, HAWAII, this 1st day of May, 1992.

Howard S. Kihune
HOWARD S. KIHUNE, CHAIR
Council of the County of Maui

Daryl T. Yamamoto
DARYL T. YAMAMOTO, COUNTY CLERK
County of Maui

THE FOREGOING BILL IS HEREBY APPROVED THIS 5TH DAY OF MAY, 1992.

Linda Crockett Lingle
LINDA CROCKETT LINGLE, MAYOR
County of Maui

I HEREBY CERTIFY that upon approval of the foregoing BILL by the Mayor of the County of Maui, the said BILL was designated as ORDINANCE NO. 2108 of the County of Maui, State of Hawaii.

Daryl T. Yamamoto
DARYL T. YAMAMOTO, COUNTY CLERK
County of Maui

Passed First Reading on January 17, 1992.
Effective date of Ordinance May 5, 1992.

I HEREBY CERTIFY that the foregoing is a true and correct copy of Ordinance No. 2108, the original of which is on file in the Office of the County Clerk, County of Maui, State of Hawaii.

Dated at Wailuku, Hawaii, ea

A Checklist of Water Conservation Ideas
For

Commercial Buildings

This checklist provides water conservation tips successfully implemented by industrial and commercial users. This list has been revised from the original copy first published and distributed by the Los Angeles Department of Water and Power.

General suggestions

- Increase employee awareness of water conservation.
- Install signs encouraging water conservation in employee and customer restrooms.
- When cleaning with water is necessary, use budgeted amounts.
- Determine the quantity and purpose of water being used.
- Read water meter weekly to monitor success of water conservation efforts.
- Assign an employee to monitor water use and waste.
- Seek employee suggestions on water conservation; put suggestion boxes in prominent areas.
- Determine other methods of water conservation.

Building maintenance

- Check water supply for leaks.
- Turn off any unnecessary flows.
- Repair dripping faucets and showers and continuously running or leaking toilets.

Install faucet aerators where possible.

Reduce toilet water use by adjusting flush valves or installing dams and flapper mechanisms.

As appliances or fixtures wear out, replace them with water-saving models.

Shut off water supply to equipment rooms not in use.

Minimize the water used in cooling equipment in accordance with manufacturers' recommendations. Shut off cooling units when not needed.

Cafeteria area

- Turn off continuous flow used to clean the drain trays.
- Turn off dishwasher when not in use. Wash full loads only.
- Use water from steam tables to wash down cooking area.
- Do not use running water to melt ice or frozen foods.
- Use water-conserving ice makers.

United States
Environmental Protection
Agency

Office of Water
Washington, DC 20460

840-B-82-002
January 1983



Guidance Specifying Management Measures For Sources Of Nonpoint Pollution In Coastal Waters

Issued Under the Authority of
Section 6217(g) of the Coastal Zone Act
Reauthorization Amendments of 1990

III. CONSTRUCTION ACTIVITIES

A. Construction Site Erosion and Sediment Control Management Measure

- (1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction, and
- (2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

1. Applicability

This management measure is intended to be applied by States to all construction activities on sites less than 5 acres in areas that do not have an NPDES permit¹ in order to control erosion and sediment loss from those sites. This management measure does not apply to: (1) construction of a detached single family home on a site of 1/2 acre or more or (2) construction that does not disturb over 5,000 square feet of land on a site. (NOTE: All construction activities, including clearing, grading, and excavation, that result in the disturbance of areas greater than or equal to 5 acres or are a part of a larger development plan are covered by the NPDES regulations and are thus excluded from these requirements.) Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformity with this management measure and will have flexibility in doing so. The application of management measures by States is described more fully in the *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, published jointly by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

2. Description

The goal of this management measure is to reduce the sediment loadings from construction sites in coastal areas that enter surface waterbodies. This measure requires that coastal States establish new or enhance existing State erosion and sediment control (ESC) programs and/or require ESC programs at the local level. It is intended to be part of a comprehensive land use or watershed management program, as previously detailed in the *Watershed and Site Development Management Measures*. It is expected that State and local programs will establish criteria determined by local conditions (e.g., soil types, climate, meteorology) that reduce erosion and sediment transport from construction sites.

Runoff from construction sites is by far the largest source of sediment in urban areas under development (York County Soil and Water Conservation District, 1990). Soil erosion removes over 90 percent of sediment by tonnage in urbanizing areas where most construction activities occur (Cunning, 1988). Table 4-14 illustrates some of the

¹ On May 27, 1992, the United States Court of Appeals for the Ninth Circuit invalidated EPA's exemption of construction sites smaller than 5 acres from the storm water permit program in *National Resources Defense Council v. EPA*, 963 F.2d 719 (9th Cir. 1992). EPA is conducting further rulemaking proceedings on this issue and will not require permit applications for construction activities under 5 acres until further rulemaking has been completed.

measured sediment loading rates associated with construction activities found across the United States. As seen in Table 4-14, erosion rates from natural areas such as undisturbed forested lands are typically less than one ton/acre/year, while erosion from construction sites ranges from 7.2 to over 1,000 tons/acre/year.

Table 4-14. Erosion and Sediment Problems Associated With Construction

Location	Problem	Reference
United States	Sediment loading rates vary from 36.5 to 1,000 ton/acre/yr. These are 5 to 500 times greater than those from undeveloped land. Approximately 600 million tons of soil erodes from developed sites each year. Construction site sediment in runoff can be 10 to 20 times greater than that from agricultural lands.	York County Soil and Water Conservation District, 1990
Franklin County, FL	Sediment yield (ton/acre/yr): forest < 0.5 rangeland < 0.5 tilled 1.4 construction sites 30 established urban < 0.5	Franklin County, FL
Wisconsin	Erosion rates range from 30 to 200 ton/acre/yr (10 to 20 times those of cropland).	Wisconsin Legislative Council, 1991
Washington, DC	Erosion rates range from 35 to 45 ton/acre/yr (10 to 100 times greater than agriculture and stabilized urban land uses).	MYCOG, 1987
Anacostia River Basin, VA, MD, DC	Sediment yields from portions of the Anacostia Basin have been estimated at 75,000 to 132,000 ton/yr.	U.S. Army Corps of Engineers, 1990
Washington	Erosion rates range from 50 to 500 ton/acre/yr. Natural erosion rates from forests or well-wooded prairies are 0.01 to 1.0 ton/acre/yr.	Washington Department of Ecology, 1988
Anacostia River Basin, VA, MD, DC	Erosion rates range from 7.2 to 100.8 ton/acre/yr.	USGS, 1978
Alabama	1.4 million tons eroded per year.	Woodward-Clyde, 1991
North Carolina	6.7 million tons eroded per year.	
Louisiana	5.1 million tons eroded per year.	
Oklahoma	4.2 million tons eroded per year.	
Georgia	3.8 million tons eroded per year.	
Texas	3.5 million tons eroded per year.	
Tennessee	3.3 million tons eroded per year.	
Pennsylvania	3.1 million tons eroded per year.	
Ohio	3.0 million tons eroded per year.	
Kentucky	3.0 million tons eroded per year.	

Eroded sediment from construction sites creates many problems in coastal areas including adverse impacts on water quality, critical habitats, submerged aquatic vegetation (SAV) beds, recreational activities, and navigation (APWA, 1991). For example, the Miami River in Florida has been severely affected by pollution associated with upland erosion. This watershed has undergone extensive urbanization, which has included the construction of many commercial and residential buildings over the past 50 years. Sediment deposited in the Miami River channel contributes to the severe water quality and navigation problems of this once-thriving waterway, as well as Biscayne Bay (SFWMD, 1988).

ESC plans are important for controlling the adverse impacts of construction and land development and have been required by many State and local governments, as shown in Table 4-13 (in the Site Development section of this chapter). An ESC plan is a document that explains and illustrates the measures to be taken to control erosion and sediment problems on construction sites (Connecticut Council on Soil and Water Conservation, 1988). It is intended that existing State and local erosion and sediment control plans may be used to fulfill the requirements of this management measure. Where existing ESC plans do not meet the management measure criteria, inadequate plans may be enhanced to meet the management measure guidelines.

Typically, an ESC plan is part of a larger site plan and includes the following elements:

- Description of predominant soil types;
- Details of site grading including existing and proposed contours;
- Design details and locations for structural controls;
- Provisions to preserve topsoil and limit disturbance;
- Details of temporary and permanent stabilization measures; and
- Description of the sequence of construction.

ESC plans ensure that provisions for control measures are incorporated into the site planning stage of development and provide for the reduction of erosion and sediment problems and accountability if a problem occurs (York County Soil and Water Conservation District, 1990). An effective plan for urban runoff management on construction sites will control erosion, retain sediments on site, to the extent practicable, and reduce the adverse effects of runoff. Climate, topography, soils, drainage patterns, and vegetation will affect how erosion and sediment should be controlled on a site (Washington State Department of Ecology, 1989). An effective ESC plan includes both structural and nonstructural controls. Nonstructural controls address erosion control by decreasing erosion potential, whereas structural controls are both preventive and mitigative because they control both erosion and sediment movement.

Typical nonstructural erosion controls include (APWA, 1991; York County Soil and Water Conservation District, 1990):

- Planning and designing the development within the natural constraints of the site;
- Minimizing the area of bare soil exposed at one time (phased grading);
- Providing for stream crossing areas for natural and man-made areas; and
- Stabilizing cut-and-fill slopes caused by construction activities.

Structural controls include:

- Perimeter controls;
- Mulching and seeding exposed areas;
- Sediment basins and traps; and
- Tidal fabric, or silt fences.

Some erosion and soil loss are unavoidable during land-disturbing activities. While proper siting and design will help prevent areas prone to erosion from being developed, construction activities will invariably produce conditions where erosion may occur. To reduce the adverse impacts associated with construction, the construction management measure suggests a system of nonstructural and structural erosion and sediment controls for incorporation into an

ESC plan. Erosion controls have distinct advantages over sediment controls. Erosion controls reduce the amount of sediment transported off-site, thereby reducing the need for sediment controls. When erosion controls are used in conjunction with sediment controls, the size of the sediment control structures and associated maintenance may be reduced, decreasing the overall treatment costs (SWRPC, 1991).

3. Management Measure Selection

This management measure was selected to minimize sediment being transported outside the perimeter of a construction site through two broad performance goals: (1) reduce erosion and (2) retain sediment onsite, to the extent practicable. These performance goals were chosen to allow States and local governments flexibility in specifying practices appropriate for local conditions.

While several commenters responding to the draft (May 1991) guidance expressed the need to define "more measurable, enforceable ways" to control sediment loadings, other commenters stressed the need to draft management measures that do not conflict with existing State programs and allow States and local governments to determine appropriate practices and design standards for their communities. These management measures were selected because virtually all coastal States control construction activities to prevent erosion and sediment loss.

The measures were specifically written for the following reasons:

- (1) Redevelopment loadings may vary greatly, and some sediment loss is usually inevitable;
- (2) Current practice is built on the use of systems of practices selected based on site-specific conditions; and
- (3) The combined effectiveness of erosion and sediment controls in systems is not easily quantified.

4. Erosion Control Practices

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

Erosion controls are used to reduce the amount of sediment that is detached during construction and to prevent sediment from entering runoff. Erosion control is based on two main concepts: (1) disturb the smallest area of land possible for the shortest period of time, and (2) stabilize disturbed soils to prevent erosion from occurring.

a. Schedule projects so clearing and grading are done during the time of minimum erosion potential.

Often a project can be scheduled during the time of year that the erosion potential of the site is relatively low. In many parts of the country, there is a certain period of the year when erosion potential is relatively low and construction scheduling could be very effective. For example, in the Pacific region if construction can be completed during the 6-month dry season (May 1 - October 31), temporary erosion and sediment controls may not be needed. In addition, in some parts of the country erosion potential is very high during certain parts of the year such as the spring thaw in northern areas. During this time, wet, melting snow/ice generates a constant runoff that can erode soil. In addition, construction vehicles can easily turn the soft, wet ground into mud, which is more easily washed offsite. Therefore, in the north, limitations should be placed on grading during the spring thaw (Goldman et al., 1986).

h. Stage construction.

Avoid areawide clearance of construction sites. Plan and stage land disturbance activities so that only the area currently under construction is exposed. As soon as the grading and construction in an area are complete, the area should be stabilized.

By clearing only those areas immediately essential for completing site construction, buffer zones are preserved and soil remains undisturbed until construction begins. Physical markers, such as tape, signs, or barriers, indicating the limits of land disturbances, can ensure that equipment operators know the proposed limits of clearing. The area of the watershed that is exposed to construction is important for determining the net amount of erosion. Reducing the extent of the disturbed area will ultimately reduce sediment loads to surface waters. Existing or newly planted vegetation that has been planted to stabilize disturbed areas should be protected by routing construction traffic around and protecting natural vegetation with fencing, tree armoring, retaining walls, or tree wells.

i. Clear only areas essential for construction.

Often areas of a construction site are unnecessarily cleared. Only those areas essential for completing construction activities should be cleared, and other areas should remain undisturbed. Additionally, the proposed limits of land disturbance should be physically marked off to ensure that only the required land area is cleared. Avoid disturbing vegetation on steep slopes or other critical areas.

j. Locate potential nonpoint pollutant sources away from steep slopes, waterbodies, and critical areas.

Maintain stockpiles, borrow areas, access roads, and other land-disturbing activities can often be located away from critical areas such as steep slopes, highly erodible soils, and areas that drain directly into sensitive waterbodies.

k. Route construction traffic to avoid existing or newly planted vegetation.

Where possible, construction traffic should travel over areas that must be disturbed for other construction activity. This practice will reduce the area that is cleared and susceptible to erosion.

l. Protect natural vegetation with fencing, tree armoring, and retaining walls or tree wells.

Tree armoring protects tree trunks from being damaged by construction equipment. Fencing can also protect tree trunks, but should be placed at the tree's drip line so that construction equipment is kept away from the tree. The tree drip line is the minimum area around a tree in which the tree's root system should not be disturbed by cut, fill, or soil compaction caused by heavy equipment. When cutting or filling must be done near a tree, a retaining wall or tree well should be used to minimize the cutting of the tree's roots or the quantity of fill placed over the tree's roots.

m. Stockpile topsoil and reapply to revegetate sites.

Because of the high organic content of topsoil, it cannot be used as fill material or under pavement. After a site is cleared, the topsoil is typically removed. Since topsoil is essential to establish new vegetation, it should be stockpiled and then reapplied to the site for revegetation, if appropriate. Although topsoil salvaged from the existing site can often be used, it must meet certain standards. Topsoil may need to be imported onto the site if the existing topsoil is not adequate for establishing new vegetation.

n. Cover or stabilize topsoil stockpiles.

Unprotected stockpiles are very prone to erosion and therefore stockpiles must be protected. Small stockpiles can be covered with a tarp to prevent erosion. Large stockpiles should be stabilized by erosion blankets, seeding, and/or mulching.

o. Use wind erosion controls.

Wind erosion controls limit the movement of dust from disturbed soil surfaces and include many different practices. Wind barrier block air currents and are effective in controlling soil blowing. Many different materials can be used as wind barriers, including solid board fence, snow fences, and bales of hay. Sprinkling moistens the soil surface with water and must be repeated as needed to be effective for preventing wind erosion (Delaware DNREC, 1989); however, applications must be monitored to prevent excessive runoff and erosion.

p. Intercept runoff above disturbed slopes and convey it to a permanent channel or storm drain.

Earth dikes, perimeter dikes or swales, or diversions can be used to intercept and convey runoff above disturbed areas. An earth dike is a temporary berm or ridge of compacted soil that channels water to a desired location. A perimeter dike/swale or diversion is a swale with a supporting ridge on the lower side that is constructed from the soil excavated from the adjoining swale (Delaware DNREC, 1989). These practices should be used to intercept flow from denuded areas or newly seeded areas to keep the disturbed areas from being eroded from the uphill runoff. The structures should be stabilized within 14 days of installation. A pipe slope drain, also known as a pipe drop structure, is a temporary pipe placed from the top of a slope to the bottom of the slope to convey concentrated runoff down the slope without causing erosion (Delaware DNREC, 1989).

q. On long or steep, disturbed, or man-made slopes, construct benches, terraces, or ditches at regular intervals to intercept runoff.

Benches, terraces, or ditches break up a slope by providing areas of low slope in the reverse direction. This keeps water from proceeding down the slope at increasing volume and velocity. Instead, the flow is directed to a suitable outlet, such as a sediment basin or trap. The frequency of benches, terraces, or ditches will depend on the erodibility of the soils, steepness and length of the slope, and rock outcrops. This practice should be used if there is a potential for erosion along the slope.

r. Use retaining walls.

Often retaining walls can be used to decrease the steepness of a slope. If the steepness of a slope is reduced, the runoff velocity is decreased and, therefore, the erosion potential is decreased.

s. Provide linings for urban runoff conveyance channels.

Often construction increases the velocity and volume of runoff, which causes erosion in newly constructed or existing urban runoff conveyance channels. If the runoff during or after construction will cause erosion in a channel, the channel should be lined or flow control BMPs installed. The first choice of lining should be grass or sod since this reduces runoff velocities and provides water quality benefits through filtration and infiltration. If the velocity in the channel would erode the soil, then red, black, or grey concrete, or gabions can be used.

t. Use check dams.

Check dams are small, temporary dams constructed across a swale or channel. They can be constructed using gravel or straw bales. They are used to reduce the velocity of concentrated flow and, therefore, to reduce the erosion in

a swale or channel. Check dams should be used when a swale or channel will be used for a short time and therefore it is not feasible or practical to line the channel or implement flow control BMPs (Delaware DNREC, 1989).

o. Seed and fertilize.

Seeding establishes a vegetative cover on disturbed areas. Seeding is very effective in controlling soil erosion once a dense vegetative cover has been established. However, often seeding and fertilizing do not produce as thick a vegetative cover as do seed and mulch or netting. Newly established vegetation does not have as extensive a root system as existing vegetation and therefore is more prone to erosion, especially on steep slopes. Care should be taken when fertilizing to avoid untimely or excessive application. Since the practice of seeding and fertilizing does not provide any protection during the time of vegetative establishment, it should be used only on favorable soils in very flat areas and not in sensitive areas.

p. Use seeding and mulch/mats.

Seeding establishes a vegetative cover on disturbed areas. Seeding is very effective in controlling soil erosion once the vegetative cover has been established. The mulching/mats protect the disturbed area while the vegetation becomes established.

The management of land by using ground cover reduces erosion by reducing the flow rate of runoff and the rainfall impact. Bare soils should be seeded or otherwise stabilized within 15 calendar days after final grading. Denuded areas that are inactive and will be exposed to rain for 30 days or more should also be temporarily stabilized, usually by planting seeds and establishing vegetation during favorable seasons in areas where vegetation can be established. In very flat, non-sensitive areas with favorable soils, stabilization may involve simply seeding and fertilizing. Mulching and/or sodding may be necessary as slopes become moderate to steep, as soils become more erodible, and as areas become more sensitive.

q. Use mulch/mats.

Mulching involves applying plant residues or other suitable materials on disturbed soil surfaces. Mulch/mats used include matted straw, wood chips, and jute netting and are often covered by blankets or netting. Mulching alone should be used only for temporary protection of the soil surface or when permanent seeding is not feasible. The useful life of mulch varies with the material used and the amount of precipitation, but is approximately 2 to 6 months. Figure 4-5 shows water velocity reductions that could be expected using various mulching techniques. Similarly, Figure 4-6 shows reductions in soil loss achievable using various mulching techniques. During times of year when vegetation cannot be established, soil mulching should be applied to moderate slopes and soils that are not highly erodible. On steep slopes or highly erodible soils, multiple mulching treatments should be used. On a high-elevation or desert site where grasses cannot survive the harsh environment, native shrubs may be planted. Interlocking ceramic materials, filter fabric, and netting are available for this purpose. Before stabilizing an area, it is important to have installed all sediment controls and directed runoff away from the area to be planted. Runoff may be diverted away from denuded areas or newly planted areas using ditches, swales, or pipe slope drains to intercept runoff and convey it to a permanent channel or storm drain. Reserved topsoil may be used to revegetate a site if the stockpile has been covered and stabilized.

Consideration should be given to maintenance when designing mulching and matting schemes. Plastic nets are often used to cover the mulch or mats; however, they can foul lawn mower blades if the area requires mowing.

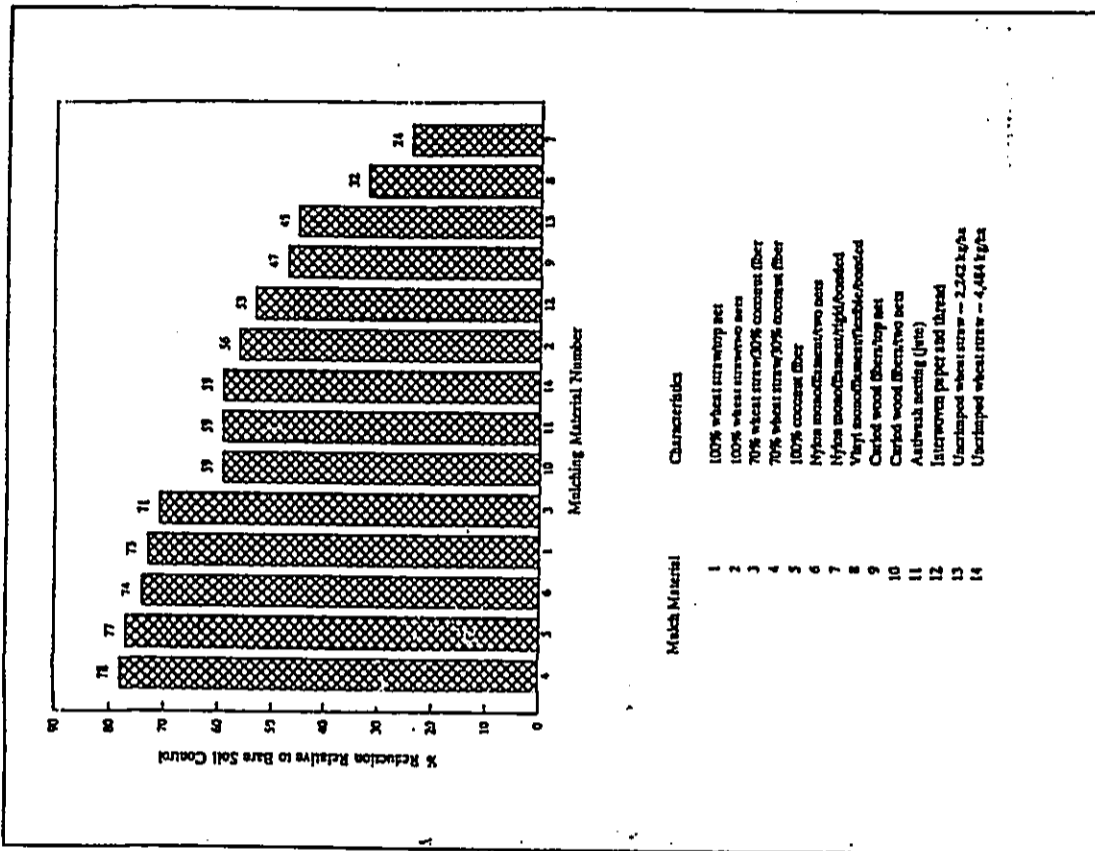


Figure 4-5. Water velocity reductions for different mulch treatments (adapted from Harding, 1990).

r. Use sodding.

Sodding permanently stabilizes an area. Sodding provides immediate stabilization of an area and should be used in critical areas or where establishment of permanent vegetation by seeding and mulching would be difficult. Sodding is also a preferred option when there is a high erosion potential during the period of vegetative establishment from seeding.

s. Use wildflower cover.

Because of the hardy drought-resistant nature of wildflowers, they may be more beneficial as an erosion control practice than turf grass. While not as dense as turfgrass, wildflower thickets and associated grasses are expected to be as effective in erosion control and contaminant absorption. Because thickets of wildflowers do not need fertilizers, pesticides, or herbicides, and watering is minimal, implementation of this practice may result in a cost savings (Brath et al., undated). In 1987, Howard County, Maryland, spent \$690.00 per acre to maintain turfgrass areas, compared to only \$31.00 per acre for wildflower meadows (Wilson, 1990).

A wildflower stand requires several years to become established; maintenance requirements are minimal once the area is established (Brath et al., undated).

5. Sediment Control Practices⁴

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

Sediment controls capture sediment that is transported in runoff. Filtration and detention (gravitational settling) are the main processes used to remove sediment from urban runoff.

a. Sediment Basins

Sediment basins, also known as silt basins, are engineered impoundment structures that allow sediment to settle out of the urban runoff. They are installed prior to full-scale grading and remain in place until the disturbed portions of the drainage area are fully stabilized. They are generally located at the low point of lots, away from construction traffic, where they will be able to trap sediment-laden runoff.

Sediment basins are typically used for drainage areas between 5 and 100 acres. They can be classified as either temporary or permanent structures, depending on the length of service of the structure. If they are designed to function for less than 36 months, they are classified as "temporary"; otherwise, they are considered permanent structures. Temporary sediment basins can also be converted into permanent urban runoff management ponds. When sediment basins are designed as permanent structures, they must meet all standards for wet ponds.

b. Sediment Trap

Sediment traps are small impoundments that allow sediment to settle out of runoff water. Sediment traps are typically installed in a driveway or other point of discharge from a disturbed area. Temporary diversion can be

⁴Adapted from Goldman (1986).

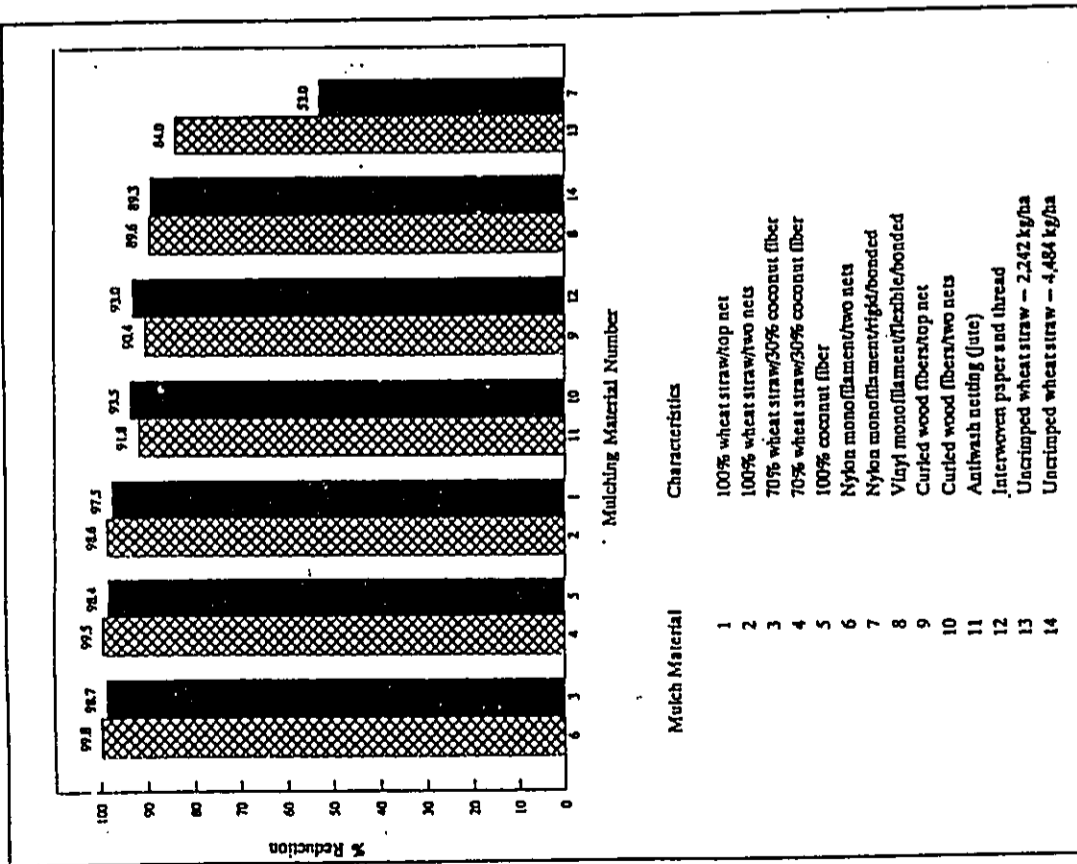


Figure 4-6. Actual soil loss reductions for different mulch treatments (adapted from Harding, 1990).

used to direct runoff to the sediment trap. Sediment traps should not be used for drainage areas greater than 5 acres and typically have a useful life of approximately 18 to 24 months.

■ c. Filter Fabric Fence

Filter fabric fences are available from many manufacturers and in several mesh sizes. Sediment is filtered out as urban runoff flows through the fabric. Such fences should be used only where there is sheet flow (i.e., no concentrated flow), and the maximum drainage area to the fence should be 0.5 acre or less per 100 feet of fence. Filter fabric fences have a useful life of approximately 6 to 12 months.

■ d. Straw Bale Barrier

A straw bale barrier is a row of anchored straw bales that detain and filter urban runoff. Straw bales are less effective than filter fabric, which can usually be used in place of straw bales. However, straw bales have been effectively used as temporary check dams in channels. As with filter fabric fences, straw bale barriers should be used only where there is sheet flow. The maximum drainage area to the barrier should be 0.25 acre or less per 100 feet of barrier. The useful life of straw bales is approximately 3 months.

■ e. Inlet Protection

Inlet protection consists of a barrier placed around a storm drain drop inlet, which traps sediment before it enters the storm sewer system. Filter fabric, straw bales, gravel, or sand bags are often used for inlet protection.

■ f. Construction Entrance

A construction entrance is a pad of gravel over filter cloth located where traffic leaves a construction site. As vehicles drive over the gravel, mud, and sediment are collected from the vehicles' wheels and offsite transport of sediment is reduced.

■ g. Vegetated Filter Strips

Vegetated filter strips are low-gradient vegetated areas that filter overland sheet flow. Runoff must be evenly distributed across the filter strip. Channelized flows decrease the effectiveness of filter strips. Level spreading devices are often used to distribute the runoff evenly across the strip (Dillaba et al., 1989).

Vegetated filter strips should have relatively low slopes and adequate length and should be planted with erosion-resistant plant species. The main factors that influence the removal efficiency are the vegetation type, soil infiltration rate, and flow depth and travel time. These factors are dependent on the contributing drainage area, slope of strip, degree and type of vegetative cover, and strip length. Maintenance requirements for vegetated filter strips include sediment removal and inspections to ensure that dense, vigorous vegetation is established and concentrated flows do not occur. Maintenance of these structures is discussed in Section III.A of this chapter.

6. Effectiveness and Cost Information

■ a. Erosion Control Practices

The effectiveness of erosion control practices can vary based on land slope, the size of the disturbed area, rainfall frequency and intensity, wind conditions, soil type, use of heavy machinery, length of time soils are exposed and unprotected, and other factors. In general, a system of erosion and sediment control practices can more effectively reduce offsite sediment transport than can a single system. Numerous nonstructural measures such as protecting natural or newly planted vegetation, minimizing the disturbance of vegetation on steep slopes and other highly

erodible areas, maximizing the distance eroded material must travel before reaching the drainage system, and locating roads away from sensitive areas may be used to reduce erosion.

Table 4-15 contains the available cost and effectiveness data for some of the erosion controls listed above. Information on the effectiveness of individual nonstructural controls was not available. All reported effectiveness data assume that controls are properly designed, constructed, and maintained. Costs have been broken down into annual capital costs, annual maintenance costs, and total annual costs (including annualization of the capital costs).

■ b. Sediment Control Practices

Regular inspection and maintenance are needed for most erosion control practices to remain effective. The effectiveness of sediment controls will depend on the size of the construction site and the nature of the runoff flows. Sediment basins are most appropriate for drainage areas of 5 acres or greater. In smaller areas with concentrated flows, silt traps may suffice. Where concentrated flow leaves the site and the drainage area is less than 0.5 ac/100 ft of flow, filter fabric fences may be effective. In areas where sheet flow leaves the site and the drainage area is greater than 0.5 ac/100 ft of flow, perimeter dikes may be used to divert the flow to a sediment trap or sediment basin. Urban runoff inlets may be protected using straw bales or diversions to filter or route runoff away from the inlets.

Table 4-16 describes the general cost and effectiveness of some common sediment control practices.

■ c. Comparisons

Figure 4-7 illustrates the estimated TSS loading reductions from Maryland construction sites possible using a combination of erosion and sediment controls in contrast to using only sediment controls. Figure 4-8 shows a comparison of the cost and effectiveness of various erosion control practices. As can be seen in Figures 4-8, seeding or sodding and mulching provide the highest levels of control at the lowest cost.

Table 4-15. (Continued)

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years) ^a	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost		
Mulch	Temporary stabilization of disturbed area	Observed range:	Straw mulch: 0.25	Straw mulch: Average: \$1,700 per acre Range: \$500 - \$5,000 per acre References: Wisconsin DOT cited in SWRPC, 1991; Washington DOT, 1990; Virginia, 1980	Average: NA ^b Range: NA References: None	Straw mulch: \$7,500 per acre		
		<u>sand:</u>						
		20% slope					50% slope	
		wood fiber @ 1500 lb/ac					50-80%	0-20%
		wood fiber @ 3000 lb/ac					50-85%	50-70%
		straw @ 3000 lb/ac					80-100%	95%
		<u>Silt-foam:</u>					20% slope	50% slope
		wood fiber @ 1500 lb/ac					20-60%	40-60%
		wood fiber @ 3000 lb/ac					60-90%	60-70%
		straw @ 3000 lb/ac					80-95%	70-80%
<u>Silt-clay-foam:</u>	10-30% slope	30-50% slope	Wood fiber mulch: Average: \$1,000 per acre Range: \$100 - \$2,300 per acre References: Washington DOT, 1990; Virginia, 1980	Jute netting: Average: \$3,700 per acre Range: \$3,500-\$4,100 per acre References: Washington DOT, 1990; Virginia, 1980	Wood fiber mulch: \$3,500 per acre			
wood fiber @ 1500 lb/ac	5%	-						
wood fiber @ 3000 lb/ac	40%	-						
jute netting	30-60%	30%						
straw @ 3000 lb/ac	40-70%	20-40%						
wood chips @ 10,000 lb/ac	60-80%	50-60%						
mulch blanket	60-80%	50-60%						
excelsior blanket	80-80%	50-60%						
multiple treatment (straw and jute)	90%	90%						
						Straw and jute: Average: \$5,400 per acre Range: \$4,000-\$9,100 per acre References: Washington DOT, 1990; Virginia, 1980	Jute netting: \$12,500 per acre	Straw and jute: \$18,000 per acre
References: Minnesota Pollution Control Agency, 1989; Kay, 1983 cited in Goldman, 1988								

Table 4-15. ESC Quantitative Effectiveness and Cost Summary

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years) ^a	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Sod	Immediate erosion protection where there is high erosion potential during vegetative establishment.	Average: 99% Observed range: 88% - 99% References: Minnesota Pollution Control Agency, 1988; Pennsylvania, 1983 cited in USEPA, 1991	2	Average: \$0.2 per ft ² (\$11,300 per acre) Range: \$0.1 - \$1.1 References: SWRPC, 1991; Schueler, 1987; Virginia, 1980	Average: 5% Range: 5% Reference: SWRPC, 1991	\$0.20 per ft ² \$7,500 per acre
Seed	Establish vegetation on disturbed area.	After vegetation established- Average: 90% Observed range: 50% - 100% References: SCS, 1985 cited in EPA, 1991; Minnesota Pollution Control Agency, 1989; Oberst, 1984 cited in City of Austin, 1988; Delaware Department of Natural Resources, 1989	2	Average: \$400 per acre Range: \$200 - \$1000 per acre References: Wisconsin DOT cited in SWRPC, 1991; SWRPC, 1991; Goldman, 1988; Virginia, 1980	Average: 20% Range: 15% - 25% References: Wisconsin DOT cited in SWRPC, 1991; SWRPC, 1991	\$300 per acre
Seed and Mulch	Establish vegetation on disturbed area.	After vegetation established- Average: 90% Observed range: 50% - 100% References: SCS, 1985 cited in EPA, 1991; Minnesota Pollution Control Agency, 1989; Oberst, 1984 cited in City of Austin, 1988; Delaware Department of Natural Resources, 1989	2	Average: \$1,500 per acre Range: \$800 - \$3,500 per acre References: Goldman, 1988; Washington DOT, 1990; NC State, 1990; Schueler, 1987; Virginia, 1980; SWRPC, 1991	Average: NA ^b Range: NA References: None	\$1,100 per acre

Table 4-18. ESC Quantitative Effectiveness and Cost Summary for Sediment Control Practices

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years) ^a	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Sediment basin	Minimum drainage area = 5 acres, maximum drainage area = 100 acres	Average: 70% Observed range: 55% - 100% References: Schueler, 1990; Engle, BW and Jamst, AR, 1990; Baumann, 1990	2	Less than 50,000 ft ³ storage Average: \$0.60 per ft ³ storage (\$1,100 per drainage acre) Range: \$0.20 - \$1.30 per ft ³	Average: 25% Range: 25% References: Denver COG cited in SWRPC, 1991; SWRPC, 1991	Less than 50,000 ft ³ storage \$0.40 per ft ³ storage \$700 per drainage acre ^b
				Greater than 50,000 ft ³ storage Average: \$0.3 per ft ³ storage (\$550 per drainage acre) Range: \$0.10 - \$0.40 per ft ³ References: SWRPC, 1991		Greater than 50,000 ft ³ storage \$0.20 per ft ³ storage \$900 per drainage acre ^c
Sediment trap	Maximum drainage area = 5 acres	Average: 80% Observed range: (-7%) - 100% References: Schueler, et al., 1990; Tahoe Regional Planning Agency, 1989; Baumann, 1990	1.5	Average: \$0.60 per ft ³ storage (\$1,100 per drainage acre) Range: \$0.20 - \$2.00 per ft ³ References: Denver COG cited in SWRPC, 1991; SWRPC, 1991; Goldman, 1988	Average: 20% Range: 20% References: Denver COG cited in SWRPC, 1991; SWRPC, 1991	\$0.70 per ft ³ storage \$1,300 per drainage acre ^c
Filter Fabric Fence	Maximum drainage area = 0.5 acre per 100 feet of fence. Not to be used in concentrated flow areas.	Average: 70% Observed range: 0% - 100% sand: 80% - 99% silt-loam: 50% - 80% silt-clay-loam: 0% - 20% References: Munson, 1991; Fisher et al., 1984; Minnesota Pollution Control Agency, 1989	0.5	Average: \$3 per lin ft (\$700 per drainage acre) Range: \$1 - \$8 per lin ft References: Wisconsin DOT cited in SWRPC, 1991; SWRPC, 1991; Goldman, 1988; Virginia, 1991; NC State, 1990	Average: 100% Range: 100% References: SWRPC, 1991	\$7 per lin ft \$850 per drainage acre ^c

Table 4-15. (Continued)

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years) ^a	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost		
Terraces	Break up long or steep slopes.	Observed range:	2	Average: \$5 per lin ft Range: \$1 - \$12 References: SWRPC, 1991; Goldman, 1988; Virginia, 1991	Average: 20% Range: 20% Reference: SWRPC, 1991	\$4 per lin ft		
		<table border="0"> <tr> <td><u>Land Slope</u></td> <td><u>Reduction in Erosion</u></td> </tr> <tr> <td>1-12%</td> <td>70%</td> </tr> <tr> <td>12-18%</td> <td>60%</td> </tr> <tr> <td>18-24%</td> <td>55%</td> </tr> </table> <p>Additionally, if the slope steepness is halved, while other factors are held constant, the soil loss potential decreases 2-1/2 times. If both the slope and length are halved, the soil loss potential is decreased 4 times. References: Goldman, 1988; Beasley, 1972</p>					<u>Land Slope</u>	<u>Reduction in Erosion</u>
<u>Land Slope</u>	<u>Reduction in Erosion</u>							
1-12%	70%							
12-18%	60%							
18-24%	55%							
All Erosion Controls	Reduce amount of sediment entering runoff.	Average: 85% Observed range: 85% Reference: Schueler, 1990	-	Varies but typically low	Varies but typically low	Varies but typically low		

NA - Not available.
^a Useful life estimated as length of construction project (assumed to be 2 years).
^b For Total Annual Cost, assume Annual Maintenance Cost = 2% of construction cost.

Table 4-16. (Continued)

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years) ^a	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Vegetative Filter Strip	Must have sheet flow.	Average: 70% Observed Range: 20% - 80% References: Hayes and Hairston, 1983 cited in Casman, 1990; D'aha et al., 1989, cited in Glick et al., 1991; Virginia Department of Conservation, 1987; Nonpoint Source Control Task Force, 1983 cited in Minnesota PCA, 1989; Schueler, 1987	2	Established from existing vegetation: Average: \$0 Range: \$0 References: Schueler, 1987 Established from sod: Average: \$11,300 per acre Range: \$4,500 - \$48,000 per acre References: Schueler, 1987; SWRPC, 1991	Average: NA Range: NA References: None	NA

NA - Not available.

^a Useful life estimated as length of construction project (assumed to be 2 years)^b For Total Annual Cost, assume Annual Maintenance Cost=20% of construction cost.^c Assumes trap volume = 1800 cu/acre (0.5 inches runoff per acre).^d Assumes drainage area of 0.5 acre per 100 feet of fence (maximum allowed).^e Assumes drainage area of 0.25 acre per 100 feet of barrier (maximum allowed).

Table 4-16. (Continued)

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years) ^a	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Straw Bale Barrier	Maximum drainage area = 0.25 acre per 100 feet of barrier. Not to be used in concentrated flow areas.	Average: 70% Observed Range: 70% References: Virginia, 1980 cited in EPA, 1991	0.25	Average: \$4 per lin ft (\$1,800 per drainage acre ^d) Range: \$2 - \$8 per lin ft References: Goldman, 1988; Virginia, 1991	Average: 100% Range: 100% References: SWRPC, 1991	\$17 per lin ft \$8,800 per drainage acre ^d
Inlet Protection	Protect storm drain inlet.	Average: NA Observed Range: NA References: None	1	Average: \$100 per inlet Range: \$50 - \$150 References: SWRPC, 1991; Denver COG cited in SWRPC, 1991; Virginia, 1991; EPA cited in SWRPC, 1991	Average: 60% Range: 20% - 100% References: SWRPC, 1991; Denver COG cited in SWRPC, 1991	\$150 per inlet
Construction Entrance	Removes sediment from vehicles wheels.	Average: NA Observed Range: NA References: None	2	Average: \$2,000 each Range: \$1,000 - \$4,000 References: Goldman, 1988; NC State, 1990 With washrack: Average: \$3,000 each Range: \$1,000 - \$5,000 References: Virginia, 1991	Average: NA ^e Range: NA References: None	\$1,500 each \$2,200 each

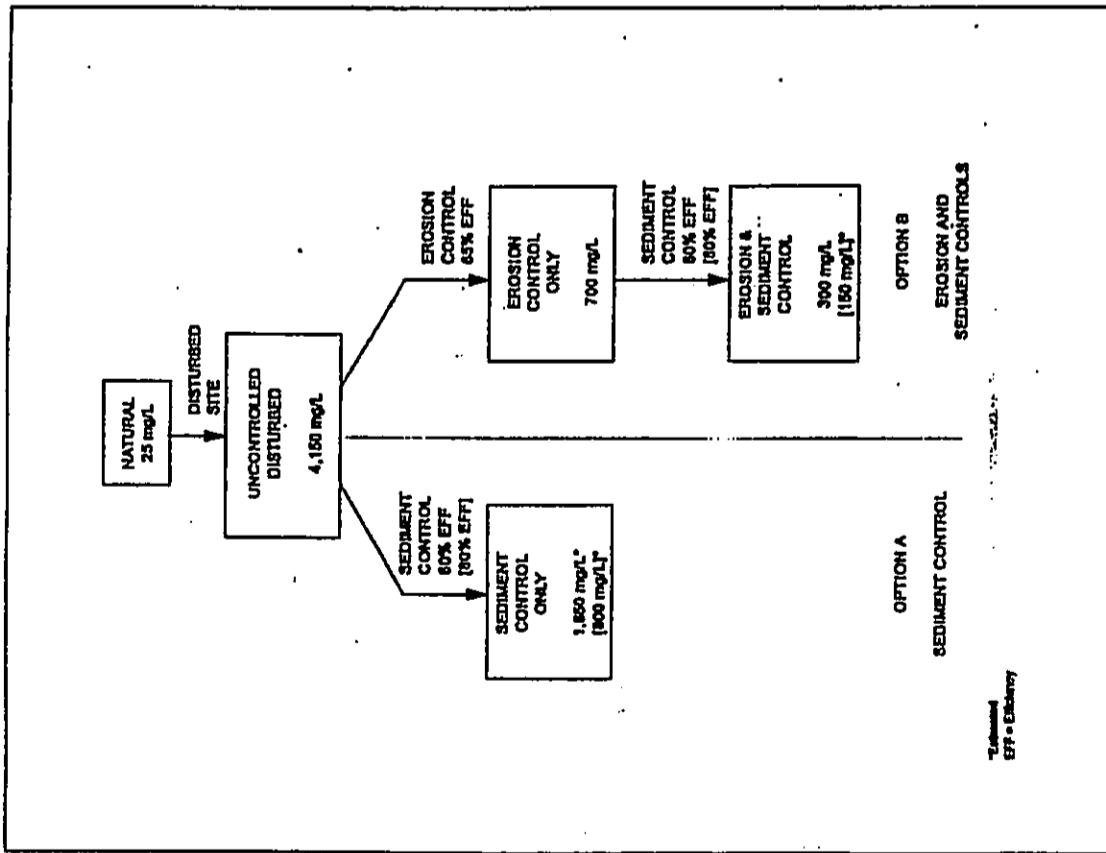


Figure 4-7. TSS concentrations from Maryland construction sites (Schuster, 1987).

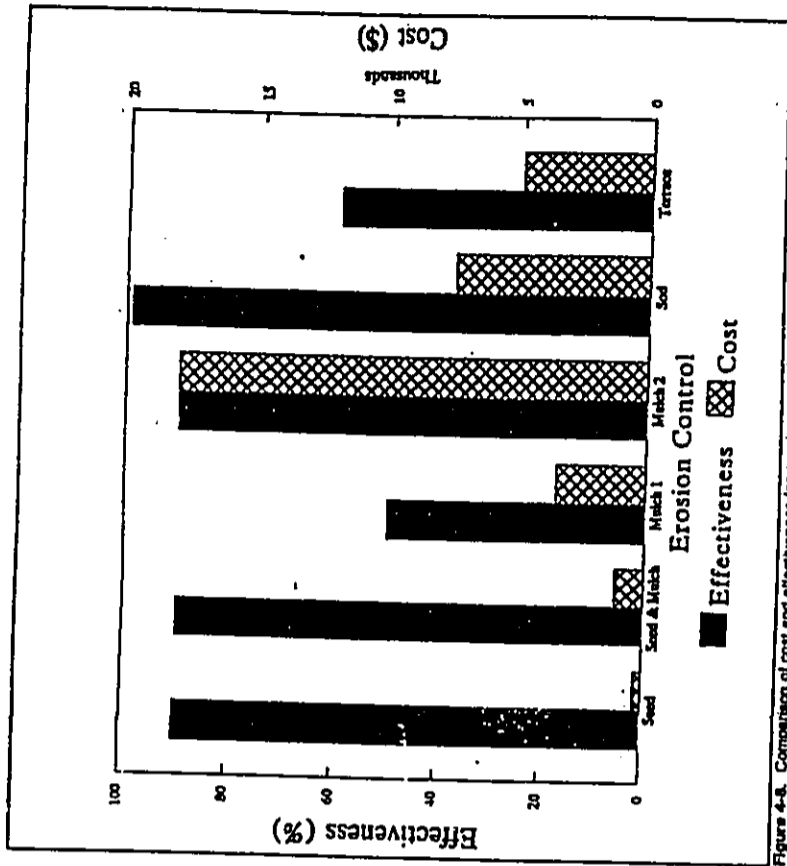


Figure 4-8. Comparison of cost and effectiveness for erosion control practices (based on information in Tables 4-15 and 4-16).

B. Construction Site Chemical Control Management Measure

- (1) Limit application, generation, and migration of toxic substances;
- (2) Ensure the proper storage and disposal of toxic materials; and
- (3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

1. Applicability

This management measure is intended to be applied by States to all construction sites less than 5 acres in area and to new, resurfaced, restored, and reconstructed road, highway, and bridge construction projects. This management measure does not apply to: (1) construction of a detached single family home on a site of 1/2 acre or more or (2) construction that does not disturb over 5,000 square feet of land on a site. (NOTE: All construction activities, including clearing, grading, and excavation, that result in the disturbance of areas greater than or equal to 5 acres or are a part of a larger development plan are covered by the NPDES regulations and are thus excluded from these requirements.) Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformance with this management measure and will have flexibility in doing so. The application of management measures by States is described more fully in *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidelines*, published jointly by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

2. Description

The purpose of this management measure is to prevent the generation of nonpoint source pollution from construction sites due to improper handling and usage of nutrients and toxic substances, and to prevent the movement of toxic substances from the construction site.

Many potential pollutants other than sediment are associated with construction activities. These pollutants include pesticides (insecticides, fungicides, herbicides, and rodenticides); fertilizers used for vegetative stabilization; petrochemicals (oils, gasoline, and asphalt degreasers); construction chemicals such as concrete products, sealers, and paints; wash water associated with these products; paper, wood, garbage; and sanitary wastes (Washington State Department of Ecology, 1991).

The variety of pollutants present and the severity of their effects are dependent on a number of factors:

- (1) The nature of the construction activity. For example, potential pollution associated with fertilizer usage may be greater along a highway or at a housing development than it would be at a shopping center development because highways and housing developments usually have greater landscaping requirements.
- (2) The physical characteristics of the construction site. The majority of all pollutants generated at construction sites are carried to surface waters via runoff. Therefore, the factors affecting runoff volume,

such as the amount, intensity, and frequency of rainfall; soil infiltration rates; surface roughness; slope length and steepness; and area denuded, all contribute to pollutant loadings.

- (3) The proximity of surface waters to the nonpoint pollutant source. As the distance separating pollutant-generating activities from surface waters decreases, the likelihood of water quality impacts increases.

a. Pesticides

Insecticides, rodenticides, and herbicides are used on construction sites to provide safe and healthy conditions, reduce maintenance and fire hazards, and curb weeds and woody plants. Rodenticides are also used to control rodents attracted to construction sites. Common insecticides employed include synthetic, relatively water-insoluble chlorinated hydrocarbons, organophosphates, carbamates, and pyrethroids.

b. Petroleum Products

Petroleum products used during construction include fuels and lubricants for vehicles, for power tools, and for general equipment maintenance. Specific petroleum pollutants include gasoline, diesel oil, kerosene, lubricating oils, and grease. Asphalt paving also can be particularly harmful since it releases various oils for a considerable time period after application. Asphalt overloads might be dumped and covered without inspection. However, many of these pollutants adhere to soil particles and other surfaces and can therefore be more easily controlled.

c. Nutrients

Fertilizers are used on construction sites when revegetating graded or disturbed areas. Fertilizers contain nitrogen and phosphorus, which in large doses can adversely affect surface waters, causing eutrophication.

d. Solid Wastes

Solid wastes on construction sites are generated from trees and shrubs removed during land clearing and structure installation. Other wastes include wood and paper from packaging and building materials, scrap metals, sanitary food, and aluminum foil also contribute solid wastes to the construction site.

e. Construction Chemicals

Chemical pollutants, such as paints, acids for cleaning masonry surfaces, cleaning solvents, asphalt products, soil additives used for stabilization, and concrete-curing compounds, may also be used on construction sites and carried in runoff.

f. Other Pollutants

Other pollutants, such as wash water from concrete mixers, acid and alkaline solutions from exposed soil or rock, and alkaline-forming natural elements, may also be present and contribute to nonpoint source pollution.

Revegetation of disturbed areas may require the use of fertilizers and pesticides, which, if not applied properly, may become nonpoint source pollutants. Many pesticides are restricted by Federal and/or State regulations.

Hydroseeding operations, in which seed, fertilizer, and lime are applied to the ground surface in a one-step operation, are more conducive to nutrient pollution than are the conventional seedbed-preparation operations, in which fertilizers and lime are tilled into the soil. Use of fertilizers containing little or no phosphorus may be required by

local authorities if the development is near sensitive waterbodies. The addition of lime can also affect the pH of sensitive waters, making them more alkaline.

Improper fueling and servicing of vehicles can lead to significant quantities of petroleum products being dumped onto the ground. These pollutants can then be washed off site in urban runoff, even when proper erosion and sediment controls are in place. Pollutants carried in solution in runoff water, or fixed with sediment crystalline structures, may not be adequately controlled by erosion and sediment control practices (Washington Department of Ecology, 1991). Oils, waxes, and water-insoluble pesticides can form surface films on water and solid particles. Oil films can also concentrate water-soluble insecticides. These pollutants can be nearly impossible to control once present in runoff other than by the use of very costly water-treatment facilities (Washington Department of Ecology, 1991).

After spill prevention, one of the best methods to control petroleum pollutants is to retain sediments containing oil on the construction site through use of erosion and sediment control practices. Improved maintenance and safe storage facilities will reduce the chance of contaminating a construction site. One of the greatest concerns related to use of petroleum products is the method for waste disposal. The dumping of petroleum product wastes into sewers and other drainage channels is illegal and could result in fines or job shutdown.

The primary control method for solid wastes is to provide adequate disposal facilities. Erosion and sediment control structures usually capture much of the solid waste from construction sites. Periodic removal of litter from these structures will reduce solid waste accumulations. Collected solid waste should be removed and disposed of at authorized disposal areas.

Improper stored construction materials, such as pressure-treated lumber or solvents, may lead to leaching of toxics to surface water and ground water. Disposal of construction chemicals should follow all applicable State and local laws that may require disposal by a licensed waste management firm.

3. Management Measure Selection

This management measure was selected based on the potential for many construction activities to contribute to nutrient and toxic NPS pollution.

This management measure was selected because (1) construction activities have the potential to contribute to increased loadings of toxic substances and nutrients to waterbodies; (2) various States and local governments regulate the control of chemicals on construction sites through spill prevention plans, erosion and sediment control plans, or other administrative devices; (3) the practices described are commonly used and presented in a number of best management practice handbooks and guidance manuals for construction sites; and (4) the practices selected are the most economical and effective.

4. Practices

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

a. Properly store, handle, apply, and dispose of pesticides.

Pesticide storage areas on construction sites should be protected from the elements. Warning signs should be placed in areas recently sprayed or treated. Persons mixing and applying these chemicals should wear suitable protective clothing, in accordance with the law.

Application rates should conform to registered label directions. Disposal of excess pesticides and pesticide-related wastes should conform to registered label directions for the disposal and storage of pesticides and pesticide containers set forth in applicable Federal, State, and local regulations that govern their usage, handling, storage, and disposal. Pesticides and herbicides should be used only in conjunction with Integrated Pest Management (IPM) (see Chapter 2). Pesticides should be the tool of last resort; methods that are the least disruptive to the environment and human health should be used first.

Pesticides should be disposed of through either a licensed waste management firm or a treatment, storage, and disposal (TSD) facility. Containers should be triple-rinsed before disposal, and rinse waters should be reused as product.

Other practices include setting aside a locked storage area, tightly closing lids, storing in a cool, dry place, checking containers periodically for leaks or deterioration, maintaining a list of products in storage, using plastic sheeting to line the storage area, and notifying neighboring property owners prior to spraying.

b. Properly store, handle, use, and dispose of petroleum products.

When storing petroleum products, follow these guidelines:

- Create a shelter around the area with cover and wind protection;
- Line the storage area with a double layer of plastic sheeting or similar material;
- Create an impervious berm around the perimeter with a capacity 110 percent greater than that of the largest container;
- Clearly label all products;
- Keep tanks off the ground; and
- Keep lids securely fastened.

Oil and oily wastes such as crankcase oil, cans, rags, and paper dropped into oils and lubricants should be disposed of in proper receptacles or recycled. Waste oil for recycling should not be mixed with degreasers, solvents, antifreeze, or brake fluid.

c. Establish fuel and vehicle maintenance staging areas located away from all drainage courses, and design these areas to control runoff.

Proper maintenance of equipment and installation of proper stream crossings will further reduce pollution of water by these sources. Stream crossings should be minimized through proper planning of access roads. Refer to Chapter 3 for additional information on stream crossings.

d. Provide sanitary facilities for construction workers.

e. Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff of pollutants and contamination of ground water.

f. Develop and implement a spill prevention and control plan. Agencies, contractors, and other commercial entities that store, handle, or transport fuel, oil, or hazardous materials should develop a spill response plan.

Post spill procedure information and have persons trained in spill handling on site or on call at all times. Materials for cleaning up spills should be kept on site and easily available. Spills should be cleaned up immediately and the contaminated material properly disposed of. Spill control plan components should include:

- Stop the source of the spill.
- Contain any liquid.
- Cover the spill with absorbent material such as kitty litter or sawdust, but do not use straw. Dispose of the used absorbent properly.

g. Maintain and wash equipment and machinery in confined areas specifically designed to control runoff.

Thinners or solvents should not be discharged into sanitary or storm sewer systems when cleaning machinery. Use alternative methods for cleaning larger equipment parts, such as high-pressure, high-temperature water washes, or steam cleaning. Equipment-washing detergents can be used, and wash water may be discharged into sanitary sewers if solids are removed from the solution first. (This practice should be verified with the local sewer authority.) Small parts can be cleaned with degreasing solvents, which can then be reused or recycled. Do not discharge any solvents into sewers.

Washout from concrete trucks should be disposed of in:

- A designated area that will later be backfilled;
- An area where the concrete wash can harden, can be broken up, and then can be placed in a dumpster; or
- A location not subject to urban runoff and more than 50 feet away from a storm drain, open ditch, or surface water.

Never dump washout into a sanitary sewer or storm drain, or onto soil or pavement that carries urban runoff.

h. Develop and implement nutrient management plans.

Properly time applications, and work fertilizers and liming materials into the soil to depths of 4 to 6 inches. Using soil tests to determine specific nutrient needs at the site can greatly decrease the amount of nutrients applied.

i. Provide adequate disposal facilities for solid waste, including excess asphalt, produced during construction.

j. Educate construction workers about proper materials handling and spill response procedures. Distribute or post informational material regarding chemical control.



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August 9, 2004

Mr. George Y. Tengan, Director
Department of Water Supply
200 South High Street
Wailuku, Hawaii 96793

**SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2
(-PORTION), 3-8-06:4 (PORTION), 3-8-79:13**

Dear Mr. Tengan:

Thank you for your letter (addressed to Dan Yasui) dated July 22, 2004 regarding the Environmental Impact Statement Preparation Notice (EISP/N) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

Source Availability and Consumption

We acknowledge that you estimate water use for Maui Business Park Phase II is in the range of 0.828 MGD-1.074 MGD. Please note that A&B Properties, Inc., will be exploring the feasibility of using non-potable water sources for Maui Business Park Phase II's landscape irrigation needs. Thus, the actual use of water from the County water system may be less than the 0.828 MGD-1.074 MGD you estimate. A&B Properties, Inc., will work closely with the Department of Water Supply (DWS) on appropriately satisfying the water needs for Maui Business Park Phase II.

Regarding estimated flows in the referenced ditches, the 42 MGD figure we provided in the EISP/N, which is a 10 year average, does NOT include Wailuku Shaft flows. We are aware that at one time, Wailuku Shaft water was pumped into the West Maui ditch system by Wailuku Agribusiness Company, however it was pumped into the ditch at a point downstream from the gauges that yielded the 42 MGD figure. In addition, this practice was stopped, we believe, in the late 1980s, before the 10-year time frame in which this 42 MGD figure was calculated. Thus, 42 MGD is the correct figure for the average water flows that have been available to A&B from the West Maui ditch system.

A&B Properties Inc. will work closely with DWS in determining appropriate parameters for future surface water treatment facilities.

Pollution Prevention

A&B Properties, Inc., will implement best management practices to minimize infiltration and runoff from construction and vehicle operations

Mr. George Y. Tengan
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR
MAUI BUSINESS PARK PHASE II, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION),
3-8-79:13
August 9, 2004
Page 2

Conservation

Water conservation measures will be included in the environmental impact statement (EIS) and implemented in Maui Business Park Phase II's design and construction.

Thank you for reviewing the EISP. Your comments will be included in the draft EIS.

Sincerely,



Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

FINAL ENVIRONMENTAL IMPACT STATEMENT
MAUI BUSINESS PARK PHASE II

**13.0 COMMENTS ON THE DRAFT ENVIRONMENTAL
IMPACT STATEMENT AND RESPONSES**

The draft environmental impact statement (DEIS) was sent to the following agencies, organizations, and individuals. The public comment period on the DEIS was from August 23, 2004 to October 7, 2004. Where indicated, the agency, organization, or individual submitted comments.

	<u>AGENCY</u>	<u>DEIS Mail Date</u>	<u>Date of Comments</u>
	STATE		
1	Department of Agriculture	8/23/04	
2	Department of Accounting and General Services	8/23/04	9/22/04
3	Department of Business Economic Development & Tourism – Land Use Commission	8/23/04	10/1/04
4	Department of Business Economic Development & Tourism – Energy, Resources & Technology Division	8/23/04	
5	Department of Business Economic Development & Tourism – Office of Planning	8/23/04	9/2/04
6	Department of Human Services – Housing and Community Development Corporation of Hawaii	8/23/04	9/20/04
7	Department of Business Economic Development & Tourism – Strategic Industries Division	8/23/04	
8	Department of Defense	8/23/04	
9	Department of Labor	8/23/04	
10	Department of Land and Natural Resources	8/23/04	
11	Department of Land and Natural Resources – State Historic Preservation Division	8/23/04	10/6/04
12	Department of Health – Clean Air Branch	8/23/04	9/13/04
13	Department of Health – Noise, Radiation & IAQ Branch	8/23/04	9/9/04
14	Department of Health – Wastewater Branch	8/23/04	9/13/04
15	Department of Health – Maui Office	8/23/04	9/8/04
16	Department of Health – Safe Drinking Water Branch	8/23/04	10/7/04
17	Department of Health - Office of Environmental Quality Control	8/23/04	10/8/04
18	Department of Hawaiian Home Lands	8/23/04	9/15/04
19	Office of Hawaiian Affairs	8/23/04	
20	UH Environmental Center	8/23/04	10/7/04
21	UH Water Resources Research Center	8/23/04	
22	Department of Transportation	8/23/04	10/7/04
	FEDERAL		
23	US Fish and Wildlife Service	8/23/04	
24	US Natural Resource Conservation Service	8/23/04	

**FINAL ENVIRONMENTAL IMPACT STATEMENT
MAUI BUSINESS PARK PHASE II**

	<u>AGENCY</u>	<u>DEIS Mail Date</u>	<u>Date of Comments</u>
25	<u>US Natural Resource Conservation Service – Maui Office</u>	<u>8/23/04</u>	<u>8/30/04</u>
26	<u>US Federal Aviation Administration</u>	<u>8/23/04</u>	<u>9/8/04</u>
27	<u>US Army Engineer Division</u>	<u>8/23/04</u>	
28	<u>US Federal Aviation Administration</u>	<u>8/23/04</u>	
	<u>COUNTY OF MAUI</u>		
29	<u>Department of Human Services</u>	<u>8/23/04</u>	
30	<u>Department of Housing and Human Concerns</u>	<u>8/23/04</u>	<u>9/16/04</u>
31	<u>Department of Planning</u>	<u>8/23/04</u>	<u>10/7/04</u>
32	<u>Department of Public Works & Environmental Management</u>	<u>8/23/04</u>	
33	<u>Department of Public Works – Development Services Administration</u>	<u>8/23/04</u>	<u>10/21/04</u>
34	<u>Department of Parks & Recreation</u>	<u>8/23/04</u>	<u>9/14/04</u>
35	<u>Department of Fire Control</u>	<u>8/23/04</u>	
36	<u>Mayor’s Office of Economic Development</u>	<u>8/23/04</u>	
37	<u>Police Department</u>	<u>8/23/04</u>	<u>10/6/04</u>
38	<u>Department of Water Supply</u>	<u>8/23/04</u>	<u>9/14/04</u>
39	<u>Maui Civil Defense</u>	<u>8/23/04</u>	
40	<u>Kahului Library</u>	<u>8/23/04</u>	
41	<u>State Main Library</u>	<u>8/23/04</u>	
42	<u>Maui Community College Library</u>	<u>8/23/04</u>	
43	<u>DBEDT Library</u>	<u>8/23/04</u>	
44	<u>UH Hamilton Library</u>	<u>8/23/04</u>	
45	<u>Legislative Reference Bureau</u>	<u>8/23/04</u>	
	<u>NEWS MEDIA</u>		
46	<u>Honolulu Advertiser</u>	<u>8/23/04</u>	
47	<u>Honolulu Star Bulletin</u>	<u>8/23/04</u>	
48	<u>Maui News</u>	<u>8/23/04</u>	
	<u>PRIVATE COMPANIES, ORGANIZATIONS & INDIVIDUALS</u>		
49	<u>Maui Electric Company</u>	<u>8/23/04</u>	
50	<u>Verizon</u>	<u>8/23/04</u>	<u>10/5/04</u>
51	<u>Sally Raisbeck</u>	<u>8/23/04</u>	
52	<u>Sierra Club</u>	<u>8/23/04</u>	
53	<u>Fred Rohlfig</u>	<u>8/23/04</u>	
54	<u>Maui Tomorrow</u>	<u>8/23/04</u>	

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LINDA LINGLE
COUNTRER



STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

RUSSELL K. SAITO
COMPTROLLER
KATHERINE H. THOMASON
DEPUTY COMPTROLLER

(71)308.4

SEP 22 2004

Mr. Tom Schnell, AICP
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

Subject: Draft Environmental Impact Statement for Maui Business Park, Phase II

Thank you for giving us the opportunity to comment on the subject project. We offer the following:

1. Sections 5.9.3 and 8.5: We recommend continued dialog with the County of Maui, Department of Water Supply on potable water allocation and source development, as these are major issues for State projects. We applaud your offer to contribute towards the construction of a surface water treatment facility for the County of Maui.
2. Sections 5.8.2 and 5.10.3: A ten-acre residential component is mentioned. We recommend discussions with the Department of Education for potential enrollment increases at their schools.

If you have any questions, please have your staff contact Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

LM:jp

c: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve K. Y. Salmonson, DOI-OEQC
Mr. Clayton Yoshida, County of Maui, Department of Planning



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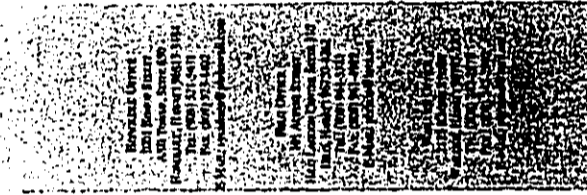
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October 26, 2004

Mr. Ernest Y. W. Lau, Public Works Administrator
Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawaii 96810

SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13

Dear Mr. Lau:

Thank you for your letter (P)1308.4 dated September 22, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

A&B Properties, Inc. will coordinate with the County of Maui Department of Water Supply on water source development and a potable water allocation in conjunction with the development of Maui Business Park Phase II.

The State Land Use Commission under Docket No. A03-739 has required the contribution of a minimum of 10 acres of land in the Central Maui region toward the development of employee/affordable housing. At this time, specifics concerning the housing project (e.g. location, unit types, etc.) have yet to be formulated. However, A&B Properties, Inc., in coordination with the County of Maui and other parties, will confer with the State Department of Education regarding school enrollment increases in formulating an employee/affordable housing program for Maui Business Park Phase II.

Thank you for reviewing the DEIS. Your comments will be included in the Final Environmental Impact Statement.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2379
Honolulu, Hawaii 96804-2379
Telephone: 808 597-3822
Fax: 808 597-5927

ANTHONY J.H. CHING
EXECUTIVE OFFICER

October 26, 2004



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Mr. Tom Schueli
PBR Hawaii
ASB Tower, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

Subject: LUC Docket No. A88-634/A&B Properties, Inc. (Maui Business Park Phase II)
Draft Environmental Impact Statement

We have reviewed the subject Draft Environmental Impact Statement (DEIS) and have the following comments:

- 1) Information on the projected amount of solid waste from Phase II of the project, including the incremental districted area should be provided.
- 2) Information on the number and size of the lots specifically proposed in the incremental districted area and the projected sales prices of those lots should be provided.
- 3) The date of the Phase I Environment Site Assessment (ESA) referenced on page 33 of the DEIS should be clarified. Was there an ESA specifically prepared for Phase II, including the incremental districted area? If not, is there current information available on the recognized environmental conditions that such an assessment would document?

We have no further comments to offer at this time. Please feel free to contact Bert Samwataari of my office at 587-3822, should you require clarification or any further assistance.

Sincerely,

ANTHONY J.H. CHING
Executive Officer

c: Office of Environmental Quality Control
Dan Yasui, A&B Properties, Inc.

Mr. Anthony J. H. Ching, Executive Officer
Land Use Commission
Department of Business, Economic Development & Tourism
State of Hawaii
P. O. Box 2359
Honolulu, Hawaii 96804-2359

SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13

Dear Mr. Ching:

Thank you for your letter (LUC Docket No. A88-634) dated October 1, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

- 1) Our research found that there are no established methods or formulas, either in the State of Hawaii or nationally, to project the amount of solid waste generated from light industrial and commercial development. This may be due to the fact that, unlike residential development, the type and amount of solid waste generated by light industrial and commercial development can vary widely and therefore is difficult to accurately project. Our research included contacting the State of Department of Health Solid and Hazardous Waste Branch, the County of Maui Office of Public Works and Environmental Management, the County of Maui Solid Waste Division Office, and the City and County of Honolulu. None of these agencies provided a method to estimate solid waste generated from light industrial and commercial development. We also conducted extensive internet research in an attempt to find a national standard. Several mainland states and cities have attempted to develop a method to estimate solid waste generated from light industrial and commercial development, however, these methods varied widely and there was no discernable standard.

In absence of a standard methodology to estimate solid waste generated from light industrial and commercial development, we reviewed the *Public Facilities Assessment Update County of Maui report (R.M. Towill 2002)*. The objective of this report is to identify public facilities and service needs for the community plan regions for Maui County to the year 2020, and to establish time frames for meeting those needs. Regarding solid waste and landfill capacity, the report concludes: 1) "the CML (Central Maui Landfill) will have adequate capacity to accommodate commercial and residential waste through the year 2020, with a surplus of approximately 1 million cubic yards of landfill space;" and 2) "Maui

Mr. Anthony J.H. Ching, Executive Director
SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13
October 26, 2004
Page 2

County's operating landfills have existing and planned capacity to meet solid waste disposal needs for many years into the future."

The estimates of solid waste used as a basis for these conclusions were arrived at by multiplying Maui County's de facto population projections by an estimate of pounds per person per day (PPD) of waste generated. The report assumes that solid waste generated by industrial and commercial growth will be captured by a corresponding trend in projected population growth.

In light of the above, in the final environmental impact statement (FEIS) section 5.9.6 "Solid Waste" will be revised as follows:

In Public Facilities Assessment Update County of Maui (2002), R.M. Towill Corporation projected that the Central Maui Landfill (CML) would have adequate capacity to accommodate commercial and residential waste through the year 2020, with a surplus of approximately one million cubic yards of landfill space. This projection was arrived at by multiplying the Maui County's de facto population projections by an estimate of pounds per person per day (PPD) of waste generated and assumes that solid waste generated by industrial and commercial growth will be captured by a corresponding trend in projected population growth.

2) The incremental districted area will contain approximately 18 lots ranging in size from approximately 0.3 acre to approximately one acre, however, larger lots may be available depending on market demand. Recent land prices on Maui for improved industrial land comparable to that planned within Maui Business Park Phase II are approximately \$23 to \$32 per square foot. It is expected that property within Maui Business Park Phase II, including the incremental area, will be priced accordingly, subject to the prevailing market prices.

3) In light of the above information, in the FEIS section 2.3 "General Description of Maui Business Park Phase II" will be revised as shown on the attached page (Attachment 1).

The Phase I Environment Site Assessment (ESA) referenced on page 33 of the DEIS was conducted for Maui Business Park Phase IB (where Wal-Mart, Home Depot, and several small businesses are located) in February 2002. An ESA was not specifically prepared for Maui Business Park Phase II, including the incremental districted area, however, the Central Power Plant area, which comprises a portion of the North Project Area has been the subject of prior environmental surveys commissioned by Alexander & Baldwin, Inc.

Most recently, in 2001, a hazardous materials survey of the area was undertaken. The survey of the former power generating facility included the following findings. A sampling of building materials from wall, floor covering and roofing materials was undertaken and a portion of the samples were found to contain asbestos-containing material. This included mastic associated with floor tiles, a sink and roofing. These

Mr. Anthony J.H. Ching, Executive Director
SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13
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materials were found to be in good condition and non-frangible. A portion of the paint samples taken from interior and exterior painted surfaces were found to contain lead equal to or above the EPA/HUD standard. Electrical equipment associated with the former generating facility has been substantially removed from the site. At the time of the 2001 survey, remnants included two small transformers, cable junctions, cable terminals, cable and a piece of switching equipment. Results from samples collected from a portion of this equipment indicated that insulating material or potting compound contained polychlorinated biphenyls (PCBs). PCB-containing equipment identified in the report has been removed, with the exception of some cable that is embedded in the concrete floor. Environmental impacts from past use of the central power plant site are possible, and further surveying and testing of the site is anticipated. Any environmental issues identified during this testing will be addressed in accordance with all applicable governmental laws and regulations.

In light of the above, and similar comments from the County of Maui Planning Department, in the FEIS section 4.5 "Identification of Chemicals, Fertilizers, and Other Substances" will be revised as shown on the attached page (Attachment 2).

Thank you for reviewing the DEIS. Your comments will be included in the FEIS.

Sincerely,

PBR HAWAII



Tom Schnell, AICP
Associate

Attachments

cc: Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

01000003053250Central Letter For Phase I DEIS/EA

ATTACHMENT I

2.3.2 Business Park Description

Maui Business Park Phase II will provide approximately 179 acres of light industrial space in Maui's central commercial and business district in close proximity to the island's primary airport and harbor. Figure 4 contains the project conceptual master plan.

A detailed subdivision plan, and subsequently the internal roadway system, has not been developed however, all streets within Maui Business Park Phase II will be designed per the design requirements of Chapter 18.16, Maui County Code (MCC). All parking requirements will be in conformance with Chapter 19.36, MCC.

Land uses within Maui Business Park Phase II will be consistent with the M-1 Light Industrial District (Chapter 19.24, Maui County Code) and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses. Both project areas will contain a variety of lot sizes to serve the needs of various types of businesses allowed within the Light Industrial District. In March 2004, the LUC under Docket No. A03-739 indicated a preference for light industrial development at Maui Business Park Phase II by requiring that at least fifty percent of the Project be developed for non-retail, light industrial use. A&B Properties, Inc., is seeking a Change in Zoning for the Maui Business Park Phase II site to the M-1 Light Industrial District (Chapter 19.24 Maui County Code).

The *Wailuku-Kahului Community Plan (2002)* designates the area of Maui Business Park Phase II as "Light Industrial." Approximately 33 acres adjacent to the South Project Area is in use as a drainage basin. The community plan designates this drainage basin area as "Open Space." This drainage basin is not part of Maui Business Park Phase II.

The visual quality of Maui Business Park Phase II will be enhanced and maintained by the establishment of design standards. Standards will include a unified streetscape planting theme and program, underground utilities, and low-impact lighting. In addition, alternative energy will be used where practical, including the use of solar energy to heat water.

The right-of-way for the proposed Kahului Airport Access Road, while not part of Maui Business Park Phase II, borders the north boundary of the South Project Area and the south boundary of the North Project Area. It also borders the completed Maui Business Park Phase I to the south. As such, both phases of Maui Business Park are adjacent to the proposed Kahului Airport Access Road and will include landscaped buffer areas to mitigate the visual impact of buildings along the road. There are no planned access points to either phase of Maui Business Park from the proposed Kahului Airport Access Road, with the exception of the existing intersection of Dairy Road and Pakaula Street.

South Project Area

Lots within the South Project Area, which includes the incremental, districted area, will typically range from one-third of an acre to one acre in size, with larger lots available

depending on market demand (see Table 1). In accordance with the *Wailuku-Kahului Community Plan (2002)*, the South Project Area will be developed in increments not greater than 70 acres.

Ho'okele Street, which currently runs between Pu'unēnē Avenue and Pakaula Street (the street between Wal-Mart and Home Depot), will be extended to Hāna Highway during the first increment of Maui Business Park Phase II construction and will serve as the primary collector road through the South Project Area. It will also provide the primary access via intersections with Pu'unēnē Ave and Hāna Highway. When extended, Ho'okele Street will run roughly parallel with Dairy Road, and will provide an alternative route between Hāna Highway and Pu'unēnē Avenue, so that people traveling to and from Pā'ia or Upcountry and Khei will have the option of bypassing Dairy Road via Ho'okele Street.

The extended Ho'okele Street will include a landscaped berm with trees and shrubbery to soften the visual impact of the buildings along the road, except where required for ingress/egress or as mandated by engineering safety standards. To the extent practical, the alignment of Ho'okele Street will maintain a view corridor toward Haleka'ala. Signalized intersections along Ho'okele Street will be minimized and will be installed when warranted by standard traffic engineering requirements.

In March 2004, the LUC under Docket No. A03-739 imposed restrictions concerning development of the South Project Area. Approximately 25 acres of the South Project Area abutting Hāna Highway are restricted in use due to its potential designation as a runway protection zone (RPZ) (see Figure 4) by the State Department of Transportation (DOT). This RPZ is a requirement of the proposed extension of the Kahului Airport runway to 9,600 feet in length. Uses in this area are restricted to those which do not entail the congregation of people and as may be approved by the Federal Aviation Administration. The DOT has further indicated the possibility of acquiring the RPZ area from A&B Properties, Inc.

North Project Area

Lots within the North Project Area will typically range from one-third of an acre to two acres (see Table 1). Some larger lots may be available depending on demand. Primary access will be provided via two intersections with Haleka'ala Highway. A third access point is proposed via an intersection with Hāna Highway, however this access is being provided as a traffic mitigation measure and will only provide "right turn in" and "right turn out" access to minimize conflicts with traffic flow on Hāna Highway.

Because of the proximity to the airport, it is envisioned that this area could complement and provide additional space for airport support activities such as car rental companies, airline service areas, flight kitchens, freight forwarding centers, and cargo warehousing, however market forces will largely determine actual uses developed.

While the North Project area is separate from the nearby Kahului Airport Master Plan (Plan) (DOT 1993) Area, the Plan projects the need for approximately 22 additional acres for ground transportation services (car rental agencies, bus facilities, etc.) by 2010. The

ATTACHMENT 2

4.5 IDENTIFICATION OF CHEMICALS, FERTILIZERS, AND OTHER SUBSTANCES

Existing Conditions

Portions of the Maui Business Park Phase II are currently in sugar cane cultivation by HC&S or are fallow fields. A portion of the North Project Area includes an area known as the Central Power Plant that historically was used as an electrical station/substation. As part of its agricultural operations, HC&S uses herbicides, pesticides, and fertilizers. HC&S's application and use of all herbicides, pesticides, and fertilizers is in compliance with all product labeling and applicable government regulations.

Herbicides and Pesticides. HC&S reports that the following herbicides and pesticides are currently in use on their fields:

- Aatrex 90 (active ingredient - atrazine)
Use: Herbicide/weed control chemical
Most commonly used no-till weed control chemical in US
- Amine 4 (active ingredient - 2,4-D)
Use: Herbicide/weed control chemical, primarily for post-emergence control of broadleaf weeds
- Aqua Master aka Rodco (active ingredient - glyphosate)
Use: Herbicide/weed control chemical - spot sprayed along ditch lines
Glyphosate is one of the most widely used weed and grass control chemicals in the world.
- Banvel (active ingredient - dimethylamine salt of dicamba)
Use: Herbicide/weed control chemical, primarily for post-emergence control of broadleaf weeds.
- Ethrel (active ingredient - ethephon)
Use: Tassel control on sugar cane
- Evik 80 W (active ingredient - ametryn)
Use: Herbicide/weed control chemical - nonselective
- GB-1111 Mosquito Larvicide (active ingredient - petroleum oil)
Use: Mosquito control chemical
- Karmex (active ingredient - diuron)
Use: Herbicide/weed control chemical
A pre-emergence herbicide for residual bare-ground control
- Penlagon 60 WDG (active ingredient - pendimethalin)
Use: Herbicide/weed control chemical - nonselective
- Polado L (active ingredient - glyphosate)
Use: Plant growth regulator
- Roundup Ultra (active ingredient - glyphosate)
Use: Herbicide/weed control chemical
A non-selective, non-residual, post-emergence herbicide; glyphosate is one of the most widely used weed control chemicals in the world.

Plan also projects the need for a flight kitchen facility, additional air cargo and other facilities. While the Plan suggests potential areas for these facilities, in many cases new access and infrastructure will be necessary. In particular, the preferred alternative for expanded ground transportation facilities is to extend Mokuca Place across Kaliahului Gulch. However, bridging the gulch will require substantial fill and a relatively expensive engineered structure. The more economical alternative is to provide a separate ground transportation area south of the gulch with access from Keolani Place. Much of this land currently is leased for non-airport related uses and would be displaced for the expansion of ground transportation facilities. The Plan also recommends that a private entity should develop a flight kitchen facility in this area.

Table 1: Land Use Summary

	Gross Acres	Estimated Number of Lots	Lot Size (Acres)
South Project Area (Including Incremental Districted Area)	140,783	75	0.3 - 1.0
Incremental Districted Area	33,53	18	0.3 - 1.0
North Project Area	38,217	22	0.3 - 2.0

2.3.3 Estimated Sales Price

Recent land prices on Maui for improved industrial land comparable to that planned within Maui Business Park Phase II are approximately \$23 to \$32 per square foot. It is expected that property within Maui Business Park Phase II, including the incremental area, will be priced accordingly, subject to the prevailing market prices.

- Vecto Bac
Use: Mosquito control bacteria
Non-chemical biological agent
- Veipar (active ingredient - hexazinone)
Use: Herbicide/weed control chemical, a broad-spectrum herbicide particularly effective for treatment of woody plants

Fertilizers. IIC&S reports that the following fertilizers are currently in use on their fields:

- Urea
- Use: Nitrogen source
- Potash solution (active ingredient - K-2, potassium chloride)
- Use: Potassium source

Hazardous, Regulated, and Toxic Substances. A Phase I Environment Site Assessment (ESA) was conducted for Maui Business Park Phase IB (where Wal-Mart, Home Depot, and several small businesses are located) in February 2002. As part of this ESA, an Environmental Data Resources, Inc. (EDR) Radius Map database search report was conducted to check government databases for records of any reported environmental hazards within a one mile radius of the Maui Business Park Phase IB site. The area covered in the search of available environmental records includes all of the Maui Business Park. This one mile radius area covered all of the South Project Area and the majority of the North Project Area, including the Central Power Plant in the North Project Area. There are no records of any spills, dumping, or other evidence of hazardous, regulated, or toxic substances within the area covered by the report, the one mile radius area, which includes the Central Power Plant area. The report covering the search of available environmental records meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, B1527-00.

The Central Power Plant site, which comprises a portion of the North Project Area has been the subject of prior environmental surveys commissioned by Alexander & Baldwin, Inc. Most recently, in 2001, a hazardous materials survey of the area was undertaken. The survey of the former power generating facility included the following findings. A sampling of building materials from wall, floor covering and roofing materials was undertaken and a portion of the samples were found to contain asbestos-containing material. This included mastic associated with floor tiles, a sink and roofing. These materials were found to be in good condition and non-friable. A portion of the palm samples taken from interior and exterior painted surfaces were found to contain lead equal to or above the EPA/HUD standard. Electrical equipment associated with the former generating facility has been substantially removed from the site. At the time of the 2001 survey, remnants included two small transformers, cable junctions, cable terminals, cable and a piece of switching equipment. Results from samples collected from a portion of this equipment indicated that insulating material or potting compound contained polychlorinated biphenyls (PCBs). PCB-containing equipment identified in the report has been removed, with the exception of some cable that is embedded in the concrete floor. Environmental impacts from past use of the central power plant site are possible, and further surveying and testing of the site is anticipated. Any environmental

issues identified during this testing will be addressed in accordance with all applicable governmental laws and regulations.

Potential Impacts

No adverse effects on surface or underground resources are anticipated due to the use of chemicals and fertilizers within Maui Business Park Phase II. Relative to the existing agricultural operations, the use of chemicals and fertilizers is expected to decrease after Maui Business Park Phase II is established. This is because typically more chemicals and fertilizers are used for sugarcane cultivation than within a light industrial project.

Mitigative Measures

The abatement and disposal of any hazardous materials found within the Maui Business Park site, including the Central Power Plant area, will be undertaken in accordance with all applicable governmental laws and regulations.

Within Maui Business Park Phase II the use of herbicides will generally be limited to the initial landscaping period on the site. Pesticides are anticipated to be used only as a treatment and not as a preventative measure. As a treatment, application use will be limited. In addition, plant selection will be based on hardiness, drought tolerance, pest resistance, as well as aesthetic concerns.

Common nitrogen/phosphorus/potash mixed fertilizers area anticipated to be applied to lawn areas, groundcover, shrubs, and trees. With proper irrigation management practices, leaching and runoff of fertilizers should be negligible.



**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

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Ref. No. P-10605

September 2, 2004

Mr. Tom Schnell
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

Subject: Maui Business Park Phase II, Kahului, Maui, Hawaii,
Request for Comments on the Draft Environmental Impact Statement

The Office of Planning has reviewed the Draft Environmental Impact Statement (DEIS) which has been prepared pursuant to Chapter 343, Hawaii Revised Statutes, and Title 11, Chapter 200, Hawaii Administrative Rules, as required for the applicant's proposed development of the Maui Business Park, Phase II light industrial project, and serves as the agency review document for the project's Change in Zoning application.

On March 25, 2004, the State Land Use Commission approved a boundary amendment for this project to reclassify 138.158 acres from the Agricultural District to the Urban District.

We have no additional comments since the Decision and Order for Docket No. A03-739 by the Land Use Commission is incorporated into the DEIS.

Thank you for the opportunity to comment on the DEIS. If you have any questions, please call Mary Alice Evans at 587-2802.

Sincerely,

Mary Lou Kobayashi
Mary Lou Kobayashi
Administrator

c: Anthony Ching, LUC



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October 26, 2004

Ms. Mary Lou Kobayashi
State of Hawaii
Department of Business, Economic Development & Tourism
Office of Planning
P.O. Box 2359
Honolulu, Hawaii 96804

**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13**

Dear Ms. Kobayashi:

Thank you for your letter (Ref No. P-10605) dated September 2, 2004 regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your letter.

We acknowledge that the Office of Planning has reviewed the project as part of the recent Land Use Commission (LUC) boundary amendment process (Docket No. A03-739) and has no further comments, since pertinent provisions of the LUC Decision and Order for the reclassification have been incorporated into the DEIS.

Thank you for reviewing the DEIS. Your comments will be included in the Final Environmental Impact Statement.

Sincerely,

PBR HAWAII

Tom Schnell

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

LINDA LINDLE
COMMISSIONER



STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0630

STEPHANIE AVEIRO
EXECUTIVE DIRECTOR
PAMELAY DODSON
EXECUTIVE ASSISTANT

IN REPLY REFER TO:
04:PEO/184

September 20, 2004

Mr. Tom Schnell, AICP
PBR Hawaii
1001 Bishop Street
ASB, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

Re: Draft Environmental Impact Statement (EIS) for the Proposed Maui Business Park, Phase II

We have reviewed the draft EIS for the proposed Maui Business Park, Phase II and note that the applicant has agreed to contribute a minimum of 10 acres of land in the Central Maui region toward the development of employee/affordable housing. We also note that an analysis of the project's impact on housing demand generated by future employees is being undertaken. We would appreciate receiving a copy of the housing impact analysis.

Thank you for the opportunity to comment.

Sincerely,

Stephanie Aveiro
Stephanie Aveiro
Executive Director

c: Dan Yasui, A&B Properties, Inc.
Anthony Ching, State Land Use Commission
Office of Environmental Quality Control
Clayton Yoshida, County of Maui Department of Planning

October 26, 2004

Ms. Stephanie Aveiro, Executive Director
State of Hawaii, Department of Human Services
Housing and Community Development Corporation of Hawaii
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
- (PORTION), 3-8-79:13

Dear Ms. Aveiro:

Thank you for your letter (04:PEO/184) dated September 20, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we note your comments regarding the contribution of land for affordable housing and the analysis of housing demand for future employees. A copy of the housing impact analysis is enclosed and will be included as an appendix of the final environmental impact statement (FEIS).

Thank you for reviewing the DEIS. Your comments will be included in the FEIS.

Sincerely,

PBR HAWAII
Tom Schnell

Tom Schnell, AICP
Associate

Enclosure
cc: Mr. Anthony Ching, State Land Use Commission, w/o enclosure
Ms. Genevieve Salmonson, Office of Environmental Quality Control, w/o enclosure
Mr. Clayton Yoshida, County of Maui Planning Department, w/o enclosure
Mr. Dan Yasui, A&B Properties, Inc., w/o enclosure

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DEPARTMENT OF HAWAII



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HAWAII HISTORIC PRESERVATION
DIVISION REVIEW

Log #: 2004.2961
Doc #: 0409CD66
Received: 27 June 2004

Applicant/Agency: Mr. Michael Foley, Planning Director
Address: County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

SUBJECT: Chapter 6E-42 Historic Preservation Review - Application for Change in Zoning
and Draft Environmental Impact Statement for the Proposed Maui Business Park
Phase II (County/Planning) [Subject ID: CZ 2004/0011]

Ahupua'a: Wailuku
District, Island: Wailuku
TMK: (2) 3-8-001:002 portion; 3-8-006:004 portion; 3-8-079:013

1. We believe there are no historic properties present, because:

- a) intensive cultivation has altered the land
- b) residential development/urbanization has altered the land
- c) previous grubbing/grading has altered the land
- d) an acceptable archaeological assessment or inventory survey found no historic properties
- e) other: see SHPD DOC NO.: 9308KD01/LOG NO.: 9086; SHPD DOC NO.: 9308AG35/LOG NO.: 9147; SHPD DOC NO.: 9310AG43/LOG NO.: 9851; SHPD DOC NO.: 9401AG23/LOG NO.: 10576; SHPD DOC NO.: 9406KD37/LOG NO.: 11896; SHPD DOC NO.: 9704SC35/LOG NO.: 19217; SHPD DOC NO.: 0004CD05/LOG NO.: 25198; SHPD DOC NO.: 0107CD34/LOG NO.: 27908; SHPD DOC NO.: 0305CD59/LOG NO.: 2803.0700; SHPD DOC NO.: 0309CD38/LOG NO.: 2003.1772; SHPD DOC NO.: 0407CD55/LOG NO.: 2004.2337.

2. This project has already gone through the historic preservation review process, and mitigation has been completed.

Thus, we believe that "no historic properties will be affected" by this undertaking.

In the event that historic sites (human skeletal remains, etc.) are identified during the construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be protected from additional disturbance, and the State Historic Preservation Office needs to be contacted immediately at 243-5169, on Maui, or at (808) 692-8023, on O'ahu.

Staff: Cathleen A. Dagher Date: 6/23/04
Cathleen A. Dagher
Assistant Maui/Lana'i Island Archaeologist
(808) 692-8023

c: Anthony Ching, State Land Use Commission P.O. Box 2359 Honolulu, Hawaii 96804
Tom Schwel, FBR Hawaii 1001 Bishop Street ASB Tower, Suite 650 Honolulu, Hawaii 96813



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October 26, 2004

Ms. Cathleen A. Dagher,
Assistant Maui/Lanai Island Archaeologist
State of Hawaii, Department of Land and Natural Resources
Historic Preservation Division
Kakulihewa Building, Room 555
601 Kamohala Boulevard
Kapelele, Hawaii 96707

SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13

Dear Ms. Dagher:

Thank you for your letter (Doc#: 0409CD66) addressed to County of Maui Planning
Director Michael Foley dated October 6, 2004, regarding the Maui Business Park Phase
II Draft Environmental Impact Statement (DEIS) and application for change in zoning.
As the planning consultant for the applicant, A&B Properties, Inc., we your responding to
your comments.

We acknowledge that you believe that no historic properties will be affected by the Maui
Business Park Phase II project. In the event that historic sites (human skeletal remains,
etc.) are identified during construction activities, all work will cease in the immediate
vicinity of the find. The find will be protected from additional disturbance, and the State
Historic Preservation Division Office will be contacted immediately.

Thank you for reviewing the DEIS. Your comments will be included in the Final
Environmental Impact Statement.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96811-3378

September 13, 2004

04-831A CAB

Mr. Vincent Shigekuni, Principal
PBR HAWAII
1001 Bishop Street, ASB Tower, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

SUBJECT: Draft Environmental Assessment for the proposed Maui Business Park
Phase II Project

This letter is to transmit the following comments on the subject document:

Control of Fugitive Dust:

There is a significant potential for fugitive dust emissions during all phases of
construction. Proposed construction activities will occur in proximity to existing
residences, public areas and major thoroughfares, thereby exacerbating potential dust
problems. It is recommended that a dust control management plan be developed which
identifies and addresses all activities that have a potential to generate fugitive dust
and construction activities is warranted.

Construction activities must comply with the provisions of Hawaii Administrative Rules,
§11-60.1-33 on Fugitive Dust.


The contractor should provide adequate measures to control dust from the road areas
and during the various phases of construction. These measures include, but are not
limited to, the following:

Mr. Vincent Shigekuni
September 13, 2004
Page 2

- a) Plan the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;
- b) Provide an adequate water source at the site prior to start-up of construction activities;
- c) Landscape and provide rapid covering of bare areas, including slopes, starting from the initial grading phase;
- d) Minimize dust from shoulders and access roads;
- e) Provide adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
- f) Control dust from debris being hauled away from the project site.

If you have any questions, please contact Mr. Barry Ching of my staff at 588-4200.

Sincerely,


WILFRED K. NAGAMINE
Manager, Clean Air Branch

BC:jhm



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October 26, 2004

Mr. Wilfred Nagamine, Manager
State of Hawaii, Department of Health
Clean Air Branch
P. O. Box 3378
Honolulu, Hawaii 96801-3378

SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13

Dear Mr. Nagamine:

Thank you for your letter (04-831A CAB) (addressed to Vincent Shigekuni) dated September 13, 2004, regarding the Draft Environmental Impact Statement (DEIS) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

The "Soils" section of the Final Environmental Impact Statement (FEIS) will include the following statements:

All construction activities will also comply with the provisions of Chapter 11-601, Hawaii Administrative Rules, Section 11-601-33 on Fugitive Dust. Measures to control dust from road areas and during various phases of construction include:

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

Thank you for reviewing the DEIS. Your comments will be included in the FEIS.

Sincerely,

PBR HAWAII



Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3178
HONOLULU, HAWAII 96813

September 9, 2004

Tom Schnell, AICP
PBR Hawaii
1001 Bishop Street
ASB Tower, Ste 650
Honolulu, HI 96813

Dear Mr. Schnell:

**SUBJECT: Comments to the Draft Environmental Impact Statement (DEIS)
Maui Business Park Phase II
Tax Map Key: 3-8-01: 02
Wailuku, Maui**

Our comments should be printed as follows:

"Project activities shall comply with the Administrative Rules of the Department of Health:

- Chapter 11-46 Community Noise Control.

Should there be any questions, please contact me at 586-4701.

Sincerely,

Russell S. Takata
Program Manager
Noise, Radiation & IAQ Branch

CHRISTINE L. FRENCH, B.S.
DIRECTOR OF PUBLIC HEALTH

In copy, please refer to the



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Heather L. Lusk, AICP
President

Heather L. Lusk, AICP
President

October 26, 2004

Mr. Russell S. Takata, Program Manager
State of Hawaii, Department of Health
Noise, Radiation & IAQ Branch
P. O. Box 3378
Honolulu, Hawaii 96801-3378

**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13**

Dear Mr. Takata:

Thank you for your letter dated September 9, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

The "Noise" section of the Final Environmental Impact Statement (FEIS) will include the following statement:

All project activities will comply with the Administrative Rules of the Department of Health, Chapter 11-46, Community Noise Control.

Thank you for reviewing the DEIS. Your comments will be included in the FEIS.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 2078
HONOLULU, HAWAII 96801

OTIS L. LUM, M.D.
DIRECTOR OF HEALTH

In reply, please refer to
E-11-140472Z

September 13, 2004

MA 8 001 002 PBR.wpd
#11-140472Z

Mr. Tom Schnell, AICP
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

Subject: **Draft Environmental Impact Statement (DEIS)**
Maui Business Park Phase II
TMK: (2) 3-8-001: 002, 3-8-006: 004, 3-8-079: 013

We have reviewed the subject notification which proposes to develop the Maui Business Park Phase II light industrial project comprising approximately 179 acres located in Kahului, Maui, Hawaii.

As the project will be served by the County's sewer system, we have no objections to the development. We encourage the developer to work with the County and utilize recycled water for irrigation and other non-potable water purposes.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please contact the Planning & Design Section of the Branch at 586-4294.

Sincerely,

June Harrigan-Lum
HAROLD K. YEE, P.E., CHIEF
Wastewater Branch

LNKM:cm

c: June Harrigan-Lum, EPO



LAND PLANNING
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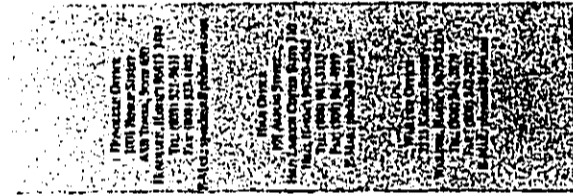
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Associate

KATHLEEN T. BROWN, ASLA
Associate

KAREN M. HARRIS, ASLA
Associate



October 26, 2004

Mr. Harold K. Yee, P.E., Chief
State of Hawaii's, Department Health
Wastewater Branch
P.O. Box 3378
Honolulu, Hawaii 96801

SUBJECT: **MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT; TMK: 3-8-01: 2 (PORTION), 3-8-06: 4
(PORTION), 3-8-79: 13**

Dear Mr. Yee:

Thank you for your letter (M3 8001 002 PBR.wpd) dated September 13, 2004 regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

We acknowledge that you have no objections to the Maui Business Park Phase II project.

A&B Properties, Inc. will be evaluating the feasibility of developing a dual water system for Maui Business Park Phase II using non-potable water for landscape irrigation. This is stated in Section 5.9.3, "Water System," of the DEIS.

The "Wastewater System" section of the Final Environmental Impact Statement (FEIS) will include the following statement:

All wastewater plans will conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems."

We note that you reserve the right to review the detailed wastewater plans for conformance to applicable rules.

Thank you for reviewing the DEIS. Your comments will be included in the FEIS.

Sincerely,

PBR HAWAII

Tom Schnell

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.
Mr. Phillip Rowell, Phillip Rowell and Associates

LINDA LAMBLE
GOVERNOR OF HAWAII



CYRUS L. FORD, M.D.
DIRECTOR OF HEALTH
LOANEE KE PAHA, M.D., M.P.H.
DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
84 HIGH STREET
WAILUKU, MAUI, HAWAII 96793
RECEIVED
SEP 9 9 20

September 8, 2004

Mr. Michael W. Foley
Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Attention: Clayton Yoshida

Dear Mr. Foley:

Subject: Maui Business Park Phase II
TMK: (2) 3-8-08: 4 (por.); 3-8-01: 2 (por.); 3-8-079: 13
CIZ 2004/0011

Thank you for the opportunity to comment on the Change In Zoning Application for the Maui Business Park, Phase II. The following comments are offered:

1. National Pollutant Discharge Elimination System (NPDES) permit coverage is required for this project. The Clean Water Branch should be contacted at 808 586-4309.
2. Any new potable water sources will require the approval of the Safe Drinking Water Branch of the Department of Health. The Safe Drinking Water Branch can be reached at 808 586-4258.
3. The property may be harboring rodents that will be dispersed to the surrounding areas when any buildings are demolished or the site is cleared. The applicant is required by Hawaii Administrative Rules, Chapter 11-26, "Vector Control" to eradicate any rodents prior to demolition or site clearing activities and to notify the Department of Health by submitting Form VC-12 to the Maui Vector Control program when such action is taken. Rodent traps and/or rodenticides should be set out on the project site for at least a week or until the rodent activity ceases. The Maui Vector Control program phone number is 873-3560.

Mr. Michael W. Foley
September 8, 2004
Page 2

4. All lands formerly in the production of sugarcane should be characterized for arsenic contamination. If arsenic is detected above the US EPA Region preliminary remediation goal for non-cancer effects, then a removal and/or remedial plan must be submitted to the Hazard Evaluation and Emergency Response Office of the Department of Health for approval. The plan must comply with Chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 11-451, HAR, State Contingency Plan.

5. If not managed properly Puunene Mill wash water can and has been a prolific source of mosquito breeding. The mosquito species prone to breed in this type of water is *Culex quinquefasciatus*. *Culex quinquefasciatus* is a very good vector for the West Nile Fever Virus. West Nile Virus has not yet established itself in Hawaii. The best way to keep it out is to reduce the number of mosquitoes to manageable numbers. It is recommended that the reduction of mill process water take place before any of the 150 acres of sugar fields irrigated with mill wash water are taken out of production.

Should you have any questions, please call me at 884-8230.

Sincerely,

Herbert S. Matsubayashi
District Environmental Health Program Chief

c: Laurence Lau
Jerry Haruno
Vector Control Branch
HEER
SDWB
CWB



LAND PLANNING
CONSULTANTS
INCORPORATED
ENVIRONMENTAL DIVISION

4. FRANK BLANCHARD, PLSLA
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VICE PRESIDENT

25. JAMES J. CHENEY, ASLA
VICE PRESIDENT

October 26, 2004

Mr. Herbert S. Matsubayashi, Chief
District Environmental Health Program
State of Hawaii, Department of Health
Maui District Health Office
54 High Street
Wailuku, Maui, Hawaii 96793-2102

**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13**

Dear Mr. Matsubayashi:

Thank you for your letter addressed to Department of Planning Director Michael Foley dated September 8, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

1. A&B Properties, Inc. will contact the Clean Water Branch in regard to the National Pollutant Discharge Permit required for Maui Business Park Phase II.
2. We acknowledge that new potable water sources require the approval of the Safe Drinking Water Branch. When prepared, plans for water source development and potable water allocation in conjunction with the development of Maui Business Park Phase II will be provided to the Safe Drinking Water Branch.
3. A&B Properties, Inc. will comply with Hawaii's Administrative Rules, Chapter 11-26, "Vector Control" to eradicate rodents, prior to site clearing. Form VC-12 will be submitted to the Maui Vector Control Program at the appropriate time.
4. Regarding your concerns about arsenic contamination, a Phase I Environment Site Assessment was conducted for Maui Business Park Phase IB. The area covered in the search of available environmental records includes all of the Maui Business Park South Project Area and the majority of the North Project Area. There are no records of any spills, dumping, or other evidence of hazardous, regulated or toxic substances within the area covered by the report. The report covering the search of available environmental records meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E1527-00.
5. Hawaiian Commercial & Sugar (HC&S), a subsidiary of Alexander & Baldwin, Inc., is currently undertaking programs to control mosquitoes. These programs include minimizing standing water on the plantation, fogging to control adult mosquito populations, and applying larvicides to eliminate mosquito eggs and

Mr. Herbert S. Matsubayashi, Chief
**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13**
October 26, 2004
Page 2

larvae. Recent programs undertaken to improve plantation performance, such as overhead sprinklers and center pivots to improve water application on fields irrigated with mill water, will further reduce potential mosquito breeding habitat. In the past, HC&S management has met regularly with the Department of Health. In light of the current situation regarding the West Nile Virus, HC&S will be coordinating with DOH even more closely to control mosquito populations and minimize potential breeding habitat.

Thank you for reviewing the DEIS. Your comments will be included in the Final Environmental Impact Statement.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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STATE OF HAWAII
DEPARTMENT OF HEALTH

PO BOX 3378
HONOLULU, HAWAII 96813-3378

October 7, 2004

CHONG L. LING, M.D.
DIRECTOR OF HEALTH

In Reply, Please Refer to
This Number

Mr. Dan Yasui
A&B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Yasui:

SUBJECT: MAUI BUSINESS PARK PHASE II
DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)
DATED AUGUST 2004

Thank you for the opportunity to review the subject Draft EIS. The Department of Health offers the following comments:

- Your consultant, PBR Hawaii, reported in an August 9, 2004, correspondence to us that the onsite water system improvements are currently in a preliminary analysis phase and are subject to the finalization of agreements with the Maui County Department of Water Supply (DWS). When will these sites be specifically identified in this document so that they can be properly evaluated in accordance with EIS law?
- We reiterate that this EIS document must more thoroughly evaluate environmental impacts and discuss mitigative measures for the proposed onsite water system improvements. A general approach is provided in the DEIS (Mitigative Measures, pg 59) identifying different raw source water options and Maui DWS experience with operating a surface water treatment plant (SWTP). However, there are no environmental impact analyses (i.e., botanical, avifaunal or feral animals, cultural resources, utilities, noise, air quality, visual or traffic impacts) for the unidentified SWTP/storage tank sites and transmission line corridors.

Mr. Dan Yasui
October 7, 2004
Page 2

If you have any questions, please call Mr. Michael Miyahira of the Safe Drinking Water Branch, Engineering Section, at 586-4258. Sincerely,

WILLIAM WONG, P.E., CHIEF
Safe Drinking Water Branch
Environmental Management Division

MM:slm

C: Gordon Muraoka, Maui SDHB Sanitarian
Mr. Tom Schnell, PBR Hawaii
Mr. Les Segundo, Office of Environmental Quality Control
Mr. Anthony Ching, State Land Use Commission
Mr. Clayton I. Yoshida, Maui County Department of Planning





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October 26, 2004

Mr. William Wong, P.E., Chief
Safe Drinking Water Branch
State of Hawaii's Environmental Management Division
Department of Health
P. O. Box 3378
Honolulu, Hawaii 96801-3378

**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13**

Dear Mr. Wong:

Thank you for your letter (EMD/SDWB) addressed to Dan Yasui dated October 7, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we offer the following responses to your comments.

As noted in my August 9, 2004 letter and in the DEIS, plans for an off-site surface water treatment plant are being formulated that would allow the County of Maui to supply water to Maui Business Park Phase II via the County's Central Maui System. The DEIS describes the proposed elements of the offsite water system.

The proposed surface water treatment plant is a separate project from Maui Business Park Phase II and will be subject to applicable provisions of the environmental impact statement law (Chapter 343, Hawaii Revised Statutes), once specifics are developed in cooperation with the County of Maui.

To clarify this point in the final environmental impact statement (FEIS), the following sections will be revised as follows:

The "Water" section of the executive summary will be revised as follows:

Water

A&B Properties, Inc. will participate in the funding and construction of adequate water source, storage, and transmission facilities and improvements to accommodate water use generated by Maui Business Park Phase II. A&B has substantial rights to the surface water flowing in the Waie'e and Spreckels Ditches. Sufficient flow from either or both ditches could be appropriately treated at an off-site surface water treatment plant and delivered to the County Department of Water Supply's (DWS) Central Maui System to produce a potable supply for Maui Business Park Phase II. Once in the Central Maui System, water could then be conveyed via existing transmission lines through Kahului to the site.

Mr. William Wong, P.E., Chief
**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13**
October 26, 2004
Page 2

Any proposed surface water treatment plant is a separate project from Maui Business Park Phase II and will be subject to applicable provisions of the environmental impact statement law (Chapter 343, Hawaii Revised Statutes), once specifics are developed in coordination with the County.

Section 5.9.3 "Water System" will include the following statement:

The proposed surface water treatment plant is a separate project from Maui Business Park Phase II and will be subject to applicable provisions of the environmental impact statement law (Chapter 343, Hawaii Revised Statutes), once specifics are developed in coordination with the County.

Section 8.5 "Unresolved Issues" will be revised as follows:

Water: A&B Properties, Inc. will participate in the funding and construction of adequate water source, storage, and transmission facilities and improvements to accommodate water use generated by the Project. It is currently envisioned that a portion of water from the Waie'e Ditch would be processed at a future surface water treatment plant to allow the County to supply water to Maui Business Park Phase II. Transmission lines from the new surface water treatment plant will deliver water into the County Department of Water Supply's (DWS) Central Maui System. Once in the Central Maui System, water will be conveyed via existing transmission lines through Kahului to the site. New on-site transmission lines will be developed to provide water to individual businesses. These water system improvements will need to be developed with the cooperation and consent of the County of Maui. Agreements concerning these planned improvements have not been finalized. The proposed surface water treatment plant is a separate project from Maui Business Park Phase II and will be subject to applicable provisions of the environmental impact statement law (Chapter 343, Hawaii Revised Statutes), once specifics are developed in coordination with the County.

Thank you for reviewing the DEIS. Your comments will be included in the FEIS.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

LINDA LINDLE
GOVERNOR OF HAWAII



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
725 SOUTH BERTHOUD STREET
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GENEVIEVE SALMONSON
DIRECTOR



LAND PLANNING
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Blair Brown
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Honolulu, HI 96813
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Fax: (808) 521-5511
E-Mail: info@investmentgroup.com

October 26, 2004

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

SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13

Dear Ms. Salmonson:

Thank you for your letter dated October 8, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

As requested, we are contacting the Solid and Hazardous Waste Branch of the Department of Health for waste minimization information and language that could be useful in drawing up lease agreements and education opportunities with/for future tenants of Maui Business Park Phase II (see attached letter).

Thank you for reviewing the DEIS. Your comments will be included in the Final Environmental Impact Statement.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

Attachment

cc: Mr. Anthony Ching, State Land Use Commission
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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October 8, 2004

Mr. Dan Yasui
A & B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Mr. Anthony Ching,
Land Use Commission, State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804

Mr. Tom Schnell
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

Dear Messrs. Yasui, Ching and Schnell:

The Office of Environmental Quality Control (OEQC) has reviewed the draft environmental impact statement for the Maui Business Park Phase II, situated in the judicial district of Wailuku and offers the following comments for your consideration and response.

1. Hazardous Waste Minimization - Business parks involved in light industrial activities may generate hazardous waste. With a sensitive resource such as Kanaha pond in the area, we recommend that planning for minimizing adverse impact from direct and de minimis releases of hazardous materials or waste begin now. Please contact the Solid and Hazardous Waste Branch of the Department of Health at (808) 586-4226 for waste minimization information and language that could be useful in drawing up lease agreements and education opportunities with/for future tenants of the business park.

Thank you for the opportunity to comment. If there are any questions, please call Mr. Leslie Segundo, Environmental Health Specialist, at (808) 586-4185.

Sincerely,

GENEVIEVE SALMONSON
Director



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ARCHITECTURE
INTERIOR DESIGN

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October 26, 2004

Ms. Grace Simmons, Supervisor
State of Hawaii's, Department of Health
Solid and Hazardous Waste Branch
919 Ala Moana Blvd., Rm. 212
Honolulu, Hawaii 96814

**SUBJECT: MAUI BUSINESS PARK PHASE II WASTE MINIMIZATION
INFORMATION**

Dear Ms. Simmons:

PBR Hawaii is currently preparing a final environmental impact statement for A&B Properties, Inc.'s Maui Business Park Phase II project in Kahului, Maui. In their comment letter on the draft environmental impact statement, the Office of Environmental Quality Control requested that I contact your office for waste minimization information and language that could be useful in drawing up lease agreements and educational opportunities with/future tenants of Maui Business Park Phase II.

Maui Business Park Phase II will be located on two non-contiguous sites in Kahului, totaling 179 acres (TMK: 3-8-01:2 (portion), 3-8-06:4 (portion), 3-8-79:13). As a light industrial subdivision, land uses within Maui Business Park Phase II will be consistent with the M-1 Light Industrial District (Chapter 19-24, Maui County Code) and may include warehousing and distribution businesses, as well as retailing, light manufacturing, research facilities, offices, and other uses.

Information you could provide on minimizing adverse impacts from potential direct and de minimis releases of hazardous materials or wastes would be appreciated. Please contact me at (808) 521-5631 or tschnell@pbrhawaii.com, if you have any questions.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

cc: Mr. Dan Yasui, A&B Properties, Inc.

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LYNDA LINDELL
DIRECTOR
STATE OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

P.O. BOX 1879
HONOLULU, HAWAII 96813

September 15, 2004

Mr. Tom Schnell
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

Subject: Draft EIS, Maui Business Park Phase II, A&B Properties, Inc., TMK Nos. 3-8-01:02 (portion), 3-8-06:04 (portion), and 3-8-79:13, Kahului, Maui, Hawaii

Thank you for the opportunity to provide comments on the subject document.

The Department of Hawaiian Home Lands (DHHL) has significant property interests in Central Maui totaling 878 acres at Waiehu, Paoukalo, Waiuku and Puunene. On April 27, 2004, the Hawaiian Homes Commission adopted the Maui Island Plan to designate land uses for all Hawaiian home lands on Maui for the next twenty years.

The Maui Island Plan land uses define the foreseeable water needs for Hawaiian home lands. On July 21, 2004, the DHHL submitted to the State Commission on Water Resource Management, a Water Use Permit Application and request for Water Reservations for the Iao Ground Water Management Area.

DHHL requests that the subject document discuss the proposed water sources for Maui Business Park Phase II in more detail relative to DHHL's water rights under the State Water Code, HRS 174C-101, and the Hawaii State Supreme Court Waioala decision. [See Waioala o Noloakai, Inc., 103 Haw. 401, 430 (2004)]

SEAN A. KANE
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If you have any questions, please contact Darrell Yagodich,
Planning Program Manager, at 586-3836.

Aloha and mahalo,

Mick

Micah A. Kane, Chairman
Hawaiian Homes Commission

cc: Dan Yasui, A&B Properties, Inc.
Anthony Ching, Land Use Commission, State of Hawaii
Office of Environmental Quality Control, State of Hawaii
Clayton Yoshida, Department of Planning, County of Maui



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October 26, 2004

Mr. Micah A. Kane, Chairman
Hawaiian Homes Commission
State of Hawaii, Department of Hawaiian Home Lands
P. O. Box 1879
Honolulu, Hawaii 96805

SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13

Dear Mr. Kane:

Thank you for your letter dated September 15, 2004, regarding the Draft Environmental
Impact Statement (DEIS) for Maui Business Park Phase II. As the planning consultant
for the applicant, A&B Properties, Inc., we are responding to your comments.

The proposal for water incorporated in the Maui Business Park II EIS, to provide treated
surface water from West Maui to the DWS as a new source of water to meet community
needs in Central Maui, rather than relying on groundwater from the Iao Aquifer, should
not detrimentally affect DHHH's Central Maui water needs.

Maui Business Park II will be a customer of the County of Maui, Department of Water
Supply (DWS). Therefore, as with any customer of a municipal water system, the
business park will not have any specific source for its water. However, as indicated in
the EIS, the present demand on the DWS' Central Maui System (which will serve the
proposed Maui Business Park II project) is nearing its current capacity. Therefore, for
the County to have sufficient water sources to accommodate this project and other future
community needs to be served by the DWS in Central Maui, A&B Properties, Inc. is
proposing to provide the DWS with treated surface water from West Maui that is
collected on privately-owned lands. The surface water collection and ditch systems in
West Maui that will provide this water to the DWS also deliver water to kuleanas and
farmers in West Maui. Those prior deliveries will not be affected by the treatment of a
portion of the water that is ultimately delivered to Waiale Reservoir, the terminus of one
of the ditch systems.

West Maui is neither a designated ground, nor surface water management area under the
State Water Code. Further, the diversions from the West Maui streams are registered
with the Commission on Water Resources Management and are not being altered in any
way, so stream diversion permits will not be needed.

The Waiola Decision (In re Wai'ola O Molokai, 103 Hawaii 401, 83 P.3d. 664 (2004))
dealt with a water use permit in a groundwater management area and the requirements for
the same. As stated above, West Maui is not a designated groundwater management area
and water use permits are not required.

UNIVERSITY OF HAWAII
Environmental Center

Mr. Micah A. Kane, Chairman
SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13

October 26, 2004
Page 2

We do recognize that a petition to amend the Interim Instream Flow Standards for the West Maui streams has been filed and is currently being processed by the Commission on Water Resource Management (CWRM). A&B will not speculate as to the process that will be used by CWRM in that case; however, in that rule making process, DHHL's rights under the Water Code and the Public Trust Doctrine may be reviewed by CWRM.

A&B has also reviewed the July 21, 2004 application for water use permits in the Iao Groundwater Management Area filed by DHHL for water use permits and reservations to address the needs of DHHL's existing and proposed developments in Central Maui. A&B understands that DHHL is seeking water use permits and reservations in the Iao Aquifer sector for approximately 2.1 mgd. Again, because the water sources for the proposed water treatment plant are not within the Iao groundwater management area, it should have no impact on the DHHL's requests for water allocations from the Iao aquifer.

Thank you for reviewing the DEIS. Your comments will be included in the Final Environmental Impact Statement.

Sincerely,

PBR HAWAII



Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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October 7, 2004

RE: 0741

Draft Environmental Impact Statement
Maui Business Park Phase II
Wailuku, Maui

Mr. Dan Yasui
A&B Properties, Inc.
822 Bishop Street
Honolulu, HI 96813

Dear Mr. Yasui:

Maui Business Park Phase II - a continuation of A&B Properties, Inc.'s existing Maui Business Park Phase I in Kahului - will provide light industrial space in Maui's central commercial and business district in close proximity to the Kahului Airport and Kahului Harbor. The Maui Business Park Phase II site is comprised of two noncontiguous properties totaling approximately 179 acres and designated "Light Industrial" on the Waihuku-Kahului Community Plan. A portion of the site requires approval by the State Land Use Commission (LUC) for reclassification from the Agricultural to the Urban district. A Change in Zoning will also be required from the County of Maui. As the Maui Business Park Phase II may involve the use of State and/or County lands, the preparation of an EIS is being undertaken to address potential environmental impacts include changes to the land use character of the region, the change in visual appearance of the site from sugar cane fields to urban uses, impacts from traffic, increases in solid waste generated, increases in electrical power consumed, and short-term impacts to air quality and noise levels due to construction (draft EIS Executive Summary).

This review was conducted with the assistance of Richard Mayer, retired/Maui Community College; Pano Provedouras, Civil Engineering; Dennis Antolini and David Callies, School of Law; and Landon Johnson of the Environmental Center.

General Comments

State Environmental Impact Statement (EIS) Procedure

Our reviewers expressed concern that the Hawai'i Revised Statutes (HRS) 343 procedure was not followed in this draft Environmental Impact Statement (EIS) process by the State Land Use Commission (Docket No. A03-739, dated March 25, 2004) regarding the reclassification of 138,158 acres of land from Agricultural lands to Urban lands for the proposed Maui Business Park Phase II (MBPFI). In March 2004 the LUC saw fit to urbanize 138 acres, a majority of the project site, for the development of Maui

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Mr. Dan Yasui
October 7, 2004
Page 2 of 6

Business Park Phase II" (p. 108). Pursuant to HRS §343-5, subsection (c) "Acceptance of a required final statement shall be a condition precedent to approval of the request and commencement of proposed action." Therefore, this draft EIS process for MBPPP II is supposed to be in violation of HRS 343 procedure as the State Land Use Commission approved the reclassification of a majority of the project land before the EIS process was complete. A final EIS is required to be accepted before permit or approval is granted from an agency.

An EIS is meaningless without the conscientious application of the EIS process as a whole, and shall not be merely a self-serving recitation of benefits and a rationalization of the proposed action. Agencies shall ensure that statements are prepared at the earliest opportunity in the planning and decision-making process. This shall assure an early open forum for discussion of adverse effects and available alternatives, and that the decision-makers will be enlightened to any environmental consequences of the proposed action (HAR §11-200-14).

Pursuant to Hawaii's Administrative Rules (HAR) §11-200-14, this premature action by the LUC defeats the purpose of the EIS process of disclosure of environmental effects to aid in decision-making (i.e. land reclassification for the proposed project).

Terminology

Throughout the draft EIS the term "incremental" is used in reference to land classification. "Incremental" is a County, not a State land use classification, and it should be distinguished from the Urban, Rural, Agricultural, or Conservation classifications that comprise the State land use districts established pursuant to Chapter 205, HRS. The appropriate State land use classifications should be used in an EIS for consistency and ease of understanding to the general public.

Visual Impacts

Our reviewers noted that the visual impact to visitors coming to Maui should be considered, as the proposed project is adjacent to the airport. Consequently, the proposed project will present visitors with an initial impression that Maui exhibits mainland-style developments from which they are vacationing instead of the distinct natural and cultural beauty of the island that they expect. The continuation of development and subsequent loss of green space near the airport should take into account potential impacts to the visitor industry.

Mr. Dan Yasui
October 7, 2004
Page 3 of 6

Labor & Housing

Our reviewers also noted concerns regarding the source of labor needed to construct the project, as there is currently full employment on Maui, and other development projects are ongoing. We suggest that an evaluation of the proposed development's cumulative impacts should disclose whether other projects in the community will compete for labor supply with MBPPP II. If imported labor is needed, there is concern over where the workers and their families will be housed, given Maui's limited housing supply. Potential impacts on Maui's housing market should be addressed in the EIS.

Specific Comments

Energy Efficiency, §5.9.5

Regarding energy efficiency, we strongly encourage the use of photovoltaic systems in MBPPP II in addition to the "use of solar energy to heat water" (p. 113) and other energy saving devices and design standards that were advocated throughout the draft EIS. Was the feasibility and cost/benefit of photovoltaic systems and other energy-efficiency measures considered? It may be possible to offset, or at least reduce the cost of energy conservation by using Federal and State government renewable energy tax credits. In addition, incremental benefits, both in terms of avoided electrical generation costs and associated concomitant environmental impacts, would contribute to growing sustainability initiatives statewide.

Water System, §5.9.3

As indicated in the draft EIS (p. 116), the issue of water use appears to be unresolved. This is significant, given that the source of MBPPP II's potable water will likely be either a designated Groundwater Management Area (Iao Aquifer) or treated surface water from the Waiohee Ditch.

The Iao Aquifer and the Waiohee Aquifer supply potable water for Central Maui. In July of 2003, the Iao Aquifer system was designated a State Groundwater Management Area. According to the public notice published by the Commission on Water Resource Management, "in a ground-water management area, no person shall make a withdrawal, diversion, impoundment, or consumptive use of ground water without first obtaining a groundwater use

Mr. Dan Yasui
October 7, 2004
Page 5 of 6

Notably, case 2, which is the base for most judgments and conclusions, is not included in the TIAR, whereas cases 3 to 13 are detailed in the main text or in the appendix.

The following specific traffic issues also have been identified:

1. It is not clear that a sufficient weaving length is available between Ho'okole Street and Dairy Road so that the heavy stream of south bound right turns from Ho'okole Street can weave to the left lanes of Pu'umano Avenue (Figure 17.)
2. It is generally advisable to have more receiving lanes than turning lanes, particularly for left turns. The two south bound left turns from Ho'okole Street turn into three receiving lanes on Pu'umano Avenue which is satisfactory. However, the two east bound lanes on Pu'umano Avenue turn into two receiving lanes on Kunihealani Highway which will provide for sluggish movement and a high risk for sideswipe accidents, particularly when long vehicles make the turns.
3. Figure 18 does not make sense. Twin left turns along Haleakala Highway turn into nowhere onto a single receiving lane. If a COSTCO driveway is missing, where is it located, how many lanes does it have, and where is the conduit for exiting traffic?

Additionally, members of the community have expressed that the MBPPII's TIAR should specifically account for mid-day Saturday traffic in addition to a weekday traffic study, as they believe that to be the peak traffic congestion period. This has been attributed to weekend shoppers to the adjacent area businesses (i.e. Costco, Wal-Mart, etc.) and airport bound/return traffic. Was Saturday traffic studied? If so, what were the data for that time period?

Identification of All Community Meetings, §9.5

It should be noted that MBPPII is a controversial issue in the Maui community. Many members of the community have expressed serious concern over the proposed project of MBPPII, specifically the location and size of the project in regards to many of the topics mentioned in this review.

Although the LUC held public meetings on the reclassification of land from Agriculture to Urban (Docket No. A03-739) for MBPPII and addressed the public concerns in the LUC Decision Order (dated March 25, 2004) approving the reclassification, this Decision Order was not included in the draft EIS's appendices. Pursuant to HAR 343 §11-200-19 "that the statement [EIS] remains an essentially self-contained document, capable of being understood by the reader without the need for

Mr. Dan Yasui
October 7, 2004
Page 4 of 6

permit from the Commission on Water Resource Management" (p. 58).

This groundwater use permit was not listed in §3.0 (Required Permits and Approvals) as a required permit. Has A&B Properties sought to obtain this permit from the Commission on Water Resource Management for MBPPII?

The use of non-potable water was mentioned in the draft EIS: "in an effort to reduce the use of potable water, the feasibility of developing a dual water system utilizing non-potable water for landscape irrigation purposes will be evaluated" (p. 60). Our reviewers suggest that the use of non-potable water for landscape irrigation is feasible, as demonstrated by many businesses in Hawaii (i.e. golf courses). We strongly encourage MBPPII to implement this prudent water use practice, especially given the limited potable water supply in the aquifers servicing Central Maui. The final EIS should include a detailed analysis of the water system to determine MBPPII's impacts, such as the amount of non-potable water needed and a determination of the need for, capacity, and cost to taxpayers of a surface water treatment facility.

Traffic Impact Analysis Report, §5.9.1 & Appendix F

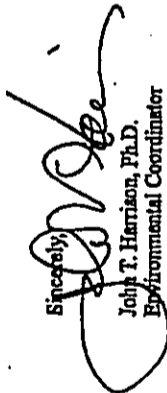
Regarding the Traffic Impact Analysis Report (TIAR), one would think that adding traffic-generating development to this area will further exacerbate the already mediocre-to-poor traffic level of service. However, the study suggests that the key addition of two north-south highways (1) Ho'okole Street Extension, a 4-lane highway with private funds, and (2) Airport Access Road, a 4-lane highway constructed with public funds, will result in mostly tolerable traffic conditions in the horizon year 2020.

Our reviewers harbor significant reservations regarding the apparent conclusion that addition of the proposed development and of the Ho'okole Street Extension will ultimately be beneficial. The TIAR developed two case studies, 12 and 13, in which the aforementioned highway additions are modeled along with the proposed development. However, it appears that the study compares "apples to oranges" when it comes to the assessment of differences in traffic conditions in the year 2020. In particular, Table 16 compares case 2 with case 12. Case 12 includes the project (which comes with the Ho'okole Street Extension) and the Airport Access Road. However, case 2, which is the year 2020 base (without the project), does not include the Airport Access Road, and is, therefore, an inappropriate base for assessing traffic changes and impacts attributable to the proposed development (i.e., Table 18). The same applies to the comparison between case 2 and case 13. As the TIAR preparer and the developer A&B Properties have been informed by Hawaii's State DOT, the Airport Access Road is in the bidding process, and it will be available in year 2020; therefore it must be included in the 2020 base conditions.

Mr. Dan Yarni
October 7, 2004
Page 6 of 6

undue cross-reference," the draft EIS should have included the LUC's Decision Order if it is referring to it for the responses to public concerns and issues.

Thank you for the opportunity to review this draft EIS.

Sincerely,

John T. Harrison, Ph.D.
Environmental Coordinator

Cc: OBQC
State LUC
PBR Hawaii
James Moncrier, WRRRC
Fauos Provedouras
Richard Mayer
Denise Antolini
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October 26, 2004

Mr. John T. Harrison, Ph.D., Environmental Coordinator
Environmental Center
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SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TRK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13

Dear Mr. Harrison:

Thank you for your letter (RE: 0741) addressed to Dan Yasui of A&B Properties, Inc., dated October 7, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

State Environmental Impact Statement (EIS) Procedure

As you may be aware, recent Hawaii's Court rulings have resulted in much ambiguity and uncertainty concerning the application of Chapter 343, Hawaii's Revised Statutes (HRS) to proposed development projects. These rulings reverse long-standing practices of the SLUC and are based on facts which are not clearly applicable to this project. Nevertheless, the A&B Properties, Inc. has elected to file an EIS, and this filing, based on the applicable circumstances, is the earliest practical opportunity to address this issue before the SLUC. It should be noted that while the pending incremental districting application only involves a portion of the entire 179-acre Maui Business Phase II site, the DEIS addresses the impacts of the entire Maui Business Phase II project, including both the incremental area covered under SLUC Docket No. A88-634 and the area covered under SLUC Docket No. A03-739.

Terminology

The terms "incremental" and "incremental districting" relate to Section 15-15-78, "Incremental Districting," Hawaii's Administrative Rules, Title 15, Department of Business, Economic Development, and Tourism, Subtitle 3, State Land Use Commission, Chapter 15, Land Use Commission Rules. Under this section, the SLUC has the discretion to grant reclassification of an entire area requested by a petitioner, or may choose to redistrict only a portion of the requested area and indicate its approval of future redistricting of the remaining area.

In the DEIS, the "incremental" area is the area subject to incremental districting under SLUC Docket No. A88-634. This is explained in the DEIS in section 2.1.6 "Maui Business Park History," which states:

In December of 1988, to support the growing demand for light industrial and retail space on Maui, Alexander & Baldwin, Inc. filed a petition with the LUC (Docket Number A89-634) to reclassify land in Kahului south of Dairy Road from the Agricultural District to the Urban District to develop Maui Business Park.

Mr. John T. Harrison, Ph.D., Environmental Coordinator
SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13
October 26, 2004
Page 2

In 1990 the LUC approved the reclassification of approximately 76,006 acres for the development of Maui Business Park Phases IA and IB. At the same time the LUC also approved incremental reclassification from the Agricultural District to the Urban District for approximately 52,695¹ acres of adjacent land for Phase II of Maui Business Park.

Visual Impacts

The visual impact of Maui Business Park Phase II has been considered and is discussed in section 5.7 "Visual Resources" of the DEIS. In addition, a visual analysis study was prepared and included as Appendix I of the DEIS to examine views from vantage points within the project, including from planned roadways such as the proposed Airport Access Road and Ho'okele Street. In particular, landscaping along the Airport Access Road will be coordinated with the State Department of Transportation to maintain distant views of Haleakala and to screen and soften views of structures. Design standards, including a unified streetscape planning theme and program will ensure the appropriate use of landscaping and building materials throughout Maui Business Park Phase II.

Labor & Housing

Regarding your concerns about the labor needed to construct Maui Business Park Phase II, we note that at present, the construction industry is within a high cycle tied to Hawaii's strong real estate market and other factors. However, as noted in the DEIS, Maui Business Park Phase II is a long term project that is anticipated to be developed over an approximately 20 year period. It is estimated to take at least two years until infrastructure construction is started within the Maui Business Park Phase II site. A change in zoning, final engineering design, and subdivision approvals, are all required before any construction may commence. The market study, included as Appendix J of the DEIS, projects that initial infrastructure development over the first two years of construction will require approximately 34 construction workers per year and the subsequent years 3 to 4 will require approximately 108 construction workers per year. At peak construction activity, in years 5 to 6, approximately 178 construction workers will be required per year.

At this time, it is difficult to determine the extent that other proposed projects in the community will compete for the supply of construction labor. If construction labor on Maui becomes in short supply at the time proposed for construction of Maui Business Park Phase II, it is possible that construction may be slowed or delayed, or construction costs may increase in accordance with increased wages commanded by labor.

Concerning housing needs associated with Maui Business Park Phase II, as stated in section 5.8.2 "Housing" of the DEIS, A&B Properties, Inc. has agreed to contribute a minimum of 10 acres of land in the Central Maui region toward the development of employee/affordable housing to address the housing demand attributable to the project.

Energy Efficiency

A&B Properties, Inc. will serve as the master developer of Maui Business Park Phase II, developing the basic infrastructure and creating the lots for sale to individual businesses who would in turn, build their own buildings. Design guidelines and specific covenants, conditions, and restrictions (CC&Rs) will

¹ Note: As a result of a subsequent land use district boundary interpretation, the incremental districted area was modified to 52,654 acres, a reduction of 0.031 acre.

Mr. John T. Harrison, Ph.D., Environmental Coordinator
SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13
October 26, 2004
Page 3

encourage energy efficiency and will allow individual businesses to include energy saving strategies, including the use of photovoltaic systems, in the design of their buildings and facilities. While a listing of potential energy saving methods and technologies, including photovoltaics, fuel cells, and other renewable energy sources, is described in section 5.9.5 "Electrical and Communications Systems" of the DEIS, a specific feasibility and cost/benefit analysis of photovoltaic and other energy efficiency measures has not been undertaken, at this time.

Water System

As stated in section 5.9.3 "Water System" of the DEIS, A&B Properties, Inc. will participate in the funding and construction of adequate water sources, storage, and transmission facilities and improvements to accommodate water use, generated by Maui Business Park Phase II. It is currently anticipated that an off-site surface water treatment plant will be developed to allow the County to supply potable water to Maui Business Park Phase II. As such, a groundwater use permit for potable water source development is not contemplated in conjunction with Maui Business Park Phase II, and is not listed as a required permit in Chapter 3 "Required Permits and Approvals" of the DEIS. Preliminary plans for the surface water treatment plant are being formulated. Specifics of the system will be developed in cooperation with the County of Maui.

We agree that the use of non-potable water for irrigation is feasible in many areas in Hawaii. However, feasibility is dependent on many factors, including the salinity and quality of the non-potable source water, methods of water treatment, and the associated capital and operational costs of developing a dual water system. As noted in the DEIS, the feasibility of developing a dual water system will be evaluated.

A more detailed engineering analysis of the Maui Business Park Phase II water system will be conducted as the project progresses. As mentioned previously, a change in zoning, final engineering design, and subdivision approval are all prerequisite to Maui Business Park Phase II proceeding. These processes will be subject to review and oversight by various State and County agencies. In addition, the Maui County Council must approve the change in zoning.

Traffic Impact Analysis Report

As presented in the traffic impact analysis report (TIAR), we maintain that the projected 2020 background traffic without completion of the Airport Access Road (Case 2) is a valid representation of projected conditions without Maui Business Park Phase II. In preparing the revised traffic analysis, input concerning applicable assumptions was solicited and obtained from the State Department of Transportation (DOT). With regard to the timeframe for completion of the Planned Airport Access Road, it was noted by DOT that the timing of the portion of the Airport Access Road between Haana Highway and Kahului Airport was not resolved and no time frame was provided. Given this circumstance, in projecting the 2020 background traffic (Case 2), we felt it prudent to not assume completion of the Airport Access Road. Please note that the traffic analysis does examine several development scenarios that include assumptions with and without the planned Airport Access Road.

Regarding your specific comment about sufficient weaving length on Mokuale Highway between Hookele Street and Kiihelani Highway/Dairy Road, traffic volumes and turning movements can be monitored, such that appropriate mitigation measures are implemented. In particular, the proposed double left turn lanes from west bound Mokuale Highway onto south bound Kiihelani Highway will provide for increased vehicle volume through the intersection and mitigate backup on Mokuale Highway.

LINDA LEROLE
COPIER

RODNEY K. HARAGA
DIRECTOR
Deputy Directors
BRUCE Y. MATSUI
BARRY FURUKAWA
SPAWN H. BENDISCH
BY REPLY REFER TO:

STP 8.1412



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
889 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5067

October 7, 2004

Mr. John T. Harrison, Ph.D., Environmental Coordinator
SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13
October 26, 2004
Page 4

We understand your concern regarding double left turn lanes directing vehicles into two receiving lanes. However, we believe that this type of configuration can safely accommodate turning movements, if designed correctly with adequate turning radius.

Figure 18 will be revised to show the correct receiving lane configuration on Dairy Road. Specifically, the island shown on southbound Dairy Road will be revised to correctly show two southbound receiving lanes. Driveways for Costco are located out of range of the area shown on Figure 18, however, the main driveway for Costco is on Haleakala Highway. An additional Costco driveway is located on Dairy Road, approximately midway between Haleakala Highway and Kele Street. This driveway provides for only right-in and right-out turning movements.

The TIAR included in the DEIS (dated July 2004) is an update of a prior traffic analysis prepared in May 2003 and which was reviewed by the DOT. The revised analysis was undertaken to address specific comments from the DOT. Prior to preparing the revised traffic analysis, input concerning applicable assumptions was solicited and obtained from the DOT. Concerns regarding the need for an analysis of mid-day Saturday traffic were not expressed by the DOT for the revised TIAR. Typically, such analysis is not included in a TIAR, unless specifically requested by the reviewing agency. Please note that the SLUC has required the TIAR to be periodically updated and revised. As specific projects within Maui Business Park Phase II are proposed, additional traffic analysis will be undertaken. Since it is not currently known where specific types of businesses will be located within Maui Business Park Phase II, it would be more appropriate to evaluate Saturday traffic in relation to retail uses, when these specific projects are proposed.

Identification of All Community Meetings

The SLUC Findings of Fact, Conclusions of Law, and Decision and Order on Docket No. A03-739 will be included as an appendix of the Final Environmental Impact Statement (FEIS).

Thank you for reviewing the DEIS. Your comments will be included in the FEIS.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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Mr. Tom Schnell
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Mr. Michael W. Foley
Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Schnell and Mr. Foley:

Subject: Maui Business Park Phase II
Draft Environmental Impact Statement (DEIS) and
Change in Zone Application (CIZ 2004/0011)
TMK: 3-8-01: 2 (portion); 3-8-06: 4 (portion); and 3-8-79: 13

Thank you for your transmittal, requesting our review of the subject draft environmental document and the Change of Zone application.

The proposed business park project will impact our highways and airport. Because of the magnitude of the development, the implementation strategies for the proposed project and plans for our transportation facilities need careful consideration.

We are pleased that in the September 9, 2004 letter to the DOT, Tom Schnell of PBR Hawaii, the planning consultant to A & B Properties indicated that the A & B will comply with the conditions imposed by the State Land Use Commission to the concerns expressed by the DOT in response to the EISPN.

As summarized in Mr. Schnell's letter, A & B properties will comply with the following conditions:

- The imposition of covenants to address notification and liability issues due to potential adverse impacts from noise, emissions, vibrations, and other incidences of aircraft operations at Kahului Airport.
- The imposition of covenants requiring the submittal of Federal Aviation Administration Form 7460-1 for proposed construction or alterations at the project site.
- Restrictions on future use within the proposed runway projection zone (based on the possible extension of the primary runway at Kahului Airport to 9,600 feet in length) within the South Project Area.
- Providing DOT acquisition rights to project lands within the designated runway protection zone within the South Project Area at agricultural land values.
- Requiring A & B Properties, Inc., to control bird nesting, insect, pest, or wildlife infestation in drainage basins to minimize hazards to aircraft operations.
- Requiring that the project's traffic impact analysis report be revised to include among other things, plans for the Airport Access Road and assumptions concerning the proportion of retail and light industrial uses developed at the project.
- Requiring that A & B Properties, Inc., contribute its fair share of the cost of regional transportation improvements in the area.

Provided below, are our comments on the DEIS.

Airport

1. The DEIS fails to provide information and disclose projected future annual cumulative and single event noise impacts.
2. The DEIS indicates that daytime ambient noise levels are at 50 to 73 dBA. It is not clear what this reading represents (i.e. range of single event noise levels, average short term levels, etc.).
3. The phrase "restrictions placed on only portions of the sites" in Section 1.3 of the noise study should be clarified and defined.

Highway

1. A request for a new access or change of an existing access to Hana Highway must be submitted to our Highways Division, Right-of-Way Branch. The access should be checked for adequate sight distance.

2. Except for approved or permitted accesses by our Highways Division, the remainder of the frontage along Hana Highway shall be designated as access restricted.
3. A use and occupancy agreement or easement will be required for all utilities connected to the business park project that are within the highway right-of-way.
 4. The TIAR should be revised and resubmitted for our review for the following:
 - a. We again question the methodology (FAR) to reduce trip generation. We had questioned this matter in our earlier June 2003 comments. The use of a 20% reduction followed by a 0.25 floor area ratio (FAR) appears to be a double reduction. The FAR already takes into consideration infrastructure such as roadways, utilities, etc.
 - b. Background and Mid-Range Traffic.

Evaluate the 2012 mid-range traffic impacts by explaining and justifying the assumptions about projected diversion of 2012 background traffic from the Punene to Hana Highway segment of the Airport Access Road (Kuihelani Highway extension) to Hookele Street. This includes identifying which traffic improvements will be needed by 2012 and those the applicant will be responsible to implement, and providing a table similar to Table 18 in the TIAR to summarize the estimated project share of peak traffic at the various intersections in 2012.
 - c. The 2020 background traffic projections assume that Hana Highway will have additional lanes in the project area, but do not assume an extension of Kuihelani Highway, extension of Hookele Street or development of the business park. The 2020 background projections should be revised to assume an extension of Kuihelani Highway to the airport, and an explanation and justification of the assumptions about the diversion of traffic from Dairy Road to the Kuihelani Highway extension and the diversion of traffic from the Kuihelani Highway extension to Hookele Street should be provided. We question Figure 9 in the TIAR that apparently makes the assumption that, during the afternoon peak hour, after the extension of Hookele Street, not a single vehicle will make a left-turn northbound onto Hana Highway to westbound Kuihelani Highway.
 - d. The TIAR should note that the report is subject to a condition (stipulated by the Land Use Commission) that the TIAR shall be revised or supplemented as may be requested or required by the DOT.

The applicant's participation in and contribution to its fair share of regional transportation improvements is still applicable.

Mr. Tom Schnell and Mr. Michael W. Foley
Page 4
October 7, 2004

STP 8.1412

Drainage

Surface water and stormwater from the business park will flow through our highway and airport facilities. The draft document mentions that a detailed master drainage plan is being prepared by the applicant for submission to the county. We request that copies of this plan be provided to us for our review.

The proposed project and overall development in the area are at an important junction of our transportation facilities. As updated or new information becomes available we would want to have the ability to monitor and assess the project's progress and effects on the area and our facilities to ensure that both local and regional impacts can be addressed. We also anticipate that further coordination between the applicant and our department will be needed during various upcoming approval steps and stages as the business park takes form and development and construction plans are drawn up.

We appreciate the opportunity to provide our comments.

Very truly yours,

B. K. Haraga

& RODNEY K. HARAGA
Director of Transportation

c: Dan Yasui, A&B Properties, Inc.
Anthony Ching, State Land Use Commission
Mary Lou Kobayashi, Office of Planning (DBEDT)
Genevieve Salmonson, Office of Environmental Quality Control
Clayton Yoshida, Maui Department of Planning



LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL STUDIES

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Tel: (808) 521-8111
Fax: (808) 521-8111
E-mail: pbr@pbr.com

October 26, 2004

Mr. Rodney K. Haraga, Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13**

Dear Mr. Haraga:

Thank you for your letter (STP 8.1412) dated October 7, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we your responding to your comments.

Airport

1. The noise study prepared for Maui Business Park Phase II and included as Appendix G of the DEIS used the most recently published DOT annual cumulative noise levels from the *Kahului Airport Master Plan and Noise Compatibility Program*. Currently, there are no state or federal guidelines or standards that allow assessment of single event noise levels. Thus, it is not possible to determine what single event noise level would be acceptable and what single event noise level would be unacceptable. Maui Business Park Phase II does not involve residential properties and will be used for industrial and commercial uses. As stated in the noise study and the DEIS, all buildings above the 65 L_{dn} contour will require noise reduction measures.

2. In response to your comment, the "Noise" section of the final environmental impact statement (FEIS), will be revised as follows:

Currently—the dominant noise sources impacting the Maui Business Park Phase II site and vicinity are exposed to daytime ambient noise levels of 50 to 73 dBA, with the dominant noise sources being aircraft from the nearby Kahului Airport and roadway traffic. Other noise sources include wind and birds.

Due to its proximity to Kahului Airport, the Maui Business Park Phase II site is exposed to a significant amount of aircraft noise. The Kahului Airport Master Plan and Noise Compatibility Program indicates that the area is exposed to an average day-night aircraft noise level (L_{dn}) between 50 to 75 dBA. However, commercial, industrial, and manufacturing uses are compatible

Mr. Rodney K. Haraga, Director
SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13
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Page 2

with airport areas. The majority of the Maui Business Park site is between the 55 to 70 L_{dn} airport noise level contours. Figure 4 of the environmental noise impact assessment (Appendix G) shows airport noise level contours in relation to the Maui Business Park site. State DOT Airports Division land use compatibility guidelines do not specify restrictions for commercial, industrial, and manufacturing uses within the 55 to 65 L_{dn} noise contours. For sites above the 65 L_{dn} contour, noise reduction measures, such as air conditioning or double glazed windows, must be incorporated into the design and construction of buildings.

3. In response to your comment, Section 1.3 of the executive summary to the Noise study (Appendix H to the FEIS) will be revised as follows:

Commercial or manufacturing uses of the project sites are consistent with the State Department of Transportation Airport Division land use compatibility guidelines. However, noise reduction measures will be required for areas above the 65 L_{dn} noise contour. At the time of this report, future noise levels based on predicted airport usage have not been calculated by the Department of Transportation Airports Division.

Highway

1. At the appropriate time, A&B Properties, Inc. will submit a request to the Highways Division, Right-of-Ways Branch for any proposed accesses to Hana Highway. Proposed access points will be checked for adequate site distances.

2. A&B Properties, Inc. will coordinate with the Highways Division to determine appropriate designated access points along Hana Highway.

3. A&B Properties, Inc. will coordinate with DOT regarding use and occupancy agreements or easements for utilities connected to Maui Business Park Phase II that are within the highway right-of-way.

4a. To clarify, the methodology for estimating project trip generation for retail uses, is based on the following:

1. The 20 percent reduction reduces the gross project area to account for land to be used for roadways, roadway right-of-ways, drainage areas, and other non-buildable areas. The result is the potential lot area that could be used for retail purposes.

2. The 0.25 floor area ratio (FAR) represents the actual buildable area on a retail lot. This is to account for portions of the retail lot to be used for parking, driveways, landscaping, setbacks, etc. Thus, the 0.25 FAR represents the actual retail building area. This figure is consistent with other existing retail projects on Maui

Mr. Rodney K. Haraga, Director
SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
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(e.g. Maui Mall), and should be representative of potential retail uses within Maui Business Park Phase II.

Since retail trip generation rates are based on the square footage of building areas, we believe the above methodology to be valid.

4b. As you are aware, the traffic analysis (dated July 2004) included in the DEIS is an update of a prior traffic analysis prepared in May 2003 and which was reviewed by the DOT. The revised analysis was undertaken to address comments from the DOT and conditions imposed by the State Land Use Commission (SLUC). Prior to preparing this revised traffic analysis, input concerning applicable assumptions was solicited and obtained from the DOT. These correspondences are included with the revised study.

The revised traffic analysis examines the project through the year 2020 (estimated full project build out), which is the horizon year for the study and the Maui Long Range Transportation Plan. The analysis is based on the most current project assumptions and input from the DOT. We acknowledge and agree with the need to evaluate mid-range traffic impacts (year 2012). However, there are several factors that will influence this analysis, including the phased development of the South Project Area imposed by the County of Maui, possible further restrictions in the proportion of light industrial versus retail use allowed at the project, the timeframe for completion of the planned Airport Access Road, and the potential acquisition of about 25 acres of the South Project Area for the planned Kahului Airport runway protection zone. These factors will have substantial impact on any mid-range traffic analysis. We anticipate that once County zoning is attained, we will have a better assessment of these factors to make a more informed and meaningful mid-range analysis and therefore, believe that it would be more appropriate to conduct this evaluation, at that time.

4c. Please be advised that the 2020 background traffic projections (without the project) do not assume that Hana Highway will have additional lanes in the project area. As noted above, in preparing the revised traffic analysis, input concerning applicable assumptions were solicited and obtained from the DOT. With regard to the timeframe for completion of the planned Airport Access Road, it was noted by the DOT that the timing of the portion of the Airport Access Road between Hana Highway and Kahului Airport was not resolved and no time frame was provided. Given this circumstance, in projecting the 2020 background traffic, we felt it prudent to not assume completion of the Airport Access Road. Please note that the traffic analysis does examine several project development scenarios, which include assumptions with and without the planned Airport Access Road.

Regarding Figure 9, your comment is correct. This figure will be revised to indicate the number of westbound vehicles on Hana Highway turning left onto the Airport Access Road.

Mr. Rodney K. Haraga, Director
SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
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4d. We acknowledge that the SLUC has stipulated that the TIAR shall be revised or supplemented, as may be requested by the DOT. This will be noted in the TIAR.

Drainage

The detailed master drainage plan is under preparation and copies of the plan will be provided to DOT for review, upon its completion.

A&B Properties, Inc. concurs with the need for continued coordination with DOT as the project proceeds through the land use approval and development process, and will provide DOT with updated or new information as it becomes available.

Thank you for reviewing the DEIS. Your comments will be included in the Final Environmental Impact Statement.

Sincerely,

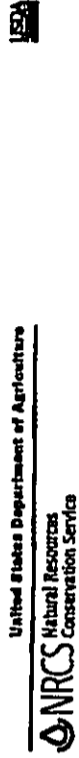
PBR HAWAII



Tom Schmitt, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salomonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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210 Iki Kala Street, Suite #208, Wahiawa, HI 96786-2100

August 30, 2004

Mr. Clayton I. Yoshida, Planning Program Administrator
County of Maui
Department of Planning
250 S. High Street
Wailuku, Hawaii 96793

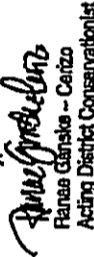
Subject I.D.: CIZ 2004/0011
TMK: 3-8-00:4 (PORTION); 3-8-00:1:002 (PORTION); 3-8-079:013
Project Name: Maui Business Park II
Applicant: A&B Properties, INC.

Dear Mr. Yoshida,

We recommend all existing retention/erosion basins should be identified and have an operation and maintenance plan.

Thank you for the opportunity to comment.

Sincerely,



Renee Ganske - Cerizo
Acting District Conservationist



LAND PLANNING
NATURAL RESOURCES
ENVIRONMENTAL SERVICES

L. THOMAS BARNETT, FASLA
Consultant

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THOMAS BARNETT, AICP
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DAVID T. HARRIS, ASLA
Associate

WILLIAM J. CHANG, ASLA
Associate

October 26, 2004

Ranae Ganske-Cerizo, Acting District Conservationist
United States Department of Agriculture
Natural Resources Conservation Service
210 Ima Kala Street, Suite 209
Wailuku, Maui, Hawaii 96793-2100

**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13**

Dear Ranae Ganske-Cerizo:

Thank you for your letter addressed to Mr. Clayton Yoshida, Planning Program Administrator, Maui Department of Planning dated August 30, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

As noted in the DEIS, a drainage retention basin is located in the South Project Area of Maui Business Park Phase II. A drainage master plan is currently being prepared and will be submitted to the County of Maui, prior to subdivision approval. The drainage master plan will identify additional retention basins, as may be necessary. The drainage master plan will also include information on the operation and maintenance of the retention basins.

Thank you for reviewing the DEIS. Your comments will be included in the Final Environmental Impact Statement.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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U.S. Department
of Transportation
Federal Aviation
Administration

Western-Pacific Region
Real Estate and Utilities Section, AHRM-54B

P. O. Box 50109
Honolulu, Hawaii 96850-5000

September 8, 2004

Mr. Tom Schnell, AICP
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, HI 96813

Dear Mr. Schnell:

Your letter of August 23, 2004, requested the Federal Aviation Administration (FAA) review and comment on the Draft Environmental Impact Statement (DEIS) for the Maui Business Park Phase II, Wailuku, Hawaii.

For further analysis of your project and its impact to FAA facilities, please submit a "Notice of Construction or Alteration" FAA Form 7460-1. This form, with instructions, is available at our website at <http://www.faa.gov>.

We appreciate this opportunity to comment on your project. If there are any questions, please contact me on Oahu at 541-1236.

Sincerely,

Darico B. N. Young
Realty Contracting Officer

cc: Mr. Dan Yasui,
A&B Properties, Inc.
822 Bishop Street
Honolulu, HI 96813

Mr. Anthony Ching
State Land Use Commission
P. O. Box 2359
Honolulu, HI 96804

Office of Environmental Quality Control
235 S. Beretania Street, Suite 702
Honolulu, HI 96813

Mr. Clayton I. Yoshida, AICP
County of Maui Department of Planning
250 High Street
Wailuku, HI 96793



LAND PLANNING
AND ZONING
PROFESSIONAL SERVICES

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Principal

Thomas S. Whitton, ASLA
Principal

R. Stan Duncan, ASLA
Executive Vice President

Russell Y. Chang, ASLA
Principal Vice President

Vincent Smeraldi
Principal

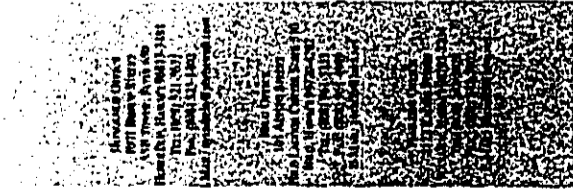
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Hawaii Office

Thomas M. McLaughlin, AICP
Senior Associate

Timothy J. Farrell, AICP
Associate

Randolph T. Hama, ASLA
Associate

Karen M. Nishizawa, ASLA
Associate



October 26, 2004

Darice B. N. Young
U.S. Department of Transportation
Federal Aviation Administration
Western-Pacific Region
Real Estate and Utilities Section
P. O. Box 50109
Honolulu, Hawaii 96850-5000

**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13**

Dear Darice Young:

Thank you for your letter dated September 8, 2004, regarding the Draft Environmental Impact Statement (DEIS) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comment.

FAA Form 7460-1, "Notice of Construction or Alteration", will be submitted as requested. Please also be advised that pursuant to the condition imposed by the State Land Use Commission under Docket No. A03-739, future lot purchasers at Maui Business Park Phase II are also required to submit Form 7460-1 to the Federal Aviation Administration.

Thank you for reviewing the DEIS. Your letter will be included in the Final Environmental Impact Statement.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

AI ANI H. ARAKAWA
Mayor
ALICE L. LEE
Director
HIFEMAN T. ANJAYA
Deputy Director

200 SOUTH HICHI STREET • WAILUKU, HAWAII 96793 • PHONE (808) 270-7705 • FAX (808) 270-7165

September 16, 2004

Mr. Dan Yasui, AICP
A & B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Yasui:

Subject: Maui Business Park Phase II

We have reviewed the Maui Business Park Phase II change-in-zoning application, which included the project's Draft Environmental Impact Statement, and look forward to A & B Properties, Inc.'s conveyance of a minimum of 10 acres of land in the Central Maui area for the development of employee/affordable housing. We are also pleased that A & B Properties, Inc. will be participating with the County of Maui and others in formulating an employee/affordable housing program for the lands to be contributed.

Thank you for the opportunity to comment.

Very truly yours,

ALICE L. LEE
Director

C: Mr. Tom Schnell
Mr. Anthony Ching
Ms. Genevieve Salmonson
Mr. Clayton Yoshida
Mr. Edwin Okubo

TO SUPPORT AND ENHANCE THE SOCIAL WELL-BEING OF THE CITIZENS OF MAUI COUNTY



LAND PLANNING AND ZONING DEPARTMENT

4. FRANK BLANU, PASLA

IGORUS S. WITTEK, ASLA

2. SHARON D. HARRIS, ASLA

URSULA YI CHANG, ASLA

YOUNG KIM, ASLA

JAMES L. LEE, ASLA

THOMAS S. WILSON, ASLA

THOMAS S. WILSON, ASLA

THOMAS S. WILSON, ASLA

THOMAS S. WILSON, ASLA

October 26, 2004

Ms. Alice L. Lee, Director
Department of Housing and Human Concerns
County of Maui
200 South High Street
Wailuku, Maui, Hawaii 96793

SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(-PORTION), 3-8-79:13

Dear Ms. Lee:

Thank you for your letter addressed to Dan Yasui of A&B Properties, Inc., dated September 16, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

A housing impact analysis study commissioned in fulfillment of a condition imposed by the State Land Use Commission under Docket No. A03-739, was completed in September 2004 and forwarded to your office. The study is the initial step in developing an employee/affordable housing program, pursuant to the State Land Use Commission's requirements. A&B Properties, Inc. looks forward to working with the County of Maui in formulating an employee/affordable housing program for Maui Business Park Phase II.

Thank you for reviewing the DEIS. Your comments will be included in the Final Environmental Impact Statement.

Sincerely,

PBR HAWAII

Tom Schnell

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.
Mr. Edwin Okubo

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ALAN M. ADASKANYA
Mayor
MICHAEL W. FOLEY
Director
WAYNE A. BOTTELHO
Deputy Director



COUNTY OF MAUI
DEPARTMENT OF PLANNING

October 7, 2004

Mr. Dan Yasui
A&B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Yasui:

RE: Draft Environmental Impact Statement for Maui Business Park Phase II located at TMK 3-8-001: 002 (portion), 3-8-006: 004 (portion), and 3-8-079: 013, Kahului, Island of Maui, Hawaii (LIR 2004/317Z)

The Maui Planning Department (Department) received your request for comments on the Draft Environmental Impact Statement (DEIS) prepared for the proposed development of the Maui Business Park Phase II light industrial project comprising approximately 179 acres located in Kahului, Maui, Hawaii. In addition to the preconsultation comments dated July 26, 2004, the Department submits the following comments:

1. A portion of the northern project area has historically been used as an electrical station/substation. Structures which historically servicing this use remain on the property and are in a deteriorated state.
 - a. Page 33 indicates a Phase I Environmental Site Assessment (ESA) was prepared for the proposed action, but does not identify or delineate the study area. Clarify whether this portion of the Northern Property and the historical use was included in the Phase I ESA.
 - b. Provide a summary of the findings of the Phase I ESA. Discuss any potential environmental impacts relative to regulated, hazardous, toxic substances from the historical use as an electrical station/substation.
2. The proposed action partially abuts the proposed airport access road. The access roadway is anticipated to serve as the "Gateway to Maui"

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PLANNING DIVISION (808) 270-7735; ZONING DIVISION (808) 270-7253; FACSIMILE (808) 270-7031

for visitors and residents and will become a landscape planting plans for the proposed action and the new access roadway should visually enhance this area to remain consistent

3. The subject properties are identified as "light industrial" in the Wailuku-Kahului Community Plan. Light industrial is defined in the community plan as "warehousing, light assembly, service and craft-type industrial operations." Based upon this definition and in relation to the market study, demand forecasts indicate a need for approximately one-half of the development as "retail space."

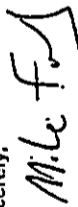
Designating this area as an urban use has the potential of shifting the urban centers away from Wailuku and Kahului Proper and may impact the redevelopment potential of existing urban centers.

Retail/commercial uses allowed within an "industrial subdivision" often cause an increase in land prices or rents. This often prevents light industrial uses as defined in the community plan from establishing within these areas. The resulting impact is continued shortage of lands designated for industrial use.

In the light of the foregoing, the applicant should address the alternative of phased zoning or conditional zoning.

Thank you for the opportunity to comment. Should you require additional clarification, please contact Ms. Kivette A. Caigoy, Environmental Planner, at this office at 270-7735.

Sincerely,



MICHAEL W. FOLEY
Planning Director

MWF:KAC:lar

c: Wayne Botelho, Deputy Planning Director
Clayton I. Yoshida, AICP, Planning Program Administrator
Kivette A. Caigoy, Environmental Planner
Anthony Ching, State Land Use Commission
Tom Schnell, PBR Hawaii
OEQC
Project File
General File
K:\WP_DOCS\PLANNING\DEIS\2004\172_Mou\04\92\2\1\Phase1_DEIS.wpd

Mr. Michael W. Foley, Director
 SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13
 October 26, 2004
 Page 2

from samples collected from a portion of this equipment indicated that insulating material or potting compound contained polychlorinated biphenyls (PCBs). PCB-containing equipment identified in the report has been removed, with the exception of some cable that is embedded in the concrete floor. Environmental impacts from past use of the central power plant site are possible, and further surveying and testing of the site is anticipated. Any environmental issues identified during this testing will be addressed in accordance with all applicable governmental laws and regulations.

In light of the above, in the Final Environmental Impact Statement (FEIS) section 4.5 "Identification of Chemicals, Fertilizers, and Other Substances" will be revised as shown on the attached page (Attachment I).

2. We are aware that a portion of Maui Business Park Phase II abuts the proposed Airport Access Road. Landscaping along the Airport Access Road will be coordinated with the State Department of Transportation to maintain distant views of Haleakala and screen and soften views of structures. Design standards, including a unified streetscape planning theme and program will ensure the appropriate use of landscaping and building materials throughout Maui Business Park Phase II. A visual analysis study was prepared and included as Appendix 'I' of the DEIS to examine views from vantage points within the project, including from planned roadways such as the proposed Airport Access Road and Hookele Street.

3. Under the Maui County Code (MCC), the appropriate zoning district for light industrial areas is the (M-1) Light Industrial District (Chapter 19.24, MCC). Land uses within Maui Business Park Phase II will be consistent with uses permitted within the (M-1) Light Industrial District.

The market study prepared for Maui Business Park forecasts that over the next two decades, there will be demand for approximately 290 acres of new light industrial areas, including retail, office, warehouse, and light industrial uses, in Central Maui. Maui Business Park Phase II will satisfy the need for 179 acres of this demand. Considering the remaining demand for approximately 111 acres and the limit of urban land in Central Maui, Maui Business Park Phase II should not significantly impact the redevelopment potential of existing urban centers.

In reclassifying a majority of the Maui Business Park Phase II site to the Urban district, the State Land Use Commission (LUC) ensured that industrial uses, such as warehousing, light assembly, and service and craft businesses, will be established in Maui Business Park Phase II by imposing a condition that at least 50 percent of the project acreage shall be used for "non-retail, light industrial use" for a period of eight years from the date of the County's approval of zoning for the project.

In light of the projected demand, the types of uses allowable in the (M-1) Light Industrial District, and the condition on uses imposed by the LUC, phased or conditional zoning would not appear to be warranted.

October 26, 2004

Mr. Michael W. Foley, Director
 Department of Planning
 County of Maui
 250 South High Street
 Wailuku, Hawaii 96793

SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13

Dear Mr. Foley:

Thank you for your letter addressed to Dan Yasui dated October 7, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

1. The Phase I Environmental Site Assessment (ESA) referenced on page 33 of the DEIS was prepared for Maui Business Park Phase 1B (where Wal-Mart, Home Depot, and several small businesses are located) in February 2002. As part of this ESA, an Environmental Data Resources, Inc. (EDR) Radius Map database search report was conducted to check government databases for records of any reported environmental hazards within a one mile radius of the Maui Business Park Phase 1B site. This one mile radius area covered all of the South Project Area and a majority of the North Project Area, including the area historically used as an electrical station/substation and known as the Central Power Plant. The EDR report did not find records of any spills, dumping, or other evidence of hazardous, regulated, or toxic substances within the one mile radius area, which includes the Central Power Plant area.

The Central Power Plant area, which you refer to in your letter, comprises a portion of the North Project Area and has been the subject of prior environmental surveys commissioned by Alexander & Baldwin, Inc. Most recently, in 2001, a hazardous materials survey of the area was undertaken. The survey of the former power generating facility included the following findings. A sampling of building materials from wall, floor covering and roofing materials was undertaken and a portion of the samples were found to contain asbestos-containing material. This included mastic associated with floor tiles, a sink and roofing. These materials were found to be in good condition and non-friable. A portion of the paint samples taken from interior and exterior painted surfaces were found to contain lead equal to or above the EPA/HUD standard. Electrical equipment associated with the former generating facility has been substantially removed from the site. At the time of the 2001 survey, remnants included two small transformers, cable junctions, cable terminals, cable and a piece of switching equipment. Results



LAND PLANNING
 REGIONAL ARCHITECTURE
 ENVIRONMENTAL STUDIES

1. FRANK BLANCHET, FASLA
 Chairman

BRAD S. WITTON, ASLA
 President

1. SONG DONGKUN, ASLA
 Technical Vice-President

SHI YI CHENG, ASLA
 Director of Project Planning

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 Planner

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MARK MURKIN, AICP
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PAI SOTEREL, AICP
 Area Unit

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Mr. Michael W. Foley, Director
SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13
October 26, 2004
Page 3

Thank you for reviewing the DEIS. Your comments will be included in the Final Environmental
Impact Statement.

Sincerely,

PBR HAWAII



Tom Schnell, AICP
Associate

Attachment

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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ATTACHMENT 1

4.5 IDENTIFICATION OF CHEMICALS, FERTILIZERS, AND OTHER SUBSTANCES

Existing Conditions

Portions of the Maui Business Park Phase II are currently in sugar cane cultivation by HC&S or are fallow fields. A portion of the North Project Area includes an area known as the Central Power Plant that historically was used as an electrical station/substation. As part of its agricultural operations, HC&S uses herbicides, pesticides, and fertilizers. HC&S's application and use of all herbicides, pesticides, and fertilizers is in compliance with all product labeling and applicable government regulations:

Herbicides and Pesticides: HC&S reports that the following herbicides and pesticides are currently in use on their fields:

- Aeltrex 90 (active ingredient - atrazine)
Use: Herbicide/weed control chemical
Most commonly used no-till weed control chemical in US
- Amine 4 (active ingredient - 2,4-D)
Use: Herbicide/weed control chemical, primarily for post-emergence control of broadleaf weeds
- Aqua Master aka Rodeo (active ingredient - glyphosate)
Use: Herbicide/weed control chemical -- spot sprayed along ditch lines
Glyphosate is one of the most widely used weed and grass control chemicals in the world.
- Banvel (active ingredient - dimethylamine salt of dicamba)
Use: Herbicide/weed control chemical, primarily for post-emergence control of broadleaf weeds.
- Ehtrel (active ingredient - ethephon)
Use: Tassel control on sugar cane
- Evik 80 W (active ingredient - ametryn)
Use: Herbicide/weed control chemical - nonselective
- GB-1111 Mosquito Larvicide (active ingredient - petroleum oil)
Use: Mosquito control chemical
- Karmex (active ingredient - diuron)
Use: Herbicide/weed control chemical
A pre-emergence herbicide for residual bare-ground control
- Pentagon 60 WDG (active ingredient - pendimethalin)
Use: Herbicide/weed control chemical - nonselective
- Polado L (active ingredient - glyphosate)
Use: Plant growth regulator
- Roundup Ultra (active ingredient - glyphosate)
Use: Herbicide/weed control chemical
A non-selective, non-residual, post-emergence herbicide; glyphosate is one of the most widely used weed control chemicals in the world.

issues identified during this testing will be addressed in accordance with all applicable governmental laws and regulations.

Potential Impacts

No adverse effects on surface or underground resources are anticipated due to the use of chemicals and fertilizers within Maui Business Park Phase II. Relative to the existing agricultural operations, the use of chemicals and fertilizers is expected to decrease after Maui Business Park Phase II is established. This is because typically more chemicals and fertilizers are used for sugarcane cultivation than within a light industrial project.

Mitigative Measures

The abatement and disposal of any hazardous materials found within the Maui Business Park site, including the Central Power Plant area, will be undertaken in accordance with all applicable governmental laws and regulations.

Within Maui Business Park Phase II the use of herbicides will generally be limited to the initial landscaping period on the site. Pesticides are anticipated to be used only as a treatment and not as a preventative measure. As a treatment, application use will be limited. In addition, plant selection will be based on hardiness, drought tolerance, pest resistance, as well as aesthetic concerns.

Common nitrogen/phosphorus/potash mixed fertilizers are anticipated to be applied to lawn areas, groundcover, shrubs, and trees. With proper irrigation management practices, leaching and runoff of fertilizers should be negligible.

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- Vecto Bac
Use: Mosquito control bacteria
Non-chemical biological agent
- Velpar (active ingredient - hexazinone)
Use: Herbicide/weed control chemical, a broad-spectrum herbicide particularly effective for treatment of woody plants

Fertilizers. HC&S reports that the following fertilizers are currently in use on their fields:

- Urea
Use: Nitrogen source
- Potash solution (active ingredient - K-2, potassium chloride)
Use: Potassium source

Hazardous, Regulated, and Toxic Substances. A Phase I Environmental Site Assessment (ESA) was conducted for Maui Business Park Phase II (where Wal-Mart, Home Depot, and several small businesses are located) in February 2002. As part of this ESA, an Environmental Data Resources, Inc. (EDR) Radius Map database search report was conducted to check government databases for records of any reported environmental hazards within a one-mile radius of the Maui Business Park Phase II site. The area covered in the search of available environmental records includes all of the Maui Business Park. This one-mile radius area covered all of the South Project Area and the majority of the North Project Area, including the Central Power Plant in the North Project Area. There are no EDR report did not find records of any spills, dumping, or other evidence of hazardous, regulated, or toxic substances within the area covered by the report: the one-mile radius area, which includes the Central Power Plant area. The report covering the search of available environmental records meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E1527-00.

The Central Power Plant site, which comprises a portion of the North Project Area has been the subject of prior environmental surveys commissioned by Alexander & Baldwin, Inc. Most recently, in 2001, a hazardous materials survey of the area was undertaken. The survey of the former power generating facility included the following findings. A sampling of building materials from wall, floor covering and roofing materials was undertaken and a portion of the samples were found to contain asbestos-containing material. This included mastic associated with floor tiles, a sink and roofing. These materials were found to be in good condition and non-friable. A portion of the paint samples taken from interior and exterior painted surfaces were found to contain lead equal to or above the EPA/HUD standard. Electrical equipment associated with the former generating facility has been substantially removed from the site. At the time of the 2001 survey, remnants included two small transformers, cable functions, cable terminals, cable and a piece of switching equipment. Results from samples collected from a portion of this equipment indicated that insulating material or potting compound contained polychlorinated biphenyls (PCBs). PCB-containing equipment identified in the report has been removed, with the exception of some cable that is embedded in the concrete floor. Environmental impacts from past use of the central power plant site are possible, and further surveying and testing of the site is anticipated. Any environmental

ALPHONSO ARAKAWA
Mayor
OLBERT S. COLONIA-AGUIRRE
Deputy Mayor
LAILTON M. ARAKAWA, A.I.C.P.
Deputy Director
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COUNTY OF MAUI
**DEPARTMENT OF PUBLIC WORKS
AND ENVIRONMENTAL MANAGEMENT**
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96783

RALPH MADARJE, L.S., P.E.
Development Services Administration
TRACY TANJUNNE, P.E.
Wastewater Reclamation Division
Engineering Division
BRIAN HANSHIRO, P.E.
Highways Division
Solid Waste Division

October 21, 2004

Mr. Tom Schnell, AICP
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

Mr. Dan Yasui
A&B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Dear Messrs. Schnell and Yasui:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT
MAUI BUSINESS PARK PHASE II
TMK: (2) 3-8-001:002 (POR), (2) 3-8-006:004 (POR),
(2) 3-8-078:013
C/Z 2004/0011

We reviewed the subject Draft Environmental Impact Statement (EIS) and have the following comments:

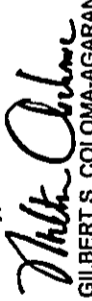
1. Section 1.22, Page 8, Solid Waste addresses recycling/disposal issues. Submit job-site recycling plan for review and approval.
2. Although wastewater system capacity is currently available as of September 8, 2004, the developer should be informed that wastewater system capacity cannot be ensured until the issuance of the building permit.
3. Wastewater contribution calculations are required before building permit is issued.
4. Developer shall pay assessment fees for treatment plant expansion costs in accordance with ordinance setting forth such fees.
5. Developer is required to fund any necessary off-site improvements to collection system and wastewater pump stations.

Mr. Tom Schnell, AICP
Mr. Dan Yasui
October 21, 2004
Page 2

6. Plans should show the installation of a single service lateral and an advance riser for each lot.
7. Non-contact cooling water, condensate, etc. should not drain to the wastewater system.
8. Indicate on the plans the ownership of each easement (in favor of which party). Note: County will not accept sewer easements that traverse private property.
9. Kitchen facilities within the proposed project shall comply with pre-treatment requirements (including grease interceptors, sample boxes, screens, etc.).
10. A 30 foot radius shall be provided at the intersection of the proposed subdivision road/driveway and the adjoining subdivision roads and State roads.
11. A verification shall be provided by a Registered Civil Engineer that the grading and runoff water generated by the project will not have an adverse effect on the adjacent and downstream properties.
12. A detailed and final drainage report and a Best Management Practices Plan (BMP) shall be submitted with the grading plans for review and approval prior to issuance of grading permits. The drainage report shall include hydrologic and hydraulic calculations and the schemes for disposal of runoff waters. It must comply with the provisions of the "Rules and Design of Storm Drainage Facilities in the County of Maui" and must provide verification that the grading and runoff water generated by the project will not have an adverse effect on adjacent and downstream properties. The BMP plan shall show the location and details of structural and non-structural measures to control erosion and sedimentation to the maximum extent practicable.
13. A site plan and a sight distance report to determine required sight distance and available sight distance at existing and proposed street intersections shall be provided for our review and approval.

Mr. Tom Schnell, AICP
Mr. Dan Yasui
October 21, 2004
Page 3

If you have any questions regarding this letter, please call Milton Arakawa at
(808) 270-7845.

Sincerely,

GILBERT S. COLOMA-AGARAN
Director

GSCA:MA:da
xc: Land Use Commission, State of Hawaii
Office of Environmental Quality Control
Department of Planning
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LAND PLANNING
AND ENVIRONMENTAL
REGULATORY DIVISION

Wm. Heune Blumert, FASLA
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President, VP President

Yvonne Swaffin
President

James Leavelle, AICP
President

Harvey
President

Grant Alexander, AICP
Secretary

Tim Smedley, AICP
Director

Ronald T. Hill, ASLA
Assistant

Karen Hester, ASLA
Assistant

David
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Assistant

October 26, 2004

Mr. Gilbert S. Coloma-Agaran, Director
Department of Public Works and Environmental Management
County of Maui
250 South High Street
Wailuku, Hawaii 96793

SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13

Dear Mr. Coloma-Agaran:

Thank you for your letter dated October 21, 2004, regarding the Maui Business Park Phase II
Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant,
A&B Properties, Inc., we are responding to your comments in the order noted in your letter.

1. A job-site recycling plan will be submitted for your review and approval at the
appropriate time.
2. We acknowledge that wastewater capacity is available as of September 9, 2004, and that
the capacity cannot be ensured until the issuance of building permits.
3. A detailed sewer impact study evaluating the wastewater system requirements for Maui
Business Park Phase II will be prepared and submitted to the County for review, prior to
commencing engineering design. This study will include wastewater contribution
calculations.
4. A&B Properties, Inc. will pay applicable assessment fees for treatment plant expansion
costs, in accordance with all applicable County laws.
5. A&B Properties, Inc., in consultation with the Department, will determine and fund
applicable off-site improvements to collection system and wastewater pump stations.
6. While detailed plans have not yet been prepared, when prepared, the plans will show the
installation of a single service lateral and advanced riser for each lot.
7. Measures will be undertaken to ensure that non-contact cooling water and condensate
does not drain to the wastewater system.
8. When detailed plans are prepared, the ownership of easements (if any) will be indicated.
We acknowledge that the County will not accept sewer easements that transverse private
property.
9. Kitchen facilities within Maui Business Park Phase II will comply with pre-treatment
requirements, including the installing grease interceptors, sample boxes, and screens as
appropriate.
10. All roads and intersections within Maui Business Park Phase II and all roads and
intersections adjoining State roads will be designed in accordance with Chapter 18.16

Mr. Gilbert S. Coloma-Agarrin, Director
SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13
October 26, 2004
Page 2

(Design Standards) of the Maui County Code (MCC), and all applicable State Highway standards.

11. Maui Business Park Phase II will be designed and constructed in compliance with Chapter 20.08 (Soil and Sedimentation Control), MCC, and all applicable Federal and State regulations and rules regarding grading, drainage, erosion control, and non point source pollution. Civil design will be undertaken by a Registered Civil Engineer to insure that the grading and runoff water generated by Maui Business Park Phase II will not have an adverse effect on adjacent and downstream properties.
12. A preliminary drainage plan has been prepared for Maui Business Park Phase II and is included in the Final Environmental Impact Statement (FEIS). A more detailed drainage master plan for the site and the region will be prepared and submitted to the County before beginning engineering design. A Best Management Practices (BMP) Plan will be submitted with the grading plans. The final drainage plan will include hydrologic and hydraulic calculations and schemes for disposal of runoff water. The plan will comply with the provisions of the "Rules and Design of Storm Drainage Facilities in the County of Maui" will provide verification that the grading and runoff water generated will not have an adverse effect on adjacent and downstream properties. The BMP plan will show the location and details of structural and non-structural measures to control erosion and sedimentation to the maximum extent possible.
13. A site plan and sight distance report to determine required sight distance and available sight distance at existing and proposed street intersections will be provided for the Department's review.

Thank you for reviewing the DEIS. Your comments will be included in the final EIS.

Sincerely,

PBR HAWAII



Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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ALAN M. ARAKAWA
Mayor



GLENN T. CORREA
Director
JOYIN L. BUCK III
Deputy Director
(808) 270-7230
Fax (808) 270-7934

DEPARTMENT OF PARKS & RECREATION

700 Hale's Nakoa Street, Unit 2, Wailuku, Hawaii 96793

September 14, 2004

Mr. Tom Schnell, AICP
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

SUBJECT: MAUI BUSINESS PARK PHASE II

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement for the Maui Business Park Phase II.

At this time, we have no comments to submit. Should you have any questions, please feel free to contact me or Mr. Patrick Matsui, Chief of Parks Planning and Development, at (808)270-7387.

Sincerely,



GLENN T. CORREA
Director

c: Mr. Patrick Matsui, Parks Planning & Development
Mr. Dan Yasui, A&B Properties, Inc.
Mr. Anthony Ching, State Land Use Commission
Office of Environmental Quality Control
Mr. Clayton Yoshida, Department of Planning



POLICE DEPARTMENT
COUNTY OF MAUI

THOMAS M. PHILLIPS
CHIEF OF POLICE
KEKUAUPIO R. AKANA
DEPUTY CHIEF OF POLICE

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(808) 244-6400
FAX (808) 244-6411

October 6, 2004



ALAN M. ARAKAWA
MAYOR

OUR REFERENCE
YOUR REFERENCE

October 26, 2004

Mr. Glen T. Correa, Director
County of Maui, Department of Parks and Recreation
700 Halia Nakoa Street, Unit 2
Wailuku, Hawaii 96793

**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13**

Dear Mr. Correa:

Thank you for your letter dated September 14, 2004 regarding the Draft Environmental Impact Statement (DEIS) for Maui Business Park Phase II. As the planning consultant for the applicant, A&B Properties, Inc., we note you have no comments to submit at this time.

Thank you for reviewing the DEIS. Your comments will be included in the Final Environmental Impact Statement.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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LAND PLANNING
UNIVERSITY OF HAWAII
ENVIRONMENTAL STUDIES

4. THOMAS BRADY, HASTLA
Consultant

THOMAS S. WATSON, ASLA
PLANNING

L. STAN DINGKAR, ASLA
SITING AND PLANNING

RODOLFO J. ORLANDO, ASLA
PLANNING AND DESIGN

YOSHINOBU SUZUKI
PLANNING

THOMAS J. LARSON, AICP
PLANNING

JAMES H. HARRIS, AICP
PLANNING

THOMAS T. HILL, ASLA
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DAVID M. HARRIS, ASLA
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DAVID M. HARRIS, ASLA
PLANNING

copy

TO : THOMAS PHILLIPS, CHIEF OF POLICE, COUNTY OF MAUI
VIA : GEORGE FONTAINE, CAPTAIN, WAILUKU PATROL. *15/06/04*
FROM : MITCHELL PELLAZAR, SERGEANT, WAILUKU PATROL
SUBJECT : MAUI BUSINESS PARK PHASE II
TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13

This To-From is being submitted that in pursuant to the directive from the County Department of Public Works and Environmental Management (DPWEM) dated July 24, 2004 concerning traffic impact analysis reports, I met with representatives of Alexander & Baldwin Properties and PBR Hawaii in regards to the above-mentioned project. Several topics were covered and discussed. Below is considerations that should be addressed:

NORTH PROJECT AREA:

The North Project Area is roughly 38 acres in size and situated between Hana Highway(36) and Haleakala Highway Extension. There are two proposed access points into the North Project area, both of which are located off of Haleakala Highway extension. As discussed in the meeting, improvements and roadway widening are planned for Haleakala Highway extension as part of the North Project area. In addition to the roadway widening to Haleakala Highway, the roadways within the North Project area should also be widened to accommodate the larger fire trucks that are now stationed at the Kahului Fire Station. This roadway widening should also apply to the turning radius of the intersections within the North Project area.

A third access point was also discussed on Hana Highway which would be a "Right-turn IN" and "Right-Turn OUT" from the project site. I am opposed to an exit point onto Hana Highway from the North Project area as this would cause some vehicles to attempt to get into the Left-turn pocket on Hana Highway onto Dairy Road. The limited distance from the proposed third access point to Dairy Road would cause additional traffic tie-ups with vehicles trying to navigate three to four lanes to get into the Left-turn pocket lanes.

I would be more in favor of a "Right-turn IN" only from Hana Highway into the North Project area. This would allow vehicles to access the North Project area from the South Project using the Hookele Street extension to Hana Highway.

SOUTH PROJECT AREA:

As mentioned in the North Project area, the South Project area roadways and intersection radius should also be wide enough to accommodate the larger fire trucks

stationed at the Kahului Fire Station. On street parking should also be prohibited at both the North Project and South Project areas.

As discussed in the meeting signalized traffic intersections should be limited on Hookele itself. This would make the use of Hookele Street more practical and appealing than using Dairy Road.

At present I do not think the Hookele Street extension would be used much by vehicles traveling between the Upcountry area to Kihel and vice versa as much of this traffic already use Hansen Road to avoid Dairy Road. It was mentioned to me during the meeting, that eventually Hansen Road would be closed between Pulehu Road and Mokuiele Highway with the land going back to HC&S. No projected date was given for this road closure by A&B or PBR representatives.

Also discussed was the Left-turn pocket on Mokuiele Highway to make a left-turn onto Kihelani Highway and the limited distance from the Hookele Street intersection to the Kihelani Highway intersection and the probability of vehicles making a left-turn onto Kihelani Highway filling up the left-turn pocket and thus blocking traffic on Mokuiele Highway that is going straight ahead. Roadway improvements call for the addition of an additional left-turn lane from Mokuiele Highway onto Kihelani Highway.

Currently installed is a synchronized traffic light system along Puunene Avenue from Hookele Street down to Kaahumanu Avenue and on Dairy Road from Alamaha Street to Haleakala Highway extension. At present, this synchronized light system is not being utilized, due to pending approval with the State Highways Division.

PROPOSED AIRPORT ACCESS ROAD:

At this time A&B properties and PBR Hawaii representatives are unsure as to the status of the Proposed Airport Access Road. They have calculated a possible access point onto Hana Highway through the South Project area and across towards the North Project area, however they have not word yet as to a possible start/completion date

CONCERN WITH THESE CONCERNS ARE NOTED. No info July 10/04

Sgt. Pellazar
Sgt. Mitchell Pellazar E-8468
Wailuku Patrol - Administrative Sergeant
10/05/04 - 1550 hours

Submitted for your perusal.



LAND PLANNING
CONSULTANTS
ARCHITECTURE
AND ENVIRONMENTAL STUDIOS

A. FRANK BIZARDI, FASLA
City Planner

DAVID S. WITTMAN, ASLA
Planner

R. SHAW DWYER, ASLA
Director of Planning

DAVID J. CHENG, ASLA
Director of Planning

V. JAY SHARKEY
Planner

LESLIE LUKAHEI, AICP
Planner

DAVID M. MURPHY, AICP
Planner

THOMAS M. PHILLIPS, AICP
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LEWIS T. HIGGINS, ASLA
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KEVIN NICHOLS, AIA
Architect

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October 26, 2004

Mr. Thomas M. Phillips, Chief of Police
Police Department
County of Maui
55 Mahalani Street
Wailuku, Hawaii 96793

**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13**

Dear Chief Phillips:

Thank you for your letter dated October 6, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

As noted in the memo from Officer Mitchell Pellazar attached to your letter, Officer Pellazar met with representatives from A&B Properties, Inc. and PBR Hawaii, in regard to the Maui Business Park Phase II project. The project traffic consultant, Phillip Rowell of Phillip Rowell & Associates, was also present. The meeting took place on September 27, 2004, and was held in compliance with the directive from the County Department of Public Works and Environmental Management (DPWEM) dated July 26, 2004, requesting project traffic consultants to meet with the Maui Police Department.

We understand and concur with Officer Pellazar's concern regarding the need for access by the larger fire trucks, now stationed at the Kalahehi Fire Station. A&B Properties, Inc. will comply with all applicable Maui County roadway design standards in the development of Maui Business Park Phase II. To the extent that additional provisions are necessary to insure access by these fire trucks and other emergency vehicles, A&B Properties, Inc. is prepared to work with the County to examine other solutions, including wider paved roads and parking restrictions. We believe that these alternatives should be examined, prior to any outright restriction of all on-street parking, within Maui Business Park Phase II.

We acknowledge Officer Pellazar's concern regarding access from the North Project Area onto Hana Highway and potential traffic backup from vehicles southbound on Dairy Road. Traffic volumes and turning movements can be monitored, such that appropriate mitigation measures are implemented. Please also note that any access from the North Project Area onto Hana Highway will be subject to the approval of the State Department of Transportation.

We understand and appreciate the suggestion to limit traffic signals at intersections along Ho'okele Street within the project area to facilitate through traffic between the Upcountry

Mr. Thomas M. Phillips, Chief of Police
**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL IMPACT
STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4 (PORTION), 3-8-79:13**
October 26, 2004
Page 2

area and Kihikihi. We expect to work with the County concerning the design of these intersections and measures, to facilitate vehicular movement.

Regarding the use of the extended Ho'okele Street versus Hansen Road by vehicles traveling between Upcountry and Kihikihi and vice versa, we believe that Ho'okele Street, when extended to Hana Highway, will provide a convenient alternative to Hansen Road, because it will be better designed and will provide a more direct route. The extended Ho'okele Street will also provide another alternative to Dairy Road and will increase travel options in cases of emergency or road closure.

We wish to clarify our discussion concerning potential modifications to the County's Hansen Road. At the meeting, we indicated that we were aware of a proposal by the State of Hawaii to realign a portion of Hansen Road between Pulehu Road and Hana Highway. The proposed realignment of Hansen Road would result in a more perpendicular intersection with Hana Highway. The proposed realignment would be on land owned by Alexander & Baldwin, Inc.. If implemented as planned, the unused/former portion of Hansen Road would then be abandoned. In summary, we are not aware of any plans to close Hansen Road between Hana Highway and Mokulele Highway.

We appreciate the opportunity to meet with Officer Pellazar. In addition, thank you for reviewing the DEIS. Your comments will be included in the Final Environmental Impact Statement.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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ALANI M. ARAKAWA
Mayor



GEORGE Y. TENGAN
Director
JEFFREY T. PEARSON, P.E.
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 South High Street
WAILUKU, MAUI, HAWAII 96793-2155
Telephone (808) 270-7810 • Fax (808) 270-7833
www.mtsuhawaii.org

September 14, 2004

Mr. Don Yasui
A & B Properties, Inc.
822, Bishop Street
Honolulu, Hawaii 96813

Mr. Tom Schneitl
PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, HI 96813

Subject: Environmental Impact Statement and Change in Zoning for Maui Business Park Phase II

Dear Mr. Yasui and Mr. Schneitl,

Thank you for the opportunity to provide comments on the preparation of this Environmental Impact Statement (EIS). This letter also serves as our comments to the changes in zoning application for this project.

Source Availability and Consumption
Using system standards, the estimated use for the project would be in the range of 0.828 MGD - 1.074 MGD. The EIS does not state acreage of County Zoning designations of the project properties. However, water use per system standards are higher for light industrial use compared to agricultural and residential zoning, and equal to heavy industrial zoning. The applicant proposes to participate in the funding and construction of adequate water source, storage and transmission facilities to accommodate demand for this project.

As we stated in our July 22, 2004 comment letter included in the EIS, the Waiala Reservoir area is not an appropriate raw storage location for potable supply due to potential pollution from urban and agricultural sources in the area. We recommend that the applicant participate in storage at a more appropriate location upstream, possibly by lease or purchase of land, as well as enclosed transmission.

Pollution Prevention
We note that the applicant proposes to implement best management practices designed to minimize infiltration and runoff from daily operations. Although the project site overflows a portion of the Kahului aquifer below the underground injection control line, all aquifers may be needed for potable purposes in the future and should be protected to the extent possible.

Conservation
We note that conservation measures have been included in the EIS, including low-flow fixtures and not allowing single pass cooling as required by County Code, leak prevention maintenance, climate-adapted plants. We also note that the applicant will evaluate the feasibility of developing a non-potable water

ALANI M. ARAKAWA
Mayor

GEORGE Y. TENGAN
Director
JEFFREY T. PEARSON, P.E.
Deputy Director

system for irrigation. Using untreated surface water from adjacent sugarcane fields or brackish well water would have a significant impact on potable demand.

Should you have any questions, please contact our Water Resources and Planning Division at (808) 270-7199.

Sincerely,

George Y. Tengan
Director

cc: Clayton Yoshida, Department of Planning
Anthony Chang, State Land Use Commission
Office of Environmental Quality Control
DWS Engineering Division

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By Water-Saving Things Find Life



LANE PLUMBING
MECHANICAL
ELECTRICAL

4. FRANK BIRNBAUM, PASLA
CRUISELY

DAVID S. WITTEK, ASLA
PULMONO

2. SHARINWEAK, ASLA
SARIN WEAK PROPERTY

SHARILY CHAN, ASLA
SARIN WEAK PROPERTY

VINCENT SWEATIN
PAPA PE

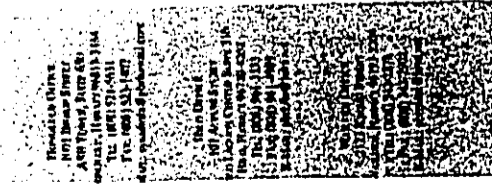
JANA LERHARD, AKT
PACIFIC
HAWAII

TAMARA MORGAN, AKT
SARIN WEAK

TAMARA MORGAN, AKT
SARIN WEAK

DAVID M. T. HALL, ASLA
ATC/STP

KATE NORMAN, ASLA
TOPKIN



October 26, 2004

Mr. George Y. Tengam, Director
County of Maui, Department of Water Supply
200 South High Street
Wailuku, Maui, Hawaii 96793-2155

**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13**

Dear Mr. Tengam:

Thank you for your letter dated September 14, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we are responding to your comments.

Source Availability and Consumption. We acknowledge that the Department of Water Supply (DWS) estimates that water use for Maui Business Park Phase II would be in the range of 0.828 MGD - 1.074MGD. This is stated in the DEIS.

While the DEIS does not state the acreage of current County Zoning designations for the property, please note that A&B Properties, Inc. is requesting a Change in Zoning to the M-1 Light Industrial district for the entire 179-acre Maui Business Park Phase II site.

A&B Properties, Inc. will coordinate with DWS to determine appropriate locations for water source development and storage. We note your comment that the Waiale Reservoir area is not an appropriate raw storage location for potable water supply and that A&B Properties, Inc. participate in storage at a more appropriate location upstream, as well as enclosed transmission.

Pollution Prevention. In implementing best management practices to minimize infiltration and runoff, A&B Properties, Inc. will comply with all laws, regulations, and rules regarding protecting groundwater resources.

Conservation. As noted in the DEIS, A&B Properties, Inc. will implement water conservation measures within Maui Business Park Phase II, including evaluating the feasibility of developing a non-potable water system for landscape irrigation.

Thank you for reviewing the DEIS. Your comments will be included in the Final Environmental Impact Statement.

Sincerely,

PBR HAWAII

Tom Schnell, AICT
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

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Verizon Hawaii, Inc.
P.O. Box 2209
Honolulu, HI 96811

October 5, 2004

PBR Hawaii
101 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

ATTN: Mr. Tom Schnell

**SUBJECT: Maui Business Park Phase II
DRAFT ENVIRONMENTAL ASSESSMENT**

Dear Mr. Schnell:

Thank you for providing Verizon Hawaii Incorporated, the opportunity to comment on the Draft Environmental Assessment for the Maui Business Park Phase II, Kahului, Maui.

Verizon Hawaii's telephone feeder route leading to this area is congested and will not be able to serve the project area. In order to provide telecommunication services to this project, an easement area of 30'X20' will be required for Verizon Hawaii. A pair gain installed within the easement, energized by an existing fiber cable extended from Daitly Road will serve the area.

If there are any questions, please call Sheri Thada at (808) 242-5258 or Jerry Ima at (808) 242-5110.

Sincerely,

Lynette Yoshida
Section Manager -
Network Engineering & Planning

C: File (3030-KLUJ)
S. Thada



LAND PLANNING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL SERVICES

WILLIAM BRUNNEN, PASLA
Consultant

THOMAS S. WITTMAN, ASLA
Principal

R. SUELL DUNCAN, ASLA
Principal

RUSSELL Y. CHANG, ASLA
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VICTOR SHERIDAN
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Principal

Principal

DAVID MORGAN, AICP
Principal

TOM SCHNELL, AICP
Associate

ROBERT T. HENNING, ASLA
Associate

KAREN MORGAN, ASLA
Associate

Principal

Principal

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Principal

October 26, 2004

Ms. Lynette Yoshida, Section Manager
Network Engineering and Planning
Verizon Hawaii, Inc.
P.O. Box 2200
Honolulu, Hawaii 96841

**SUBJECT: MAUI BUSINESS PARK PHASE II DRAFT ENVIRONMENTAL
IMPACT STATEMENT, TMK: 3-8-01:2 (PORTION), 3-8-06:4
(PORTION), 3-8-79:13**

Dear Ms. Yoshida:

Thank you for your letter dated October 5, 2004, regarding the Maui Business Park Phase II Draft Environmental Impact Statement (DEIS). As the planning consultant for the applicant, A&B Properties, Inc., we your responding to your comments.

We understand that Verizon Hawaii is requesting an easement area of 30' x 20' to provide telecommunication services to the Maui Business Park Phase II area. A pair gain installed within the easement, energized by an existing fiber cable extended from Dairy Road, will serve the area. A&B Properties, Inc. will coordinate with Verizon to ensure telecommunication services are provided to Maui Business Park Phase II.

Thank you for reviewing the DEIS. Your comments will be included in the Final Environmental Impact Statement.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

cc: Mr. Anthony Ching, State Land Use Commission
Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Clayton Yoshida, County of Maui Planning Department
Mr. Dan Yasui, A&B Properties, Inc.

A **LAND USE COMMISSION FINDINGS OF FACT,
CONCLUSIONS OF LAW, AND DECISION
AND ORDER, DOCKET NO. A03-739**

BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

In The Matter Of The Petition Of)
)
A&B PROPERTIES, INC., A Hawai'i) DOCKET NO. A03-739
Corporation)
)
) FINDINGS OF FACT,
) CONCLUSIONS OF LAW, AND
) DECISION AND ORDER
)
To Amend The Agricultural Land Use District)
Boundary Into The Urban Land Use District)
For Approximately 138.158 Acres Of Land At)
Kahului, Maui, Hawai'i, Tax Map Key Nos:)
3-8-01: Por. 2, 3-8-06: Por. 4, And 3-8-79: Por. 13)

BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

In The Matter Of The Petition Of) DOCKET NO. A03-739
)
A&B PROPERTIES, INC., A Hawai'i)
Corporation)
) FINDINGS OF FACT,
) CONCLUSIONS OF LAW, AND
) DECISION AND ORDER
)
To Amend The Agricultural Land Use District)
Boundary Into The Urban Land Use District)
For Approximately 138.158 Acres Of Land At)
Kahului, Maui, Hawai'i, Tax Map Key Nos:)
3-8-01: Por. 2, 3-8-06: Por. 4, And 3-8-79: Por. 13)

FINDINGS OF FACT, CONCLUSIONS OF LAW,
AND DECISION AND ORDER

This is in conformity with the rules of this court and
a copy of the same has been filed in the office of the
Kauai Land Use Commission. Witness my hand
MAR 25 2003
Catherine J. Kelly
Clerk

FINDINGS OF FACT, CONCLUSIONS OF LAW,
AND DECISION AND ORDER

A&B PROPERTIES, INC., a Hawai'i corporation ("Petitioner"), filed a
Petition For District Boundary Amendment ("Petition") on May 30, 2003, pursuant to
chapter 205, Hawai'i Revised Statutes ("HRS"), and chapter 15-15, Hawai'i
Administrative Rules ("HAR"), to amend the State land use district boundary to
reclassify approximately 138.158 acres of land at Kahului, Maui, Hawai'i identified as:
1) Tax Map Key Nos: 3-8-01: 2 (portion) and 3-8-06: 4 (portion), consisting of 105.822
acres ("Petition Area A"), and 2) Tax Map Key No: 3-8-79: 13 (portion), consisting of
32.336 acres ("Petition Area B") (collectively "Property" or "Petition Area"), from the

State Land Use Agricultural District to the State Land Use Urban District for a light industrial complex ("Project" or "Maui Business Park Phase II").

The Land Use Commission of the State of Hawai'i ("Commission"),

having heard and examined the testimony, evidence and arguments of counsel

presented during the hearing; the proposed findings of fact, conclusions of law, and

decision and order filed by Petitioner; the responses of the State Office of Planning

("OP") and the County of Maui ("County"); and the subsequent partial stipulation

among the parties, hereby makes the following findings of fact, conclusions of law, and

decision and order:

FINDINGS OF FACT

PROCEDURAL MATTERS

1. On May 30, 2003, Petitioner filed the Petition.
2. On July 1, 2003, Petitioner filed the First Amended Affidavit Of Service Of Petition For Land Use District Boundary Amendment And Certificate Of Service.
3. On July 1, 2003, Petitioner filed the First Amended Affidavit Of Sending Of Notification Of Petition Filing And Certificate Of Service.
4. On July 1, 2003, Petitioner filed the Certificate Of Service Of Petition For District Boundary Amendment Upon Maui Pineapple Company, Ltd.

5. By letter dated July 3, 2003, the Executive Officer of the

Commission deemed the Petition a proper filing as of July 1, 2003.

6. On July 25, 2003, OP filed the Statement Of Position Of The Office Of Planning In Support Of The Petition.

7. On July 29, 2003, Petitioner filed an Errata To The Petition For District Boundary Amendment Filed May 30, 2003 (Accepted For Processing On July 1, 2003).

8. On August 25, 2003, the Commission received a written request from Daniel Grantham of the Maui Sierra Club to register a speaker from the Maui Sierra Club at the Commission's hearing on the Petition.

9. On August 28, 2003, a prehearing conference was conducted in Conference Room 405 of the Leiopapa A Kamehameha Building, 235 South Beretania Street, 4th Floor, in Honolulu, Hawai'i, with representatives of Petitioner, OP, and County.

10. On September 4, 2003, the Commission considered the Petition at its meeting in Wailea, Maui, Hawai'i. Entering appearances were Benjamin M. Matsubara, Esq., Daniel Yasui, and Rick Slack for Petitioner; Jane E. Lovell, Esq., and Clayton Yoshida for the County; and John W.K. Chang, Esq., Abe Mitsuda, and Mary Alice Evans for OP.

DESCRIPTION OF PETITION AREA

11. The following individuals provided public testimony: Daniel Grantham, Rob Parsons, Herb Squires, and Ralph Johansen.
12. Following the public testimony, the Commission conducted a hearing on the Petition pursuant to a public notice published on August 1, 2003, in the Honolulu Star-Bulletin and Maui News.
 13. On September 5, 2003, the Commission continued the hearing on the Petition, and Sally Raisbeck provided public testimony.
 14. On September 18, 2003, the Commission continued the hearing on the Petition, and the following individuals provided public testimony: Steven Bronstein, Richard Mayer, Craig Henderson, Daniel Grantham, Lance Holter, Sally Raisbeck, Sean Lester, and Lucienne deNate.
 15. On September 19, 2003, the Commission continued the hearing on the Petition, at which time it entered into the record a letter from Isaac Davis Hall, Esq. The hearing on the Petition was closed on September 19, 2003.
 16. On December 5, 2003, the Commission met in Honolulu, Hawaii, to consider the Petition. At the meeting, Jeff Mikulina provided public testimony. The Commission subsequently deferred action on the Petition.

17. The Petition Area is located in Kahului, Maui, Hawaii consisting of approximately 138.158 acres, and is identified by: Tax Map Key Nos: 3-8-06: 4 (portion), 3-8-01: 2 (portion), and 3-8-79:13 (portion).
18. Petition Area A is bound to the west by Pu'unene Avenue; to the north by Maui Business Park Phase IB, a large retention basin area, and the State-owned right-of-way for the proposed Kahului Airport Access Road; to the northeast by Hana Highway; and to the southeast and the south by canefields.
19. Petition Area B is bound to the west by Hana Highway; to the northwest by the parcels owned by K-Mart and Costco; to the north by Haleakala Highway; and to the south and southeast by the State-owned right-of-way for the proposed Kahului Airport Access Road.
20. The Department of Transportation of the State of Hawaii ("DOT") has stated its intent to reserve lands south of Hana Highway in Petition Area A to accommodate future expansion of Kahului Airport operations, including a possible runway extension to allow greater capacity and safety.
21. Under one of the DOT's planning options, the primary runway at Kahului Airport would be extended to 9,600 feet.
22. The DOT is also evaluating alternative runway extension lengths including 9,200 feet and 8,500 feet.

23. To accomplish the 9,600 feet extension, the DOT would need to acquire approximately four acres of land in fee simple for approach lights and navigation aids and establish a runway protection zone over an area of approximately 45 acres, a portion of which is located within Petition Area A, in accordance with Federal Aviation Administration ("FAA") rules and regulations. An aviation easement is federally mandated. The FAA requires that the airport owner either own the runway protection zone or have it under its control. The aviation easement also pertains to the right of flight and impacts associated with the flight such as noise and vibration and occasionally some fumes.

24. The runway protection zone contains a portion in the center, which is called the object-free extension area where there should be limited land use (i.e., no obstructions penetrating upwards or permanent structures).

25. The runway protection zone may contain more uses than the object-free extension area, but the runway protection zone may not contain facilities where there is public assembly. Warehouses, parking, and light industrial uses are permitted within the runway protection zone. Petitioner must submit FAA Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA's Hawaii District Office, for their review and approval of proposed structures. The FAA conducts an air space evaluation to ensure that there are no obstructions to air travel.

26. The Kahului Airport Expansion may be constructed and completed within the next five years assuming decisions on the runway length are made. The most immediate requirement is terminal improvements in light of the new security requirements, post 9/11. Then there are near term projects specifically for cargo apron, alien species inspection, additional fuel storage, and lease lots. Certainly proceeding with the expansion project is a function of getting discretionary FAA money grants.

27. Currently, the Petition Area is predominantly sugarcane fields or fallow fields.

28. Fee simple ownership of the Petition Area is vested in Alexander & Baldwin, Inc. ("A&B"), whose principal place of business is 822 Bishop Street, Honolulu, Hawaii, 96813.

29. A&B has authorized Petitioner to submit the Petition and to develop the Petition Area as set forth in its written authorization dated May 27, 2003.

30. The U.S.D.A. Soil Conservation Service's *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai* (1972) classifies the soils of the Petition Area. Petition Area A consists of Ewa Silty Clay Loam (EaA), Waiakoa Very Stony Silty Clay Loam (WgB), and Moloka'i Silty Clay Loam (MuB). Petition Area B consists of Ewa Silty Clay Loam (EaA), Moloka'i Silty Clay Loam (MuA), Moloka'i Silty Clay Loam (MuB), and Jaucas Sand, Saline (JcC). The Soil Conservation Service's Land Capability Grouping rates soil types according to eight levels, ranging from the highest

classification level, I, to the lowest level, VIII. With irrigation, the majority of the soils on the Petition Area are considered Class I, which consists of soils that have few limitations that restrict their use. Without irrigation, these soils are considered IVC Class IV soils have very severe limitations that reduce the choice of plants, require very careful management practices, or both.

31. The University of Hawai'i Land Study Bureau's Detailed Land Classification - *Island of Maui*, classifies the Petition Area lands as both "A" and "E". This classification is based on a five-class productivity rating using the letters A, B, C, D and E, with "A" representing the highest class of productivity and "E" the lowest. Most of the Petition Area lands are classified as "A" with irrigation, and all of the Petition Area lands are classified as "E" without irrigation.

32. The Agricultural Lands of Importance to the State of Hawai'i (ALISH) system classifies the majority of the Petition Area as "Prime Agricultural Land". A small portion of Petition Area A is classified as either "Other Important Agricultural Land" or "Not Classified".

33. The elevation of the Petition Area ranges from 15 to 50 feet above sea level.

34. Slopes are approximately 0.30 to 1.70 percent in the Petition Area.

35. Annual rainfall normally amounts to approximately 20 inches in the Petition Area.

36. Normal temperatures in the Petition Area range from 79.2° F in August to 71.5° F in January. The annual average temperature is 75.5° F.

37. The Petition Area is within areas of minimal flooding in the Federal Flood Insurance Rate maps.

PROPOSAL FOR RECLASSIFICATION

38. Maui Business Park Phase II will provide approximately 179 acres of light industrial space in Maui's central commercial and business district in proximity to the island's primary airport and harbor. Maui Business Park Phase II encompasses the Petition Area and includes an additional approximately 33,561 acres of land that were part of the incremental reclassification to the Urban District under LUC Docket No. A88-634 (the total incremental acreage involved approximately 52,695 acres) and approximately 7,281 acres of land that were already designated within the Urban District. Maui Business Park Phase II is divided into a North Project Area (approximately 38,217 acres) and a South Project Area (approximately 140,783 acres).

39. The South Project Area, which includes Petition Area A, will provide an estimated 75 lots, with lot sizes ranging from approximately 0.3 acres to 12 acres. The North Project Area, which includes Petition Area B, will provide an estimated 22 lots, with lot sizes ranging from approximately 0.3 acres to 3 acres.

Petitioner intends to file a separate motion to reclassify the 33,561-acre portion of the incremental acreage pursuant to section 15-15-78, HAR. Petitioner does not intend to reclassify the remaining approximately 19,124 acres of the increment, which will remain within the Agricultural District to serve as a drainage basin to accommodate stormwater discharge.

40. Estimated sales prices for lots range from \$460,000 to \$1,280,000 for lots 20,000 square feet ("SF") to 40,000 SF, \$920,000 to \$1,920,000 for lots 40,000 SF to 60,000 SF, and \$1,380,000 to \$2,560,000 for lots 60,000 SF to 80,000 SF plus.

41. Petitioner will extend Ho'okele Street to Hana Highway during the first increment of Maui Business Park Phase II construction.

42. The Project will not include any residential units. However, the Project may generate the need for affordable housing for employees of the Project. Petitioner previously dedicated lands to the County to address the affordable housing needs created by the development of Maui Business Park Phase I. Petitioner will have a study prepared to evaluate whether any additional housing needs are generated by employees of the Project. To the extent that the Project generates the need for affordable housing for employees of the Project, Petitioner will comply with all State and County laws and rules regarding the provision of such affordable housing.

43. It is estimated that the Project will bring approximately \$422 million in total direct development capital into Maui. Of that total amount, \$17.8 million is the estimated infrastructure costs and \$404.2 million is the estimated building construction costs.

44. Development and sales of Maui Business Park Phase II are projected to occur between 2005 and 2023. Before construction, permit processing is expected to take place between 2003 and 2005. Construction of the major infrastructure

is projected to occur between 2005 and 2013, which will result in the substantial completion of the Project.

PETITIONER'S FINANCIAL CAPABILITY TO UNDERTAKE THE PROPOSED DEVELOPMENT

45. Petitioner's financial statements as of December 31, 2002, reflect total assets of \$220,858,000, total liabilities of \$201,308,000, total shareholder's equity of \$19,550,000, and net income of \$8,407,000.

46. Petitioner intends to finance the development of the Project from internally generated funds.

STATE AND COUNTY PLANS AND PROGRAMS

47. The Petition Area is currently designated in the State Land Use Agricultural District, as reflected on the Commission's official maps, M-5 (Wailuku) and M-7 (Pa'ia).

48. The Wailuku-Kahului Community Plan (2002) designates the Petition Area as "Light Industrial".

49. The parcels on which Maui Business Park Phase II is located are currently zoned as follows: 1) Tax Map Key No. 3-8-01: 2 - Agricultural (portion), Interim (portion); 2) Tax Map Key No. 3-8-06: 4 - Agricultural (portion), Interim (portion), R-1 Residential (portion), M-2 Heavy Industrial (portion); and 3) Tax Map Key No. 3-8-79: 13 - Agricultural (portion), M-2 Heavy Industrial (portion).

50. The Project is not within the Special Management Area except for a portion of the North Project Area that contains Petition Area B.

NEED FOR THE PROPOSED DEVELOPMENT

51. The Hallstrom Group, Inc., prepared a report entitled "Market Study, Economic Impact Analysis, and Public Cost/Benefit Assessment of the Proposed Maui Business Park, Phase II" in April 2003. The demand for light industrial designated lands throughout Maui and in the Wailuku-Kahului study area is strong and indicative of a continuing modest sector up-cycle that is the product of the expanding island-wide economy, recovering real estate market, population/consumer growth, emerging entrepreneurship, low interest rates, the continued evolution from agrarian to urban land uses on Maui, and the wide spectrum of allowable uses permitted on light industrial zoned land.

52. It is forecasted that over the next two decades there will be demand for approximately 290 gross acres of additional light industrial lands beyond current levels (mid-point figure).

53. Currently, there are less than 10 acres of undeveloped lots in existing light industrial subdivisions and an estimated 20 acres of available (or proposed) competitive commercial sites. Recent industrial projects still in original sales have less than eight gross acres of lots remaining to be sold. Cumulatively, this available product represents one to three years of inventory.

54. Approximately 57 acres of further light industrial development is proposed in Central Maui, apart from the Project. Without further new industrial/commercial subdivision, the Central Maui business community will become significantly impaired before 2010.

55. It is projected that the Project will be fully absorbed within 12 to 18 years of being offered on the market.

SOCIO-ECONOMIC IMPACTS

56. During the 15-year building period of the Project, the number of worker/years created on- and off-site by the development will total 57,494 worker/years over the entire build-out timeframe, generating \$1.57 billion (2003 dollars) in total wages over the 15-year building period. Of this total, 2,418 worker/years (an annual average of 161.2 positions) are direct construction-oriented, 36,810 total (or 2,454 per year) are on-going business operating positions, and 16,427 are off-site worker requirements.

57. On a stabilized basis, after the completion of construction, the Project will generate approximately 7,801 permanent full-time employment positions, 5,522 directly related to on-site activities, and 2,280 indirect positions throughout the island. Annual wages on a stabilized basis are projected to be \$202.9 million (2003 dollars).

58. The Project is projected to have a net public benefit to the County of Maui during the 15-year building period in the amount of \$27,308,035 (2003 dollars), and an annual stabilized net public benefit to the County of Maui after the 15-year building period in the amount of \$3,002,375 (2003 dollars).

59. The Project is projected to have a net public benefit to the State of Hawai'i during the 15-year building period in the amount of \$388,803,849 (2003 dollars), and an annual stabilized net public benefit to the State of Hawai'i after the 15-year building period in the amount of \$51,382,071 (2003 dollars).

60. In no year during the 15-year building period or stabilized operating period does either the State of Hawai'i or the County of Maui suffer a revenue shortfall due to the Project.

61. The Project will enhance the social mobility and well-being of Maui's population by providing direct and indirect short and long-term employment opportunities for the present and future residents of Maui, by generating increased State and County tax revenues, and contributing to the stability, diversity, and growth of local and regional economies.

IMPACTS UPON RESOURCES OF THE AREA

Agricultural Resources

62. Hawaii Commercial & Sugar Company ("HC&S"), a division of A&B, is currently cultivating sugarcane on approximately 140 acres within Petition

Area A. HC&S is also growing an experimental crop of dryland taro on approximately five acres. HC&S has over 37,000 acres in sugarcane cultivation in Central Maui.

63. Since 1990, A&B has added approximately 2,100 acres of land into its sugarcane cultivation, and has withdrawn approximately 200 acres of land from its sugarcane cultivation for development purposes.

64. Since 1990, A&B has invested approximately \$120 million of capital into its sugarcane cultivation operations for the purpose of maintaining and sustaining its sugarcane cultivation operations as well as research and development relating to increasing yields of existing agricultural crops.

65. The Project is not expected to have any significant impact on agriculture on Maui or the State of Hawai'i based upon the reduction of sugarcane lands that would result from the Project in comparison to the total sugarcane acreage cultivated by HC&S. In addition, the large amount of acreage released from plantation agriculture on Maui and statewide since the late 1960s provides ample land for diversified agriculture.

Flora and Fauna

66. Char & Associates prepared a botanical survey for the Project dated January 2003. A total of 67 plant species were inventoried on the Project site. Of this total, 64 species were introduced or alien species. The only native species observed were the 'iima (*Sida fallax*), popolo (*Solanum americanum*), and 'uhaloa (*Waltheria indica*).

None of the plants inventoried on the Petition Area is a threatened and endangered species or a species of concern. The Project is not expected to have a significant negative impact on the botanical resources of the Petition Area or the general region.

67. Phillip L. Bruner, Environmental Consultant, prepared an avifaunal and feral mammal field survey for the Project dated May 2, 2003. No native seabirds were recorded during the survey nor were any expected at the Petition Area. No native land birds were found on the survey. The Hawaiian Owl, also known as the Short-eared Owl or Pueo (*Asio flammeus sandwichensis*), is the only native land bird that might occur in the Petition Area. Pueo are listed by the State of Hawai'i as endangered on O'ahu but not on Maui. All other native land birds on Maui would typically be found at much higher elevations. No native waterbirds were tallied on the survey. The absence of wetland habitat on the Petition Area limits the value of these lands for waterbirds. The only migratory shorebird found on the survey was the Pacific Golden-Plover (*Pluvialis fulva*). A total of 16 plover were counted over the course of the survey. The only other migratory shorebird that might utilize the same habitat as the plover is the Ruddy Turnstone (*Arenaria interpres*). None was recorded in the survey. Neither of these two migratory shorebirds is listed as threatened or endangered. A total of 13 species of introduced birds were tallied on the survey. None of these species is listed as threatened or endangered.

68. Two cats (*Felis catus*) and four Small Indian Mongoose (*Herpestes erpuncillatus*) were seen on the survey. No rats or mice were recorded but undoubtedly occur in the area. The endangered Hawaiian Hoary Bat (*Lasiurus cinereus semotis*) was not found despite extensive use of the Ultrasound Detector.

69. The Project will alter the existing habitats. This will result in a change in the kinds of birds and their relative abundance at the Petition Area.

70. Bird nesting or occupation in any drainage retention basins serving the Petition Area would become bird attractants and can become a safety hazard to aircraft operations.

71. The larvae of the endangered Blackburn's sphinx moth are sometimes found on tree tobacco plants, which were identified in the Petition Area during the botanical survey. To ensure that the Project does not adversely impact any Blackburn's sphinx moths that may be present on the tree tobacco shrubs, A&B submitted a plan of action to the U.S. Fish and Wildlife Service ("USFWS") detailing steps for the removal of the tobacco trees. The USFWS has reviewed this plan and indicated in writing that the USFWS agrees that the implementation of the measures proposed by A&B is unlikely to result in violations of section 9 of the Endangered Species Act.

Archaeological/Historical/Cultural Resources

72. Aki Sinoto of Aki Sinoto Consulting, the consulting archaeologist for the Project, contacted the Department of Land and Natural Resources, State Historic Preservation Division ("DLNR-SHPD"), regarding the Project. Based on past archaeological surveys of the Petition Area and the surrounding area and the historical use of the site for sugarcane cultivation, the DLNR-SHPD determined that the Petition Area is not likely to contain archaeological resources and that an additional archaeological survey of the Petition Area is not necessary. Petitioner will comply with all State of Hawai'i and County of Maui laws and rules regarding the preservation of archaeological and historic sites should any be found during construction.

73. Aki Sinoto Consulting prepared a cultural impact assessment for the Project dated May 2003. The cultural impact assessment follows the methodology and protocol as set forth by the Office of Environmental Quality Control's *Guidelines for Assessing Cultural Impacts* (November 19, 1997) in meeting section 343-2 (recently amended by Act 50), HRS.

74. Informant interviews were conducted for the assessment and included interviews of Mr. and Mrs. George and Mabel Ito and Mr. William Kanekoa.

75. Mr. and Mrs. George and Mabel Ito, ages 86 and 82, respectively, worked and lived on the plantations. Based on his interview with Mr. Ito, Mr. Sinoto found that new jobs were needed for the young people of Maui. Based on his interview

with Mrs. Ito, Mr. Sinoto found that the Project should be visually attractive for both the residents and visitors.

76. Mr. William Kanekoa also worked for the plantation, but he is knowledgeable about native Hawaiian medicinal plants. Based on his interview with Mr. Kanekoa, Mr. Sinoto found that there were no Hawaiian plants in the Petition Area, and that the area was subject to flooding.

77. In an informal conversation between Mr. Sinoto and Mr. Sam Ka'ai, a long-time resident of Pukalani, Maui, and a well-known contemporary authority on Hawaiian cultural practices, Mr. Sinoto found that it was unlikely Hawaiians would have built anything in the Petition Area because it was located in a flood-plain.

78. There appears to be no special affinities to the Petition Area for native Hawaiians or any other ethnic group. The individuals interviewed felt that growth and expansion were necessary for Kahului, but there was a common concern regarding the visual impact of the Project.

79. It does not appear that the Project will have any adverse effect to native Hawaiian traditional and customary rights exercised in the Petition Area which would require protection under Article XII, Section 7, of the Hawai'i State Constitution.

Groundwater Resources

80. Petition Area is underlain by a thin, saline brackish water lens. It is not over a potable water aquifer as it is located below the Underground Injection

Control line, which establishes the boundary between non-drinking water aquifers and underground sources of drinking water. The Petition Area also is not within the

Wellhead Protection Area established for the County of Maui Central System service

area. The Maui Department of Water Supply ("DWS") established the Wellhead

Protection Program to prevent contamination of groundwater wells.

Recreational and Scenic Resources

81. There are several recreational facilities, parks, and open spaces in the Waituku-Kahului area, including the Kahului Community Center and Park. As the Project will not have any resident population, it is not anticipated that the Project will adversely impact the existing facilities or create the need for additional facilities.

82. As part of the Project, Ho'okele Street will be extended to Hana Highway during the first increment of construction of the Project. The extension will include a landscaped berm with trees and shrubbery to soften the visual impact of the buildings along the road, except where ingress/egress or other improvements mandated by engineering safety standards are required. The alignment of Ho'okele Street will maintain a view corridor toward Haleakala. Landscaping will also be provided along portions of the Project adjacent to the proposed Kahului Airport Access Road. The Project will incorporate design standards, including a unified streetscape planting theme and program; underground utilities; and low-impact lighting. Open parking areas will include landscaping. Petitioner is committed to participating in a joint effort

with the community and the appropriate governmental agencies to create a new landscaped gateway to Maui for residents and visitors.

ENVIRONMENTAL QUALITY

Noise

83. D.L. Adams Associates, Ltd., prepared an environmental noise impact assessment for the Project dated May 2003. The Petition Area is exposed to a significant amount of aircraft noise from the Kahului Airport. The Petition Area is exposed to an average annual day-night aircraft noise level ("Ldn") between 50 and 75 dBA.

84. Commercial or manufacturing uses are consistent with the DOT, Airports Division, land use compatibility guidelines without restrictions for those areas within the Petition Area between the 55 and 65 Ldn contours. For structures located on portions of the Petition Area that lie between 65 and 75 Ldn contours, mitigation measures will be required and may include air conditioning, avoiding the use of jalousie windows, double or triple glazing of windows, designing walls and roofs with sufficiently high sound transmission loss, and/or providing acoustical gasketing on exterior doors into noise sensitive areas. Petitioner will through covenants running with the land ensure that all required mitigation measures are implemented.

85. The various construction phases of the Project may generate significant amounts of noise. In cases where construction noise exceeds, or is expected

to exceed the State's "maximum permissible" property line noise levels, a permit must be obtained from the State Department of Health ("DOH"). Petitioner will through covenants running with the land ensure that any required DOH permits are obtained.

86. The increase in traffic noise level due to the Project development is not considered significant and is not expected to adversely impact the Petition Area or surrounding areas.

87. Noise at the property line from on-site equipment must be at a level of 70 dBA or less during daytime and nighttime hours in order to be within the State's maximum permissible sound limit. If on-site equipment exceeds this limit, mitigation in the form of barriers, enclosures, and silencers should be included in the design. Petitioner will through covenants running with the land ensure that all required mitigation measures are implemented.

Air Quality

88. B.D. Neal & Associates prepared an air quality study for the Project dated May 2003. The major potential short-term air quality impact of the Project will occur from the emission of fugitive dust during construction. Dust mitigation measures include i) watering unpaved work roads at least twice daily on days without rainfall; ii) using windscreens and/or limiting the area that is disturbed at any given time; iii) employing mulching or chemical soil stabilizers; iv) covering dirt hauling trucks when traveling on roadways; v) engaging in routine road cleaning and/or in a tire washing

program; vi) paving of parking areas and establishing of landscaping early in the construction schedule; and vi) monitoring dust at the Project boundary during construction. Petitioner and/or all future owners or lessees will implement all required mitigation measures for fugitive dust.

89. During construction, emissions from engine exhausts will occur from both on-site construction equipment and from vehicles traveling to and from the Project. Increased vehicular emissions due to disruption of traffic by construction equipment and/or commuting construction workers can be alleviated by moving equipment and personnel to the site during off-peak traffic hours. Petitioner and/or all future owners or lessees will ensure that all mitigation measures to alleviate increased vehicular emissions are implemented.

90. Long-term impacts on air quality in the Petition Area due to emissions from motor vehicle traffic generated by the Project should be minimal, and mitigation measures are probably unnecessary and unwarranted.

91. Any long-term impacts on air quality due to indirect emissions from supplying the Project with electricity will likely be insignificant based on the relatively small magnitudes of these emissions. Nevertheless, indirect emissions from electrical demand by the Project could likely be reduced by incorporating energy-saving features into the design. These features could include using i) solar water heaters; ii) designing building space so that window positions maximize indoor light without

unduly increasing indoor heat; iii) using landscaping where feasible to provide afternoon shade to cut down on the use of air conditioning; iv) installing insulation and double-glazed doors to reduce the effects of the sun and heat; v) providing movable, controlled openings for ventilation at opportune times; and vi) installing automated room occupancy sensors. Petitioner will through covenants running with the land ensure that energy-saving features are implemented into the design of the Project.

92. Sufficient detail is not available at this time describing the facilities that may be located within the Project to perform any quantitative impact assessment, however, before any air pollution source can be built in this State, an application must be submitted to the DOH for a permit to construct the facility, and detailed information concerning any air pollution emissions will need to be provided in the application. Petitioner and/or all future owners or lessees will comply with the requirement to submit the necessary application with the requisite information to the DOH.

Water Quality

93. Operations within the Project will adhere to Federal, State, and County regulations regarding the handling, use, and storage of petroleum products, chemicals, and other potential pollutants. These regulations require the establishment of appropriate systems to contain spills and prevent potential pollutants from leaching into the ground and flowing into the storm drainage system.

ADEQUACY OF PUBLIC SERVICES AND FACILITIES

Highways and Roadway Facilities

94. Phillip Rowell and Associates prepared a traffic impact analysis report ("TIAR") for the Project dated May 19, 2003. The purpose and objectives of the TIAR were to: a) document the traffic characteristics of the proposed Project; b) document the impact of the proposed Project, especially the impacts of a new roadway on traffic conditions along Dairy Road between Pu'unene Avenue and Hana Highway; c) determine the optimum location for the intersection of "Proposed Collector Road" along Hana Highway; and d) identify and assess potential mitigation measures.

95. The following intersections are in the study area and were analyzed in the TIAR: Dairy Road at Pu'unene Avenue, Dairy Road at Pakaula Street, Dairy Road at Hukilike Street, Dairy Road at Maui Marketplace South Drive, Dairy Road at Maui Marketplace Drive, Dairy Road at Alamaha Street, Dairy Road at Hana Highway, Dairy Road at Kele Street, Dairy Road at Haleakala Highway, Haleakala Highway at Costco Drive A, Pu'unene Avenue at Ho'okele Street, Ho'okele Street at Pakaula Street, and Pakaula Street at Walmart/Home Depot Driveway.

96. The year 2020 was used as the design year for the Project. Background traffic projections were prepared for 2020 conditions without the Project to establish a base condition for assessing the impacts of the proposed Project. Future traffic growth consists of both ambient background growth and traffic from other

proposed projects in the study area. The background growth rate used for the TIAR was 1.6 percent. Krispy Kreme Doughnut Shop, Airport Hotel, Costco Expansion, and Dairy Road Retail Center were identified as related developments.

97. For the purposes of the TIAR, it was assumed that the Project would be 25-percent retail and 75 percent light industrial.

98. The DOT typically designs its roadways for peak hours in the morning or afternoon and that capacity needs generally determine the roadway design. If there is a more spatial need throughout the day, then the percentage mix of retail and light industrial use might not have much of an impact on the DOT's roadway design.

99. It was estimated that the Project will generate 1,698 trips during the morning peak hour and 3,642 trips during the afternoon peak hour.

100. Several roadway improvements will be required as either mitigation measures or to comply with recommendations of the *Maui Long-Range Land Transportation Plan*. Those improvements are listed below:

A. The *Maui Long-Range Land Transportation Plan* recommended that Hana Highway be widened between Ka'ahumanu Avenue and the eastern intersection with Haleakala Highway. This improvement is needed between Dairy Road and the proposed Ho'okele Street extension to provide capacity to accommodate projected 2020 background traffic volumes.

B. A driveway serving Zone D³ should be provided along the north side of Hana Highway at the approximate location of the Airport Access Road.

Traffic movements should be restricted to right turns in and right turns out only. This roadway would reduce the traffic along Dairy Road between Hana Highway and Haleakala Highway and would provide an alternate route for traffic into and out of Costco.

C. The intersection of Hana Highway at Ho'okele Street should be signalized. Double left turns into and out of the Project will be required.

D. The westbound approach of Haleakala Highway at Dairy Road should be modified so that the middle lane may be used as either a through lane or a left turn lane.

101. The final recommendations of the TIAR are:

A. Construct Ho'okele Street between Pakaula Street and Hana Highway concurrent with the first increment.

B. Widen Hana Highway between Dairy Road and the new intersection with Ho'okele Street from four to six lanes.

C. A second driveway serving Zone D should be provided along the north side of Hana Highway at the approximate location of the future Airport Access Road.

³For purposes of performing the traffic impact analysis, Petition Area A was divided into three zones: Zone A, B, and C. Petition Area B was designated Zone "D."

D. Separate traffic impact studies should be performed as the Project develops to determine when the traffic signals are warranted. The Project may not develop to the maximum potential that was used in the TIAR.

102. The proposed Airport Access Road was not included in the TIAR analysis because i) there was no specific timetable for the Airport Access Road at the time of the TIAR; ii) there was a desire to not underestimate the impact of the Ho'okele Street extension, and iii) the phasing plan of the Airport Access Road construction was unknown. The access point on Hana Highway from the proposed Ho'okele Street extension needs to be evaluated by the DOT. The exact location has not been approved. An evaluation of the spatial separation from the Airport Access Road needs to be looked at. To implement the Airport Access Road, the DOT will need to close Dairy Road right at Pakaula Street, creating a T intersection. This would need to be signaled. Also, no direct access to the Airport Access Road and along Hana Highway from Area B will be approved to reserve the right-of-way for future development of the intersection/interchange with Hana Highway.

103. As of September 19, 2003, the construction of the Airport Access Road was a part of the DOT's three-year capital improvement program, also known as the Statewide Transportation Improvement Plan.

104. The plans for the Airport Access Road are 50 percent complete, and it is anticipated that the construction contract for the Airport Access Road will be issued within three years.

105. The construction of the Airport Access Road will provide a benefit to traffic flow in the area of the Project.

106. It is the normal process to update traffic impact analyses as significant roadway improvements, like the Airport Access Road, are built or developed in the area.

107. Petitioner will update the TIAR to take into account the Airport Access Road and to address the impact of different percentages of retail versus non-retail uses on the Project. The TIAR will also be revised to address concerns raised by the DOT regarding certain methodologies, assumptions, and analyses contained in the TIAR.

Water Service

108. The Kahului industrial area is served by the DWS system. The source of water for this system is the Waihe'e Wells, which were developed by the Central Maui Joint Venture (of which Petitioner is a member) and dedicated to the Board of Water Supply ("BWS").

109. The Petition Area is located in the Central Maui Service Area that is served by water from the 'Iao and Waihe'e Aquifers. On July 21, 2003, the Commission

on Water Resource Management ("CWRM") designated the 'Iao Aquifer as a Groundwater Management Area ("GMA"). New groundwater use permits are subject to the availability of groundwater determined by sustainable yield and existing water use permits. The Waihe'e Aquifer will be designated as a GMA by the CWRM if water levels at the Kanoa test hole drop below 6 feet above mean sea level on an annual moving average basis. As a result, the DWS has stopped issuing advance water meter reservations. The DWS is taking steps to protect the long-term viability and sustainability of the 'Iao and Waihe'e Aquifers by developing new sources, emphasizing groundwater and watershed protection, and promoting water conservation.

110. Petitioner had originally planned to utilize its remaining Central Maui Source Joint Venture allocation of the developed capacity of the Waihe'e Wells for the Project. However, the DWS has requested that Petitioner either i) develop and dedicate surface water collection, transmission, treatment and storage systems of adequate quantity and quality to serve the Project and construct treatment, transmission, storage, and distribution facilities in an amount sufficient to serve the Project according to system standards to be dedicated to the DWS or ii) develop new groundwater sources outside of the 'Iao or Waihe'e Aquifers.

111. Based upon the State System Standard of 6,000 gallons per day ("GPD") per acre, the required potable water supply would be 0.86 million gallons per

day ("MGD") based upon the Project's net (approximately 80-percent of the Project's 179 gross acres) acreage.

112. As an alternative to groundwater use for the potable water needs for the Project, Petitioner intends to develop a potable water source by utilizing surface waters flowing in the Waihe'e and Spreckels Ditches.

113. The Waihe'e and Spreckels Ditches run generally from north to south above and through Wailuku Town (Waihe'e and Spreckels, respectively).

114. Over the last 10 years, A&B's share of the flow rate in the Waihe'e and Spreckels Ditches has averaged nearly 42 MGD (22.7 MGD in the Waihe'e Ditch and 19.2 MGD in the Spreckels Ditch).

115. Sufficient flow from the Waihe'e Ditch and/or the Spreckels Ditch could be appropriately treated to produce a potable supply for the Project.

116. The location of the Waihe'e and Spreckels Ditches, the land ownership of A&B, the location of the DWS's water system infrastructure, and the DWS's experience in operating surface water treatment plants make treatment of the ditch water for potable use a particularly feasible alternative.

117. With the Hopoi Chute connection from the Waihe'e Ditch to the Waiale Reservoir, there are three possible raw water sources for a treatment plant located near to the reservoir. In addition to taking water from the Hopoi Chute, water could be withdrawn directly from Spreckels Ditch or Waiale Reservoir.

118. A&B's land ownership would allow it to construct a water treatment plant to use one or more of these surface water sources and deliver it into the Central Maui System at a location which would enable the DWS to supply the Project.

119. The DWS has extensive experience in operating both membrane filtration plants and conventional treatment plants in compliance with requirements of the Environmental Protection Agency's Safe Water Treatment Rule and Interim Enhanced Safe Water Treatment Rule.

120. The DWS currently operates plants at Kamaole Weir using water from East Maui Irrigation's Wailoa Ditch, Pi'iholo on the Lower Kula system, Olinda on the upper Kula system, the 'Iao Plant using 'Iao Stream water, and at Mahinahina above Lahaina using water from Maui Land & Pineapple's Honokohau Ditch.

121. The DWS has the staff with the necessary operator certifications to run treatment plants to produce potable water.

122. It is estimated that it would take approximately two years to get this alternative water source and its associated treatment system online, and cost approximately \$2 million to \$3 million to construct.

123. The proposed development and treatment of surface waters flowing from the Waithe'e and Spreckels Ditches will provide approximately twice the potable water requirement for the Project. Any excess potable water not needed for the Project will constitute a public benefit for the County.

124. The Kahului industrial area is served by the DWS system. When A&B developed Maui Business Park Phase I, a 12-inch waterline was installed in Dairy Road and extended to Pakaula Street. There is an existing stub-out of this waterline at Ho'okele Street and Pakaula Street. The water system for Petition Area A will be extended from the 12-inch waterline in Ho'okele Street at Pakaula Street. The water system will be designed to the DWS standards and dedicated to them upon completion.

125. For Petition Area B, there is an existing 12-inch waterline in Dairy Road and Keolani Place that serves the Airport Industrial development, including Kmart and Costco. There also is a 16-inch waterline in Keolani Place that goes to the Kahului Airport. A 3-inch waterline in Haleakala Highway serves the former Central Power Plant area. A new 12-inch waterline will be installed in Haleakala Highway from the intersection of Dairy Road and Keolani Place to Kulena Street for the Airport Industrial Subdivision III. This waterline will be extended from that point to serve Petition Area B. The proposed water system improvement will be designed to the DWS standards and dedicated to the BWS.

Wastewater Disposal

126. The County's existing wastewater system services the Kahului industrial area. The Wailuku-Kahului Wastewater Reclamation Facility ("WKWRRF") is located on Amala Place near Kanaha Beach. This facility has a capacity of 7.9 MGD of which an estimated 7 MGD has been allocated for existing and projected flows.

127. With respect to Petition Area A, a 16-inch sewerline extension was connected to the Alamaha Street sewage pump station ("SPS") when Maui Business Park Phase I-A and I-B were developed. This line extension terminates as an 8-inch line on Ho'okele Street, near Pu'unene Avenue. The force main from Alamaha SPS flows to the Kahului SPS on Hana Highway. Flows from this SPS are then pumped to the WKWWRFF.

128. The estimated sewage to be generated by Petition Area A will be approximately 0.23 MGD, based on a flow rate of 1,600 gallons per acre per day for light industrial uses. Sewage from the area west of the drainage retention basin will flow into the existing 8-inch sewerline in Ho'okele Street at Pakaula Street. These flows will go through existing lines in Maui Business Park Phases I-A and I-B into the Alamaha Street system. The remaining sewage for Petition Area A will be serviced by a new 12-inch sewerline in Haleakala Highway from Dairy Road to Petition Area B.

129. With respect to Petition Area B, there are existing 8-inch and 18-inch sewerlines that service the Airport Industrial area, including Costco and Kmart. Sewage in these lines flows down to the Airport Triangle SPS located on Kele Street. This SPS and all sewerlines that are connected to it are owned and maintained by A&B. The 6-inch force main from this SPS is connected to the County's system at Alamaha Street and Papa Place. Sewage then flows to the Alamaha SPS, Kahului SPS, and finally to the WKWWRFF for treatment.

130. The estimated sewage that will be generated by Petition Area B will be approximately 0.05 MGD, based on a flow rate of 1,600 gallons per acre per day. Sewage will flow into the same new 12-inch sewerline in Haleakala Highway that will receive Petition Area A sewage, and then continue to the Airport Triangle SPS. Sewage will then flow to the proposed Hana Highway force main and to the Kahului SPS. Sewage from this pump station flows through a force main to the WKWWRFF. The proposed sewage system will be designed to County standards.

Drainage

131. The estimated runoff from Petition Area A is 293 cubic feet per second ("CFS"). The two existing drainage basins near Wal-Mart have an estimated combined capacity of 80-acre-feet. The estimated flow volume into these basins, with existing Maui Business Park Phase I-B and build-out of Petition Area A, will be approximately 48-acre-feet for a 100-year, 24-hour storm. Therefore, there will be adequate capacity for the flows from Petition Area A.

132. Earth berms will be constructed along the southerly boundary of Petition Area A to retain offsite runoff within the sugarcane fields. Existing HC&S ditches in the canefields will also divert a portion of the offsite flows from Petition Area A.

133. The estimated runoff from Petition Area B is 61 CFS. Retention basins will be constructed to retain the 100-year, 24-hour storm. Another option would

personnel. It is estimated that the annual additional police enforcement cost to the County on a stabilized basis after buildout of the Project will be \$422,800.

138. The Kahului Fire Station is located on Dairy Road adjacent to Maui Business Park Phase I. In 2002, there were approximately 33 firefighters and other personnel in the Kahului District. The estimated additional annual fire protection cost to the County after buildout of the Project is \$201,600.

Medical Services

139. Maui Memorial Hospital, located between Wailuku and Kahului, is the only major medical facility on the island of Maui. Acute, general, and emergency care services are provided by the 194-bed facility. The estimated annual additional emergency medical response cost to the County on a stabilized basis after buildout of the Project is \$104,000.

Electricity and Telephone Service

140. The estimated electrical demand for the Petition Area is approximately 2 megawatts. Line extensions from the existing electrical system will provide power to the Project. Maui Electric Company's ("MECO") Kahului and Ma'alea Plants generate sufficient electricity to provide services to the Project. The estimated time to build MECO's proposed Waena Plant, located on Pulehu Road, will be approximately five years. MECO's Kanaha Substation, located at the corner of Hana Highway and Dairy Road, will serve the Project.

be to have retention basins on each developed lot with capacities to retain onsite generated runoff.

134. Earth berms will be constructed along the southerly boundary to keep offsite runoff from flowing onto Petition Area B.

Solid Waste Disposal

135. The Project's solid waste will be collected by private waste collection companies or by the County's Solid Waste Division and hauled to the Central Maui Landfill for disposal. The landfill has adequate capacity to accommodate waste through the year 2020. A&B has been cooperating with the County to increase the area at this landfill for their future expansion plans.

Schools

136. Schools within Kahului include Maui High, Maui Waena Intermediate, Kahului Elementary, and Lihikai Elementary. As the Project will not have any resident population, it is not anticipated that the Project will adversely impact the existing school facilities or create the need for additional facilities.

Police and Fire Protection

137. Police services in the Kahului area are provided by the Maui County Department of Police Headquarters located at 55 Mahalani Street in Wailuku, approximately three miles from the Project. Kahului is within the uniformed patrol division that is served by approximately 115 uniformed patrol officers and other

141. The underground electrical system for the Project will be designed to MECO's standards. The Kanaha Substation has room to expand if required by this or other developments.

142. Telephone and cable television systems will be extended to the Petition Area from their existing systems at Phase I of the Maui Business Industrial Park and Airport Industrial Park. The underground systems will be designed to current standards and the developer will cooperate with these utilities in expanding their services to the Petition Area.

COMMITMENT OF STATE FUNDS AND RESOURCES

143. The Project will not generate the need for schools, social programs, and many other governmental services. In addition, major offsite infrastructure items, such as highways and water and sewer mains, are already in place or will be provided privately. State of Hawai'i costs from the Project include highway frontage work, health inspections of food service establishments, and other oversight duties. These costs are estimated annually to be \$250,000, increasing to a stabilized level as the Project is built out.

144. Petitioner will participate in the funding, design, and construction of its fair share of all infrastructural improvements required as a result of the Project. Government costs incurred as a result of the Project are not expected to exceed the revenues derived by the State of Hawai'i.

CONFORMANCE TO URBAN DISTRICT STANDARDS

145. The Petition Area is adjacent to lands characterized by "city-like" concentrations of people, structures, streets, urban levels of services, and other related land uses. The Petition Area is situated adjacent to existing urban uses and is proximately located to centers of trading and employment including Maui's primary airport and harbor facilities, business centers, the existing Maui Business Park Phase I, and the Kahului industrial area.

146. The Petition Area is, or upon completion of necessary offsite and on-site infrastructure will be, adequately serviced by wastewater systems, solid waste disposal, drainage, water, transportation systems, public utilities, and police and fire protection.

147. The Petition Area is located in an area with sufficient reserve for foreseeable urban growth.

148. The Petition Area consists of satisfactory topography, drainage and soil conditions, is free from the danger of flood, tsunami and unstable soil conditions, and is not affected by any other adverse environmental conditions that would render it unsuitable or inappropriate for the Project.

149. The Petition Area is consistent with the objectives and policies of the General Plan of the County of Maui 1990 Update and is designated by the Wailuku-Kahului Community Plan (2002) for light industrial use.

150. The Petition Area is in an appropriate area for new urban concentration, as it represents an expansion of an existing urban center.

151. The Petition Area will not contribute toward scattered spot urban development. Petitioner will develop or arrange for all additional infrastructure required to service the Project, and public infrastructure and support services will not be unreasonably burdened by or require any unreasonable investment as a result of the Project.

152. The Petition Area does not consist of lands having a slope of 20 percent or more.

CONFORMANCE WITH THE GOALS, OBJECTIVES AND POLICIES OF THE HAWAII STATE PLAN, RELATIONSHIP WITH APPLICABLE PRIORITY GUIDELINES AND FUNCTIONAL PLANS

153. The reclassification of the Petition Area and the proposed development of the Project are in general conformance with the following goals, objectives, policies and priority guidelines of the Hawai'i State Plan, Chapter 226, HRS, including the following:

Section 226-4 State goals

Section 226-4(1): "A strong, viable economy, characterized by stability, diversity, and growth, that enables fulfillment of the needs and expectations of Hawai'i present and future generations."

Section 226-4(2): "A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people."

Section 226-4(3): "Physical, social, and economic well-being, for individuals and families in Hawai'i, that nourishes a sense of community responsibility, of caring, and of participation in community life."

The Project will contribute to the attainment of the three goals by: 1) providing direct and indirect short and long-term employment opportunities for the present and future residents of Maui; 2) generating increased State and County tax revenues; 3) contributing to the stability, diversity, and growth of local and regional economies; and 4) minimizing the impact to the physical environment of the Petition Area.

Section 226-5 Objective and policies for population

Section 226-5(b)(1): "Manage population growth statewide in a manner that provides increased opportunities for Hawai'i's people to pursue their physical, social, and economic aspirations while recognizing the unique needs of each county."

Section 226-5(b)(2): "Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs and desires."

Section 226-5(b)(3): "Promote increased opportunities for Hawai'i's people to pursue their socio-economic aspirations throughout the islands."

Section 226-5(b)(7): "Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area."

The Project will provide long-term economic and employment opportunities for the population of Maui. Providing additional light industrial space will promote increased opportunities for people to pursue their economic aspirations through employment and creation of new businesses.

The Petition Area is designated for light industrial uses on the Waialuku-Kahului Community Plan.

Section 226-6 Objectives and policies for the economy -- in general

Section 226-6(a)(1): "Increased and diversified employment opportunities to achieve full employment, increased income and job choices, and improved living standards for Hawai'i's people."

Section 226-6(a)(2): "A steadily growing and diversified economic base that is not overly dependent on a few industries, and includes the development and expansion of industries on the neighbor islands."

Section 226-6(b)(3): "Seek broader outlets for new or expanded Hawai'i business investments."

Section 226-6(b)(6): "Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives."

Section 226-6(b)(8): "Encourage labor-intensive activities that are economically satisfying and which offer opportunities for upward mobility."

Section 226-6(b)(9): "Foster greater cooperation and coordination between the government and private sectors in developing Hawai'i's employment and economic growth opportunities."

Section 226-6(b)(11): "Maintain acceptable working conditions and standards for Hawai'i's workers."

Section 226-6(b)(13): "Encourage businesses that have favorable financial multiplier effects within Hawai'i's economy."

Section 226-6(b)(16): "Foster a business climate in Hawai'i -- including attitudes, tax and regulatory policies, and financial and technical assistance programs -- that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry."

The Project will provide increased light industrial space on Maui, which, when occupied by businesses, will provide increased employment opportunities. While specific businesses within the Project have not been determined, it is expected, with the proximity to the island's main commercial area and primary harbor and airport facilities, that businesses will range from essential local services to national or

multinational companies looking for a presence on Maui. This will lead to broader outlets for new or expanded Hawai'i investments, increased and diversified employment opportunities, increased income and job choice, and improved living standards for Maui's residents. It is also expected that this increased mix of businesses on Maui will lead to a steadily growing and diversified economic base that is not overly dependent on a few industries. Development and construction of the Project will also provide construction-related employment over the course of the Project's build-out.

Section 226-13 Objectives and policies for the physical environment - land, air, and water quality

Section 226-13(b)(7): "Encourage urban developments in close proximity to existing services and facilities."

The Project is situated adjacent to major urban lands of similar uses, is consistent with the Wailuku-Kahului Community Plan (2002), and is a logical extension of the adjacent and nearby light industrial areas that serve as Maui's primary center of commerce and industry.

Section 226-103 Economic priority guidelines

Section 226-103(a)(1): "Priority guidelines to stimulate economic growth and encourage business expansion and development to provide needed jobs for Hawai'i's people and achieve a stable and diversified economy:

(1) Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.

(A) Encourage investments which:

- (i) Reflect long term commitments to the State;
- (ii) Rely on economic linkages within the local economy;
- (iii) Diversify the economy;
- (iv) Reinvest in the local economy;
- (v) Are sensitive to community needs and priorities; and
- (vi) Demonstrate a commitment to provide management opportunities to Hawai'i residents."

Section 226-103(a)(8): "Provide public incentives and encourage private initiative to develop and attract industries which promise long-term growth potentials and which have the following characteristics:

- (A) An industry that can take advantage of Hawai'i's unique location and available physical and human resources.
- (B) A clean industry that would have minimal adverse effects on Hawai'i's environment.

(C) An industry that is willing to hire and train Hawai'i's people to meet the industry's labor needs at all levels of employment.

(D) An industry that would provide reasonable income and steady employment."

Section 226-103(0)(1): "Encourage the development, demonstration, and commercialization of renewable energy sources."

The Project will assist in meeting the above stated guidelines by providing the physical space on Maui to allow for new businesses and investment. Potential industries and businesses that may locate in the Project include those: 1) attracted because of Hawai'i's unique location and available physical and human resources; 2) that would have minimal adverse impacts on Hawai'i's environment; 3) that are willing to hire and train Hawai'i's people to meet the industry's labor needs; and 4) that would provide reasonable income and steady employment. The Project will also aid in the attainment of energy-related guidelines through implementation of energy conservation measures including the use of low-impact lighting and alternative energy sources, including the use of solar energy to heat water.

Section 226-104 Population growth and land resources priority guidelines

Section 226-104(a)(1): "Encourage planning and resource management to insure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawai'i's people."

Section 226-104(a)(2): "Manage a growth rate for Hawai'i's economy that will parallel future employment needs for Hawai'i's people."

Section 226-104(a)(3): "Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State."

Section 226-104(b)(1): "Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures, and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles."

Section 226-104(b)(9): "Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized."

Section 226-104(b)(12): "Utilize Hawai'i's limited land resources wisely, providing adequate land to accommodate projected population and economic growth

needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.”

With Maui's growing population and economy there is a current and future demand for increased light industrial space, which will be partially filled by the Project. In addition, the area of the Project is designated "Light Industrial" on the Wailuku-Kahului Community Plan (2002), which is a reflection of the needs and desires of the community. The Project will provide employment opportunities in parallel with future employment needs and will ensure that support services and facilities are provided to accommodate the desired distribution of future growth on Maui.

The Project is contiguous with the existing urban area of greater Kahului and is a logical extension of the adjacent and nearby light industrial areas that serve as Maui's primary centers of commerce and industry. Existing public facilities are near to the Project, and Petitioner will provide the required on-site infrastructure, such as internal roads and water and sewer lines. In addition, because of its proximity to Maui's main commercial area and primary harbor and airport facilities, the Petition Area is appropriate for the light industrial uses that are being proposed.

The Petition Area is not a critical environmental area nor is it shoreline, conservation, or important agricultural lands that are needed for diversified agriculture. Proper mitigating measures, such as adhering to civil engineering standards and

implementing best management practices, will be undertaken to ensure negative impacts on the environment are minimized.

154. The reclassification of the Petition Area generally conforms to the Employment Functional Plan.

CONFORMANCE WITH COASTAL ZONE MANAGEMENT OBJECTIVES AND POLICIES

The proposed reclassification of the Petition Area generally conforms to the objectives and policies of the Coastal Zone Management Program, chapter 205A, HRS. The Project is not coastal dependent and is located inland from the coast. As such, the Project will not adversely impact any coastal ecosystems, beaches, or marine resources. No views or vistas from or to the shoreline will be impaired. The dominant view from the Project will be of Haleakala. Ho'okele Street, the primary collector street through the South Project Area, will be aligned to provide views of Haleakala, and will include a landscaped berm using trees and shrubbery to soften the visual impact of the buildings along the road. The Petition Area is within areas of minimal flooding. Grading and other site improvements will comply with the requirements of the Federal Flood Insurance Program and all State and County laws. Drainage facilities within the Petition Area will be adequately planned and constructed, and wastewater generated by the Project will be collected, treated, and disposed of in accordance with all applicable statutes, ordinances, and regulations. Operations within the Project will

adhere to Federal, State, and County regulations regarding the handling, use, and storage of petroleum products, chemicals, and other potential pollutants.

RULING ON PROPOSED FINDINGS OF FACT

Any of the proposed findings of fact submitted by Petitioner or the other parties to this proceeding not already ruled upon by the Commission by adoption herein, or rejected by clearly contrary findings of fact herein, are hereby denied and rejected.

Any conclusion of law improperly designated as a finding of fact should be deemed or construed as a conclusion of law; any finding of fact herein improperly designated as a conclusion of law should be deemed or construed as a finding of fact.

CONCLUSIONS OF LAW

1. Pursuant to chapter 205, HRS, and the Commission Rules under chapter 15-15, HAR, and upon consideration of the Commission decision-making criteria under section 205-17, HRS, this Commission finds upon a clear preponderance of the evidence that the reclassification of the Petition Area, consisting of approximately 138.158 acres of land at Kahului, Maui, Hawai'i, identified as Tax Map Key Nos: 3-8-01: 2 (portion), 3-8-06: 4 (portion), and 3-8-79: 13 (portion), from the State Land Use Agricultural District to the State Land Use Urban District, for the development of the Project, and subject to the conditions in the Order below, conforms to the standards for establishing the Urban District boundaries, is reasonable, not violative of section 205-2,

HRS, and is consistent with the policies and criteria established pursuant to sections 205-16 and 205-17, HRS.

2. Article XII, Section 7, of the Hawai'i Constitution requires the Commission to protect native Hawaiian traditional and customary rights. The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural, and religious purposes and possessed by ahupua'a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights.

3. Based on past archaeological surveys of the Petition Area and the surrounding area and the historical use of the site for sugarcane cultivation, the Petition Area is unlikely to contain archaeological resources. Should any resources be found during construction, Petitioner will comply with all State and County laws and rules regarding the preservation of archaeological and historic sites.

4. A cultural impact assessment was prepared for the Project. There appears to be no special affinities to the Petition Area for native Hawaiians or any other ethnic group.

5. Article XI, Section 1, of the Hawai'i Constitution requires the State to conserve and protect Hawai'i's natural beauty and all natural resources, including land, water, air, minerals, and energy sources, and to promote the development and

utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State.

6. There are no threatened and endangered species of flora and fauna or species of concern in the Petition Area. The larvae of the endangered Blackburn's sphinx moth are sometimes found on Tree tobacco plants, which are present in the Petition Area. Petitioner submitted a plan of action to the USFWS detailing the steps to remove the tobacco trees. The USFWS subsequently reviewed the plan and agreed that implementation of the proposed measures is unlikely to result in violations of section 9 of the Endangered Species Act.

7. The ambient air quality of the Petition Area will be impacted in the short term by fugitive dust and emissions from engine exhausts during construction of the Project. Petitioner will implement all required mitigation measures for fugitive dust and exhaust emissions.

8. The Project's long-term impacts to air quality will be minimal, and mitigation measures are probably unnecessary and unwarranted.

9. Energy-saving features will be incorporated into the design of the Project to minimize any indirect emissions from electrical demand.

10. Petitioner will incorporate landscaping into the Project to minimize any visual impact of the buildings.

11. Petitioner intends to develop a potable water source for the Project by utilizing surface waters flowing in the Waihe'e and Spreckels Ditches instead of groundwater sources.

12. Article XI, Section 3, of the Hawai'i Constitution requires the State to conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency, and assure the availability of agriculturally suitable lands.

13. The Project will not have a significant impact on agriculture in Maui or in the State as the reduction of sugarcane lands by the development of the Project is minimal in comparison to the total sugarcane acreage cultivated by HCC&S. The large amount of acreage released from plantation agriculture statewide also provides ample land for diversified agriculture.

14. Article XI, Section 7, of the Hawai'i Constitution states that the State has an obligation to protect the use of Hawai'i's water resources for the benefit of its people.

15. As an alternative to obtaining water from the Waihe'e Wells, the Project will obtain potable water by utilizing surface waters flowing in the Waihe'e and Spreckels Ditches. Sufficient flow from the ditches could be treated to adequately meet the needs of the Project.

DECISION AND ORDER

IT IS HEREBY ORDERED that the Petition Area, consisting of approximately 138,158 acres of land in the State Land Use Agricultural District at Kahului, Maui, Hawai'i, identified as Tax Map Key Nos: 3-8-01: 2 (portion), 3-8-06: 4 (portion), and 3-8-79: 13 (portion), and approximately shown on Exhibit "A" attached hereto and incorporated by reference herein, shall be and is hereby reclassified to the State Land Use Urban District, and the State land use district boundaries shall be amended accordingly.

Based upon the findings of fact and conclusions of law stated herein, it is hereby determined that the reclassification of the Petition Area will not significantly affect or impair the preservation or maintenance of natural systems and habitats or the valued cultural, historical, agricultural, and natural resources of the area.

IT IS HEREBY FURTHER ORDERED that the reclassification of the Petition Area from the State Land Use Agricultural District to the State Land Use Urban District shall be subject to the following conditions:

- 1a. **Housing Study.** Within one hundred eighty days (180) of this decision and order, the Petitioner shall complete and submit to and for the approval of the Commission, with copies to the Department of Planning, the Department of Housing and Human Concerns and the Office of Planning, a housing study that addresses the following:

- i. The impact the Project will have on the current labor force;
- ii. The type of employee/affordable housing demands that will be created by the Project;
- iii. Any employee/affordable housing policy adopted and in place by the County for commercial and industrial developments;
- iv. The proposed mitigation measures to alleviate the impact on both the labor market and the employee/affordable housing situation, including, but not limited to, the acreage, siting, timing, type of housing and eligibility for the employee/affordable housing project and the identity of potential developers and recipient of land to be contributed and conveyed by Petitioner for affordable/employee housing (collectively, the "Proposed Mitigation Measures"); and
- v. Recommendations and timeframe for implementing any applicable county housing policy (in place at the time of this study) or requirements and/or the Petitioner's proposed mitigation measures, including the minimum contribution of land described in Condition 1b immediately herein below (collectively, the "Proposed Timeline").

The reclassification of the Petition Area, as described in this Decision and Order, shall be subject to the further condition of Petitioner's compliance with the Proposed Mitigation Measures and Proposed Timeline, as modified and/or approved by the Commission (the "Approved Mitigation Measures and Timeline").

1b. Minimum Contribution of Land by the Petitioner. In compliance and consistent with the Approved Mitigation Measures and Timeline, Petitioner shall contribute, no later than one (1) year after any Maui County zoning approval authorizing the use of the Property for light industrial and/or commercial use, to the County of Maui or a non-profit housing entity or other appropriate entity, a minimum of ten (10) acres of land useable for residential development within the Central Maui region reasonably acceptable to the County of Maui towards development of employee/affordable housing or satisfy such more stringent employee/affordable housing requirements for the Project as may be imposed by the Maui County Council. The Approved Mitigation Measures and Timeline shall be an obligation of the recipient of the land conveyed for affordable housing purposes, as memorialized in the conveyance document from the Petitioner to such recipient.

2. Water Facilities. Petitioner shall participate in the funding and construction of adequate water source, storage and transmission facilities and improvements or remit applicable fees for water source, storage and transmission facilities and improvements to accommodate projected water usage generated by the

Project. Water facilities and improvements, including adequate storage facilities, should surface water sources be developed, or the payment of applicable fees, shall be coordinated and approved by the County of Maui, Department of Water Supply and, if applicable, the Commission on Water Resources Management of the Department of Land and Natural Resources. Adequate water source shall be made available prior to the issuance of any occupancy permits for buildings developed on the Property.

3. Aircraft Operations. Petitioner shall implement procedures to address notification and liability issues which arise from the potential adverse impacts from noise, right of flight, emissions, vibrations and other incidences of aircraft operations upon the present and future Owners and future lessees or occupants of the Property resulting from the adjacent Kahului Airport operations. The following covenant shall encumber the Property and be included in any transfer of any interest in the Property.

"The Property is located in the vicinity of Kahului Airport, a commercial airport, and each Owner is aware that there is a likelihood of noise from aircraft passing overhead or nearby and other potential adverse impacts from other incidence of aircraft operation. Each Owner hereby assumes the risk of any potential adverse impacts from such noise, right of flight, emissions, vibrations or other incidents of aircraft operations upon the Owner's lot or uses thereon. Each Owner shall be responsible for

appropriate mitigation measures to address the abovementioned potential adverse impacts. Each Owner shall indemnify and hold harmless Declarant and the State of Hawaii from and against all claims, liability and losses that arise out of noise, right of flight, emissions, vibrations and other incidences of aircraft operations, unless such claim, liability or loss arises out of the State of Hawaii's willful misconduct in the operation of Kahului Airport or violating any applicable federal, state or county requirement governing aircraft safety and noise abatement measures, in which case, the indemnification of the State of Hawaii will be inapplicable."

4. FAA Form 7460-1, Notice of Proposed Construction or Alteration. Petitioner shall impose a covenant encumbering the Property and be included in any transfer of any interest in the Property requiring the submittal of Federal Aviation Administration (FAA) Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA's Hawaii District Office when or if required under applicable FAA Regulations with a copy to DOT's Airports Division.

5. Runway Protection Zone. Petitioner acknowledges that a portion of Petition Area A overlaps the runway protection zone (hereinafter "RPZ") for a proposed extension of the Kahului Airport runway of up to 9,600 feet in length, as further described in the State Office of Planning's Exhibits Nos. 9 and 10 and the

testimony of DOT Airports Division witness Benjamin Schlapak. Petitioner agrees to restrict uses in the RPZ to light industrial, parking, roadway and other infrastructure uses that do not entail the congregation of people, provided all such uses are approved by the Federal Aviation Administration. This restriction on uses within the RPZ shall automatically terminate if the State Department of Transportation (DOT) does not attain all governmental approvals for the extension of the Kahului Airport runway within a period of five (5) years from the date of the Commission's decision and order.

Notwithstanding the foregoing, and for good cause shown, the Commission may grant an extension of time for the DOT if DOT during such five-year period has been using its best efforts, in good faith, to attain all governmental approvals for the extension of the Kahului Airport runway. The size of the RPZ shall be adjusted if the runway length sought by the DOT is less than 9,600 feet. Should the DOT desire to acquire an easement or the fee simple interest in the RPZ, the fair market value of the land shall be based on its current Agricultural District classification and present zoning designation by the County of Maui provided that: a) the acquisition occurs within a period of five (5) years from the date of the Commission's decision and order; and b) the DOT during such five-year period has been using its best efforts, in good faith, to attain all governmental approvals for the extension of the Kahului Airport runway.

6. Traffic Impact Analysis Report. Prior to obtaining County zoning, Petitioner shall revise or supplement its traffic impact analysis report (hereafter TIAR)

dated May 2003 to the satisfaction of the DOT. The TIAR shall identify the impact of Petitioner's project on the transportation system and recommend any required mitigation measures. Conditions and assumptions reflected in the TIAR shall be developed in consultation with DOT, including but not limited to, various proportions of retail and light industrial uses to be developed at the Property, plans for the proposed airport access road, permitted accesses, trip generation rates, and traffic projections. Petitioner shall obtain the DOT's prior written approval of the final TIAR and Petitioner may not proceed with the development of Petitioner's project unless and until the DOT approves the TIAR. As development occurs within the Property, the TIAR shall be revised or supplemented as may be requested and required by the DOT. Petitioner shall be responsible for constructing, implementing and/or contributing its fair share of the cost of those improvements or mitigation measures as recommended or required by the TIAR and as dictated by the actual proportion of light industrial and retail uses developed at the Property. The TIAR shall also address the impact to County of Maui roadways and shall be submitted to the County of Maui, Department of Planning for the County's review and consideration in the zoning approval process.

7. Regional Transportation Improvements. Petitioner shall contribute Petitioner's fair share of the cost of regional transportation improvements in the area, as such fair share shall be determined by the DOT based on appropriate transportation planning methodologies to establish a rational nexus.

8. Best Management Practices. The Petitioner shall coordinate with the County of Maui, the State Department of Land and Natural Resources and the State Department of Health to establish Best Management Practices to contain spills, and prevent materials associated with light industrial uses such as petroleum products, chemicals, and other pollutants from leaching or draining into the ground or the storm drain system.

9. Hazardous Materials. Storage and/or disposal of hazardous materials shall be approved by the State Department of Health prior to their establishment on the subject Property.

10. Wastewater Facilities. Petitioner shall provide a sewer impact study to the County Department of Public Works and Environmental Management evaluating the wastewater system requirements for the Project. Petitioner shall fund and develop, as required by the County of Maui and the State Department of Health, wastewater transmission and treatment facilities to accommodate the additional wastewater generated by the Project.

11. Drainage. Petitioner shall fund, design and construct any drainage system improvements required to mitigate the additional runoff resulting from the project without creating adverse effects on adjacent and downstream properties. The master drainage plan for Maui Business Park shall be constructed to mitigate the additional runoff resulting from this development.

12. **Aircraft Operation Hazards.** Petitioner shall fund and implement a program to control any bird nesting or occupation and any insect, pest or wildlife infestation, in any drainage retention basins serving the Property to minimize the hazards to aircraft operation, as deemed necessary by the DOT.

13. **Provisions of the Hawaii Right to Farm Act.** Petitioner shall inform all prospective occupants of possible odor, noise, and dust pollution resulting from adjacent Agricultural Districts lands, and that the Hawaii Right-to-Farm Act, Chapter 165, HRS, limits the circumstances under which preexisting farming activities may be deemed a nuisance.

14. **Solid Waste.** Petitioner shall develop a Solid Waste Management Plan in conformance with the Integrated Solid Waste Management Act, Chapter 342G, HRS. The Plan shall be approved by the County of Maui and shall address the need to divert the maximum amount of waste material caused by the development away from the County's landfills.

15. **Visual Analysis.** That as part of its zoning application submittal, the Petitioner shall submit a visual analysis study for the location of the Hookele Street Extension emphasizing the maintenance of a "view corridor" toward Haleakala.

16. **Visual Impacts.** That as part of its zoning application, the Petitioner shall submit design guidelines with renderings on how a landscaped aesthetic visual corridor along all adjacent highways and how a landscaped berm

utilizing trees and shrubbery shall be constructed along the entire proposed collector road (Hookele Street Extension) to soften the visual impact of the buildings along the road. (Waialuku-Kahului Community Plan Update).

17. **Dual Water System.** Petitioner shall evaluate the feasibility of developing a dual water system for the Project, utilizing non-potable water for landscape irrigation purposes.

18. **Energy Conservation.** Petitioner shall implement energy conservation measures such as the use of solar energy and solar heating and incorporate such measures into the Project.

19. **Project Composition.** For a period of eight (8) years from the date of the County's approval of zoning for the Project a total of at least fifty percent (50%) of the Project acreage shall be (a) used and developed by Petitioner for non-retail, light industrial use and/or (b) sold or leased to and developed and used by third-party buyers for non-retail, light industrial use. For this same eight-year period, simultaneous with Petitioner's development or offer for sale or lease of the Property for retail use, Petitioner shall develop or offer for sale or lease an equal amount of acreage within the Property for non-retail, light industrial use. The phrase "light industrial", as used in this paragraph, includes warehousing and distribution types of activity as well as compounding, assembly, or treatment of articles or materials with the exception of heavy manufacturing and processing of raw materials. It is the intent of this paragraph

that at the end of the above-described eight-year period, to the extent that the Project is developed or in the process of being developed by Petitioner or any third party, no less than fifty percent (50%) of such development or development in process shall be for non-retail, light industrial purposes.

20. **Compliance with Representations to the Commission.** Petitioner shall develop the Property in substantial compliance with the representations made to the Commission. Failure to so develop the Property may result in reversion of the Property to its former classification, or change to a more appropriate classification.

21. **Notice of Change to Ownership Interests.** Petitioner shall give notice to the Commission of any intent to sell, lease, assign, place in trust, or otherwise voluntarily alter the ownership interests in the Property, prior to development of the Property.

22. **Annual Reports.** Petitioner shall timely provide without any prior notice, annual reports to the Commission, the Office of Planning, and the County of Maui Planning Department in connection with the status of the subject project and Petitioner's progress in complying with the conditions imposed herein. The annual report shall be submitted in a form prescribed by the Executive Officer of the Commission.

23. **Release of Conditions.** The Commission may fully or partially release the conditions provided herein as to all or any portion of the Property upon

timely motion and upon the provision of adequate assurance of satisfaction of these conditions by Petitioner.

date: 4-1-04

24. **Notice of Imposition of Conditions.** Within 7 days of the issuance of the Commission's Decision and Order for the subject reclassification, Petitioner shall (a) record with the Bureau of Conveyances a statement that the Property is subject to conditions imposed herein by the Land Use Commission in the reclassification of the Property, and (b) shall file a copy of such recorded statement with the Commission.

25. **Recordation of Conditions.** Petitioner shall record the conditions imposed herein by the Commission with the Bureau of Conveyances pursuant to Section 15-15-92 Hawai'i Administrative Rules.

ADOPTION OF ORDER

The undersigned Commissioners, being familiar with the record and proceedings, hereby adopt and approve the foregoing ORDER this 18th day of March, 2004. This ORDER and its ADOPTION shall take effect upon the date this ORDER is certified and filed by this Commission.

Done at Kihei, Maui, Hawaii, this 18th day of March, 2004,
per motion on March 18, 2004.

APPROVED AS TO FORM

Russell G. Snyder
Deputy Attorney General

LAND USE COMMISSION
STATE OF HAWAII

By Lawrence N.C. Inge
LAWRENCE N.C. INGE
Chairperson and Commissioner

By P. Roy Catalani
P. ROY CATALANI
Vice-Chairperson and Commissioner

By Bruce A. Coppa
BRUCE A. COPPA
Vice-Chairperson and Commissioner

By Asert Pravin Desai
PRAVIN DESAI
Commissioner

By Kyong-Su Jim
KYONG-SU JIM
Commissioner

By Isaac Fiesta, Jr.
ISAAC FIESTA, JR.
Commissioner

By Steven Lee Montgomery
STEVEN LEE MONTGOMERY
Commissioner

By Ramball Tsakumoto
~~RAMBALL TSAKUMOTO~~
~~Commissioner~~

By Peter Yukimura
PETER YUKIMURA
Commissioner

Filed and effective on
Mar 25 2004

Certified by:
Anthony Hsing
ANTHONY HSING

BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

In the matter of the Petition)
) DOCKET NO. A03-739
 of)
) CERTIFICATE OF SERVICE

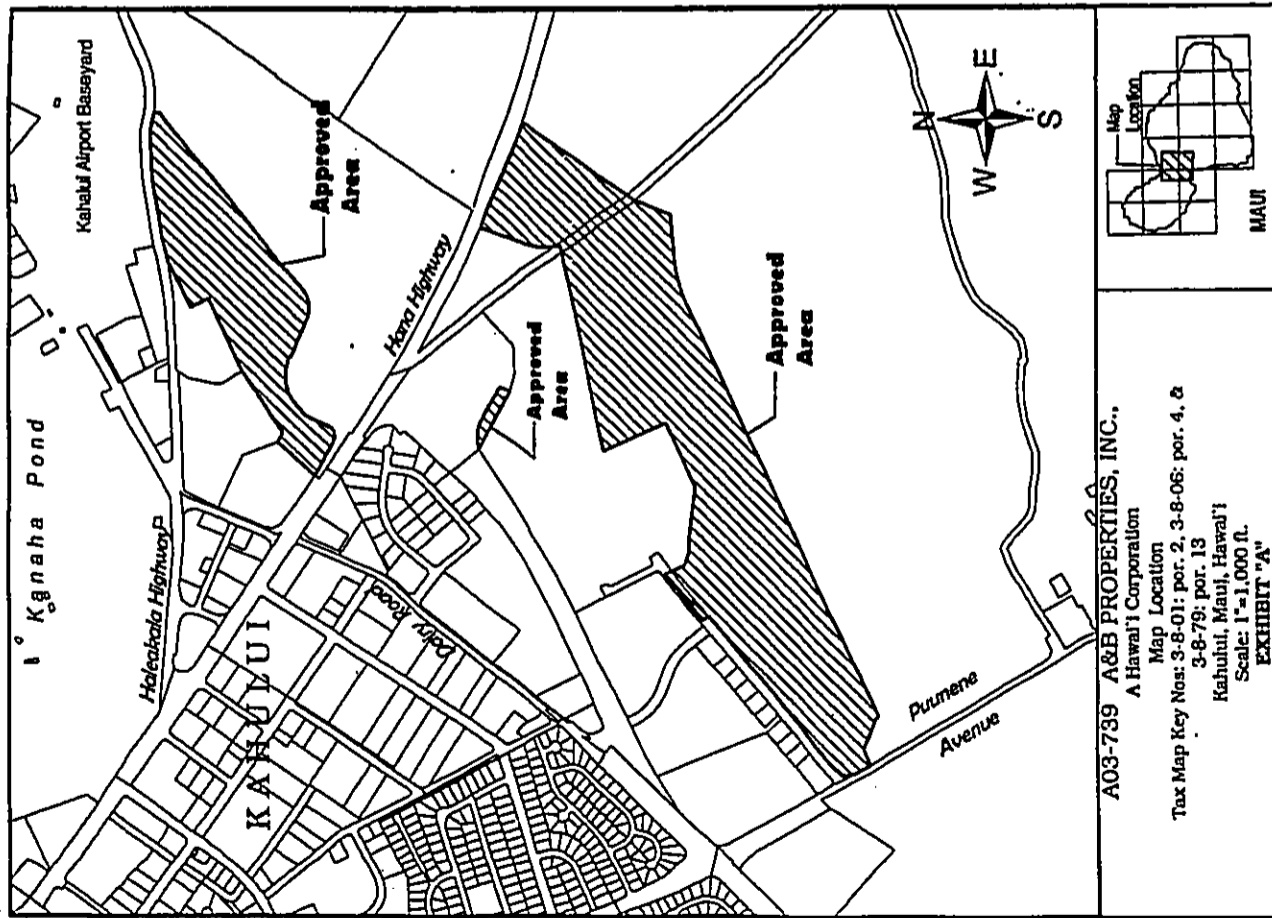
A & B PROPERTIES, INC., A Hawaii'i
Corporation)

To Amend the Agricultural Land Use
District Boundary into the Urban Land
Use District for Approximately 138.158
Acres of Land at Kahului, Maui, Hawaii'i,
Tax Map Key Nos: 3-8-01; Por. 2, 3-8-06;
Por. 4, and 3-8-79; Por. 13)

CERTIFICATE OF SERVICE

I hereby certify that a copy of the Findings of Fact, Conclusions of
Law, and Decision and Order was served upon the following by either hand
delivery or depositing the same in the U. S. Postal Service by regular or certified
mail as noted:

DEL. MARY LOU KOJAYASHI
Office of Planning
P. O. Box 2359
Honolulu, Hawaii 96804-2359



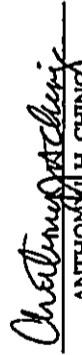
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Dated: Honolulu, Hawaii, MAR 25 2004


ANTHONY H. CHING
Executive Officer



B BOTANICAL SURVEY

CHAR & ASSOCIATES

Botanical/Environmental Consultants

4471 Puu Panini Ave.
Honolulu, Hawaii 96816
(808) 734-7828

12 April 2004

Mr. Dan Yasui
A&B Properties, Inc.
c/o PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813-3484

SUBJECT Maui Business Park Phase II
Botanical Survey

Dear Mr. Yasui:

I have reviewed the botanical survey report that we prepared in January 2003 for the approximately 179-acre Maui Business Park Phase II project site. The botanical information on the vegetation types, floristics or species list, and the threatened and endangered species and species of concern findings are all current.

The project site has been greatly disturbed by sugar cane cultivation and, as a result, the vegetation is dominated by introduced plants, many of them weedy species. The three native species which are present on the project site prefer the more open, sunny, disturbed environments. These are the 'ilima (Sida fallax), 'uhaloa (Waltheria indica), and popolo (Solanum americanum). These species are indigenous, that is, they are native to the Hawaiian Islands and elsewhere; no rare plants occur on the project site.

Again, the proposed development of the site is not expected to have a significant negative impact on the botanical resources. The report recommended that landscaping be installed as soon as possible to prevent problems with dust.

Please do not hesitate to contact me should you have any questions.

Sincerely,



Winona P. Char

**BOTANICAL SURVEY
MAUI BUSINESS PARK - PHASE II
KAHALUI, WAILUKU DISTRICT, MAUI**

by

Winona P. Char
CHAR & ASSOCIATES
Botanical Consultants
Honolulu, Hawaii

Prepared for: PBR HAWAII
JANUARY 2003

**BOTANICAL SURVEY
MAUI BUSINESS PARK – PHASE II
KAHALUI, WAILUKU DISTRICT, MAUI**

INTRODUCTION

Maui Business Park Phase II – a continuation of A&B Properties, Inc.'s existing Maui Business Park Phase I in Kahului – will provide light industrial space in Maui's central commercial and business district in close proximity to the Kahului Airport and Kahului Harbor.

The Maui Business Park Phase II site is comprised of two noncontiguous properties totaling approximately 179 acres (the "Project").

The South Project Area is approximately 141 acres and is identified by Tax Map Key Number 3-8-06:4 (portion); and Tax Map Key Number 3-8-01:2 (portion). The property is bound to the west Puunene Avenue; to the north by Maui Business Park Phase I, a large retention basin area, and the State-owned right-of-way for the proposed Kahului Airport Access Road; to the northeast by Hana Highway; and to the southeast and the south by cane fields. A portion of Pulehu Road crosses this parcel. Two large existing flood basins are found on the middle portion of this parcel. Most of the parcel is currently used for sugar cane cultivation.

The North Project Area is approximately 38 acres and is identified by Tax Map Key Number 3-8-79:13. This property is bound to the west by Hana Highway; to the northwest by the parcels owned by K-Mart and Costco, to the north by Haleakala Highway; and to the southeast and southwest by the State-owned right-of-way for the proposed Kahului Airport Access Road. The old HC&S Co. power plant is located along the Haleakala Highway

portion of the parcel. The buildings are now used for various purposes including a fiberglass works shop and a plant nursery (aro cultivation).

The primary access to the South Project Area will be via Hookele Street, which currently runs between Puunene Avenue and Pakaula Street and will be extended to Hana Highway. Primary access to the North Project Area will be via Haleakala Highway.

Currently, the South and North Project Areas are predominately sugarcane fields or fallow fields. The topography gently slopes to the north, but is generally level. Elevations range from 15 to 50 feet above sea level. Soils on the larger parcel are primarily Ewa silty clay loam, 0 to 3 percent slopes, "EaA" on the soil maps (Footner et al. 1972). Molokai silty clay loam, 0 to 3 percent slopes ("MuA"), and 3 to 7 percent slopes ("MuB") occur on the smaller parcel. These dark reddish-brown soils are well drained. Permeability is moderate, runoff is slow, and the erosion hazard is slight (Footner et al. 1972).

Land uses within Maui Business Park Phase II will be consistent with the M-1 Light Industrial District (Chapter 19.24 Maui County Code) and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses. Both project areas will contain a variety of lot sizes to serve the needs of various types of businesses allowed within the Light Industrial District.

Maui Business Park Phase II will be developed in increments not greater than 70 acres. Onsite and offsite infrastructure improvements are expected to be constructed starting in 2005. The expected absorption and construction of commercial and industrial buildings is expected to take place over the next 12 to 18 years.

Field studies to assess the botanical resources on the project site were conducted on 16 and 17 December 2002 by two botanists. The primary objectives of the field studies were to:

- 1) prepare a general description of the vegetation on the project site;
- 2) inventory the flora;

- 3) search for threatened and endangered species as well as species of concern; and
- 4) identify areas of potential environmental problems or concerns and propose appropriate mitigation measures.

SURVEY METHODS

Prior to undertaking the field studies, a search was made of the pertinent literature to familiarize the principal investigator with other botanical studies conducted in the general area. Topographic and project maps and a black and white aerial photograph were examined to determine vegetation cover patterns, terrain characteristics, access, boundaries, and reference points.

A walk-through survey method was used. Both parcels are easily accessed from the paved roads which border the parcels and from the cane haul roads which cross the properties. Notes were made on plant associations and distribution, disturbances, substrate types, topography, drainage, exposure. Plant identifications were made in the field; plants which could not positively identified were collected for later determination in the herbarium, and for comparison with the recent taxonomic literature. The is disturbed areas with scrub vegetation were surveyed more intensively native plants were more likely to occur in such areas.

The species recorded are indicative of the season ("rainy" vs. "dry") and the environmental conditions at the time of the survey. A survey taken at a different time of the year and under varying environmental conditions would doubt yield slight variations in the species list, especially of the weedy, annual plants.

DESCRIPTION OF THE VEGETATION

Most of the ±179-acre project site was surveyed by Char & Associates in two earlier botanical studies conducted in 1988 and 1989. The 1988 study covered ±220 acres, while the 1989 study covered an additional ±130 acres added to the original project site. Actively cultivated sugar cane fields covered almost all of the areas surveyed. Smaller uncultivated areas such as rockpiles supported scrub vegetation dominated by koa haole shrubs and clumps of Guinea grass.

These two broad vegetation types are recognized in the present study. An inventory of all the plant species observed within these two vegetation types on the project site is presented in the species checklist at the end of this report.

No inventory was made of the developed areas around the buildings on the HC&S Co. site or on the Maui Land and Pineapple facility located on the smaller parcel. These areas support landscape plantings such as coconut (*Cocos nucifera*), Chinese banyan (*Ficus microcarpa*), monkeypod (*Samanea saman*), and date palms (*Phoenix sp.*).

Sugar Cane Fields

Sugar cane fields cover most of the larger parcel. Sugar cane (*Saccharum officinarum*) is fast-growing and forms a dense, closed cover which excludes most other species; usually only the hardy nutgrass (*Cyperus rotundus*) is able to grow under shade of the sugar cane plants. The weedy species which are associated with the cane fields tend to occur along the margins of the fields, along the dirt roads and ditches which criss-cross the fields. In these areas there is less competition from the sugar cane plants and more available light, water and nutrients. These weedy plants are mostly annuals and are adapted to the frequent disturbances related to agricultural practices.

Some of the more frequently observed weeds include swollen fingergrass (Chloris barbata), cheese weed (Malva parviflora), wild spider flower (Cleome gynandra), spiny amaranth (Amaranthus spinosus), Bermuda grass (Cynodon dactylon), little bell (Ipomoea triloba), and golden crown-beard (Verbesina encelioides).

Along Ho'okele Street which fronts the developed areas, Guinea grass (Panicum maximum), buffelgrass (Cenchrus ciliaris), swollen fingergrass, green panicgrass (Panicum maximum var. trichoglume), and cheese weed are abundant. Low lying areas where irrigation water occasionally ponds support Leptochloa fusca ssp. uninervis, barnyard rice (Echinochloa crus-galli), apple of Peru (Nicanandra physalodes), bristly foxtail (Setaria verticillata), and abundant cheese weed. Plowed fields are largely barren with scattered small patches of weeds. These include little bell, Guinea grass, golden crown-beard, young castor bean (Ricinus communis), Boerhavia coccinea, and slender mimosa (Desmanthus permambucanus).

Also included in this vegetation type is a section on the smaller parcel which is used for dryland taro (Colocasia esculenta) cultivation. Recently plowed fields with a few scattered patches of weeds cover a large portion of this parcel.

Scrub Vegetation

Uncultivated areas support scrub vegetation. On the larger parcel, scrub vegetation occurs on the existing flood basins and adjacent boulder pile, and an abandoned well site near Pulehu Road. Within the flood basins, the vegetation is a mixture of weedy species with buffelgrass, swollen finger-grass, coatbuttons (Tridax procumbens), and 'uhaloa (Waltheria indica) codominant. On the bottom of the flood basins, woody components include scattered shrubs of Indian fleabane (Pluchea indica), sourbush (Pluchea carolinensis), koa haole (Leucaena leucocephala), and tree tobacco (Nicotiana glauca), and a few small trees of kiawe (Prosopis

pallida), ironwood (Casuarina equisetifolia), and a fan palm (Livistonia sp.). Vegetation cover is roughly 60% with the remaining 40% barren soil and old hydromulch.

A large pile of boulders is found south of the flood basins. These boulders may have been placed there during the construction of the flood basins or the construction of the adjacent shopping areas. Shrubs of tree tobacco and castor bean are locally common between the boulders. Other plants found here include Guinea grass, sourbush, purple cowpea (Macroptilium atropurpureum), koa haole, sourgrass (Digitaria insularis), hairy abutilon (Abutilon grandifolium), and 'iima (Sida fallax).

Around the abandoned well and pumphouse, the vegetation consists of koa haole shrubs and clumps of Guinea grass. Large concrete slabs are also found in this area.

On the smaller parcel, scrub vegetation is found bordering the HC&S Co. buildings. In this area, the scrub vegetation consists of koa haole shrubs with dense mats of buffelgrass and clumps of Guinea grass. Other plants found here include 'uhaloa, swollen fingergrass, stinkgrass (Eragrostis cilianensis), Neotoma wightii, Natal redtop grass (Melinis repens), and golden crown-beard. Where the parcel abuts the Costco and K-Mart properties, kiawe becomes common. A few African tulip tree (Spalioodea campamulata) and be-still tree (Thevetia peruviana) occur here.

Along the southern end of the parcel where it borders Hanna Highway, former sugar cane fields support scattered koa haole and sourbush shrubs, 4 to 7 ft. tall; shrub cover is roughly 40%. Patches of swollen fingergrass and green panicgrass form a somewhat dense cover between the shrubs. Other plants which occur here in fairly large numbers include castor bean, golden crown-beard, and slender mimosa. A few dead stalks of sugar cane are occasionally found.

DISCUSSION AND RECOMMENDATION

Almost all of the ±179-acre project site, composed of two noncontiguous parcels, has been used for sugar cane cultivation or related activities in the past. Today, the majority of the site is still under sugar cane cultivation or, on the smaller parcel, dryland taro cultivation. It is not surprising then that the majority of the plants found on the site are weedy species associated with agricultural lands.

A total of 67 species were inventoried on the site. Of these, 64 (95.5%) are introduced or alien species. Introduced species are all those plants brought to the islands by humans, intentionally or accidentally, after Western contact, i.e., Cook's arrival in Hawai'i in 1778. The only native species observed were the 'ilima (*Sida fallax*), popolo (*Solanum americanum*), and 'uhaloa (*Waltheria indica*). These native plants are all indigenous, that is, they are native to Hawai'i and elsewhere; they do well in open, disturbed environments. None of the plants inventoried on the project site is a threatened and endangered species or a species of concern (U.S. Fish and Wildlife Service 1999a, 1999b; Wagner et al. 1999). The earlier botanical studies by Char & Associates (1988, 1989) also recorded similar findings.

The proposed development of the ±179-acre project site is not expected to have a significant negative impact on the botanical resources of the site or the general region. It is recommended, however, that areas cleared of vegetation be landscaped as soon as possible to prevent problems with excessive dust generation.

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- Wagner, W.L. and D.R. Herbst. 1999. Supplement to the Manual of the flowering plants of Hawai'i, pp. 1855-1918. In: *Ibed. Revised edition*. 2 vols. University of Hawai'i Press and Bishop Museum Press, Honolulu.

PLANT SPECIES LIST: Maul Business Park - Phase II

The following checklist is an inventory of all the plants observed on the ±179-acre project site. The plants are arranged alphabetically by families and then by species into each of two groups: Dicots and Monocots. The taxonomy and nomenclature of these flowering plants follows Wagner et al. (1990) and Wagner and Herbst (1999). The few recent name changes are those reported in the Hawaii Biological Survey series (Evenhuis and Eldredge, eds., 1999-2002).

For each species, the following information is provided:

1. Scientific name with author citation.
2. Common English and/or Hawaiian name(s), when known.
3. Biogeographic status. The following symbols are used:
 - I = indigenous = native to the Hawaiian Islands and elsewhere.
 - I? = questionably indigenous = data not clear if dispersal to the islands is by natural or human-related mechanisms, but weight of evidence suggests probably natural.
 - X = introduced or alien = all those plants brought to the islands by humans, intentionally or accidentally, after western contact, that is Cook's arrival in the islands in 1778.
 - X? = questionably introduced = date of introduction unclear or very soon after Western contact; may possibly be indigenous or of Polynesian introduction.
4. Vegetation type. Two vegetation types are recognized on the project site (see text for discussion):
 - c = Sugar Cane Fields
 - s = Scrub Vegetation

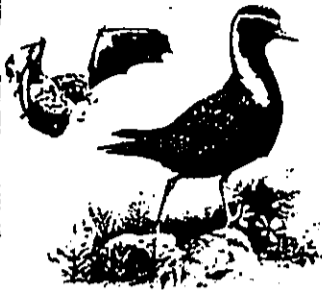
Scientific name	Common name	Status	Vegetation type	
			Ⓔ	Ⓕ
CHENOPODIACEAE (Goosefoot family)				
Atriplex semibaccata R. Br.	Australian saltbush	X	+	-
Atriplex suberecta Verd.	saltbush	X	-	+
Chenopodium murale L.	'aheaha	X	+	+
CONVOLVULACEAE (Morning glory family)				
Ipomoea obscura (L.) Ker-Gawl.	Field bindweed	X	+	-
Ipomoea triloba L.	little bell, pink bindweed	X	+	+
Merremia aegyptia (L.) Urb.	hairy merremia, koali kua hulu	X?	-	+
CUCURBITACEAE (Gourd family)				
Luffa acutangula (L.) Roxb.	dishcloth gourd, seequa	X	+	-
Momordica charantia L.	wild bittermelon	X	+	-
EUPHORBIACEAE (Spurge family)				
Ricinus communis L.	castor bean, koli, pa'aia	X	+	+
FABACEAE (Pea family)				
Chamaecrista nictitans (L.) Moench	partridge pea, lauki	X	-	+
Crotalaria incana L.	fuzzy rattlepod, kukaehoki	X	-	+
Desmanthus perambucanus (L.) Thellung	slender mimosa	X	+	+
Indigofera hendecaphylla Jacq.	creeping indigo	X	-	+
Leucaena leucocephala (Lam.) de Wit	koa haole	X	-	+
Macroptilium atropurpureum (DC) Urb.	purple cowpea	X	-	+
Neonotonia wightii (Wight & Arn.) Lackey		X	-	+
Prosopis pallida (Humb. & Bonpl. ex Willd.) Kunth	kiawe	X	-	+
MALVACEAE (Mallow family)				
Abutilon grandifolium (Willd.) Sweet	hairy abutilon, ma'o	X	-	+
Malva parviflora L.	cheese weed	X	+	+
Malvastrum coromandelianum (L.) Garcke	false mallow, hauuoi	X	+	+

Scientific name	Common name	Status	Vegetation type	
			Ⓔ	Ⓕ
FLOWERING PLANTS				
DICOTS				
ACANTHACEAE (Acanthus family)				
Asystasia gangetica (L.) T. Anderson	Chinese violet, coromandel	X	-	+
AMARANTHACEAE (Amaranth family)				
Amaranthus spinosus L.	spiny amaranth, pakai kuku	X	+	+
Amaranthus lividis L.	slender amaranth, pakai	X	+	-
APOCYNACEAE (Dogbane family)				
Thevetia peruviana (Pers.) K. Schum.	be-still tree	X	-	+
ASTERACEAE (Daisy family)				
Bidens pilosa L.	Spanish needle, ki, ki nehe	X	-	+
Cirsium vulgare (Savi) Ten.	luli thistle, pua kala	X	+	-
Conyza bonariensis (L.) Cronq.	hairy horseweed, ilioha	X	+	-
Emilia fosbergii Nicolson	flora's paintbrush, pualele	X	-	+
Lactuca serriola L.	prickly lettuce	X	-	+
Pluchea carolinensis (Jacq.) G. Don	sourbush, pluchea	X	-	+
Pluchea indica (L.) Less.	Indian fleabane	X	-	+
Sonchus oleraceus L.	sowthistle, pualele	X	-	+
Tridax procumbens L.	coat buttons	X	-	+
Verbesina encelioides (Cav.) Benth. & Hook.	golden crown-beard	X	+	+
BIGNONIACEAE (Bignonia family)				
Spathodea campanulata P. Beauv.	African tulip tree	X	-	+
CAPPARACEAE (Caper family)				
Cleome gynandra L.	wild spider flower, hohohina	X	+	+
CASUARINACEAE (She-oak family)				
Casuarina equisetifolia L.	ironwood, paina	X	-	+

Scientific name	Common name	Status	Vegetation type	
			⊖	⊕
LILIACEAE (Lily family)				
Aloe vera L.	aloe	X	-	+
POAEAE (Grass family)				
Bothriochloa pertusa (L.) A. Camus	pitted beardgrass	X	-	+
Cenchrus ciliaris L.	buffelgrass	X	+	+
Chloris barbata (L.) Sw.	swollen fingergrass, mau'u'lei	X	+	+
Cynodon dactylon (L.) Pers.	Bermuda grass, maniekie	X	+	-
Digitaria insularis (L.) Mez ex Ekman	sourgrass	X	+	+
Digitaria sp.	crabgrass	X	-	+
Echinochloa crus-galli (L.) P. Beauv.	barnyard rice	X	+	-
Eragrostis amabilis (L.) Muhl. & Arn.	lovegrass	X	-	+
Eragrostis cilianensis (All.) Lonk	stinkgrass	X	-	+
Eragrostis sp.		X	+	+
Leptochloa fusca ssp. uninervia (J. Presl) N. Snow		X	+	-
Melinis repens (Willd.) Zizka	Natal redtop, Natal grass	X	-	+
Panicum maximum Jacq.	Guinea grass	X	+	+
Panicum maximum var. trichoglume Eyles ex Robyns	green panicgrass	X	+	+
Saccharum officinarum L.	sugar cane, ko	X	+	-
Setaria verticillata (L.) P. Beauv.	bristly foxtail, mau'u pilipili	X	+	-

Scientific name	Common name	Status	Vegetation type	
			⊖	⊕
Sida fallax Walp.	'ilima	I	+	+
Sida rhombi folia L.	Cuba jute	X	-	+
NYCTAGINACEAE (Four-o'clock family)				
Boerhavia coccinea Mill.		X	+	-
PAPAVERACEAE (Poppy family)				
Argemone mexicana L.	Mexican poppy	X	+	-
PORTULACACEAE (Purslane family)				
Portulaca oleracea L.	common purslane, pigweed, 'ihi	X	+	-
SOLANACEAE (Nightshade family)				
Nicandra physalodes (L.) Gaertn.	apple of Peru	X	+	-
Nicotiana glauca R.C. Graham	tree tobacco	X	-	+
Solanum americanum Mill.	popolo, glossy nightshade	I?	+	-
STERCULIACEAE (Cacao family)				
Waltheria indica L.	'uhaloa, hi'aloa, kanakaloa	I?	+	+
ZYGOPHYLLACEAE (Creosote bush family)				
Tribulus terrestris L.	puncture vine, goathead	X	+	-
MOMOCOTS				
ARACEAE (Aroid family)				
Colocasia esculenta (L.) Schott	dryland taro, kalo	X	+	-
ARECACEAE (Palm family)				
Livistonia sp.	fan palm	X	-	+
CYPERACEAE (Sedge family)				
Cyperus rotundus L.	nutgrass, nut sedge	X	+	-

C AVIFAUNAL AND FERAL MAMMAL FIELD SURVEY



American Golden-Plover (female) image courtesy Daniel S. Kay
© Bird Conservation International, Inc.

Faunal Surveys

-Bird & Mammal

RECEIVED

APR 13 2004

PBR HAWAII

12 April 2004

Tom Schnell
PBR HAWAII
1001 Bishop Street
Pacific tower
Suite 650
Honolulu, Hawaii 96813-3484

SUBJECT: Status of Avifaunal and Feral Mammal Field Survey of
Alexander and Baldwin's Maui Business Park-Phase II report
submitted in January 2003.

As per your request I am responding to your inquiry as to whether or not the faunal survey conducted on above noted lands in 2003 is still relevant. The habitats at this location remain as they were during the field survey. Therefore there is no reason to assume that the array and relative abundance of birds and mammals at this location has significantly changed in the intervening year. I believe the 2003 report is still a valid representation of this property.

Sincerely,

Phil Bruner
Environmental Consultant

Phil Bruner, Environmental Consultant
BYUH Box 1775, 55-220 Kulanui Street, Laie, Hawaii 96762-1294
Phone: (808) 293-3820 • Fax: (808) 293-3825

AVIFAUNAL AND FERAL MAMMAL FIELD SURVEY
OF ALEXANDER AND BALDWIN'S
MAUI BUSINESS PARK-PHASE II

Prepared for:
PBR-HAWAII
and
Alexander & Baldwin Properties, Inc.

Prepared by:
Phillip L. Bruner
Environmental Consultant
Faunal Surveys
#1775 BYU-H
55-220 Kulanui Street
Lale, HI 96762

(Revised)
May 2, 2003

INTRODUCTION

The purpose of this report is to present the findings of a two day (3, 4 January 2003) field survey of Alexander and Baldwin's Maui Business Park-Phase II properties, Maui (Fig. 1). Pertinent published and unpublished sources are also noted in the report to help document the results of the field survey and provide a broader perspective the potential bird and mammal resources in this area of Maui. The goals of the field survey were:

- 1- Document the birds and mammals currently found on and near the property.
- 2- Obtain data on the relative abundance of birds at this site.
- 3- Search all habitats on the property and determine the natural resources important to native and migratory species of birds.

SITE DESCRIPTION

Maui Business Park Phase II—a continuation of A&B Properties, Inc.'s existing Maui Business Park Phase I in Kahului—will provide light industrial space in Maui's central commercial and business district in close proximity to the Kahului Airport and Kahului Harbor.

The Maui Business Park Phase II site is comprised of two noncontiguous properties totaling approximately 179 acres (the "Project") (Fig. 1).

The South Project Area is approximately 141 acres and is identified by Tax Map Key Number 3-8-06:4 (portion); and Tax Map Key Number 3-8-01:2 (portion). This property is bound to the west by Puunene Avenue; to the north by Maui Business Park Phase IB, a large retention basin area, and the State-owned right-of-way for the proposed Kahului Airport Access Road; to the northeast by Hana Highway; and to the southeast and the south by cane fields.

The North Project Area is approximately 38 acres and is identified by Tax Map Key Number 3-8-79:13. This property is bound to the west by Hana Highway; to the northwest by the parcels owned by K-Mart and Costco, to the north by Haleakala Highway; and to the southeast and southwest by the State-owned right-of-way for the proposed Kahului Airport Access Road.

The primary access to the South Project Area will be via Hookele Street, which currently runs between Puunene Avenue and Pakaula Street and will be extended to Hana Highway. Primary access to the North Project Area will be via Haleakala Highway.

Currently the South and North Project areas contain either agricultural crops (sugarcane, taro) or are fallow weed infested fields. A flood basin adjoins one of the sites. During the survey the flood basin was dry and filled with grass and brush. The topography gently slopes to the north, but is generally level. Elevations from range from 15 to 50 feet above sea level. The entire landscape has been altered from its natural state by years of agricultural use.

January was used to search for the presence of the introduced Barn owl (*Tyto alba*) and the native endangered Hawaiian Hoary Bat (*Lasiurus cinereus semotus*). A Peterson Ultrasound Detector D-100 was used to listen for vocalizing bats. This device was employed throughout the two sites. Feral mammal observations were gathered by visual and auditory means as well as by the presence of tracks and scats.

Scientific and common names used in this report follow Pyle (2002), Honacki et al. (1982), Tomich (1986) and van Riper and van Riper (1982).

RESULTS

NATIVE BIRDS: (Seabirds)

No seabirds were recorded nor were any expected at this particular location. It is possible that seabirds might occasionally fly across this area but they would not likely nest due to the presence of ground predators and human disturbance (Harrison 1990).

NATIVE BIRDS: (Land Birds)

No native land birds were found on the survey. The Hawaiian Owl also known as the Short-eared Owl or Pueo (*Asio flammeus sandwichensis*) is the only native land bird that might occur in this area. No Hawaiian Owls were observed on the survey. This species nests on the ground in areas with tall grass. It forages over open grasslands, agricultural fields as well as forests. Pueo are listed by the State of Hawaii as endangered on Oahu but not on Maui (Pratt et al. 1987, Hawaiian Audubon Society 1993). All other native land birds on Maui would typically be found at much higher elevations.

Land uses within Maui Business Park Phase II will be consistent with the M-1 Light Industrial district (Chapter 19.24 Maui County Code) and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses. Both project areas will contain a variety of lot sizes to serve the needs of various types of businesses allowed within in the Light Industrial District.

Maui Business Park Phase II will be developed in increments not greater than 70 acres. Onsite and offsite infrastructure improvements are expected to be constructed starting in 2005. The construction and absorption of commercial and industrial buildings is expected to take place over the next 12 to 18 years.

SURVEY PROTOCOL

The field survey was conducted over two sequential days (3,4, January 2003). The weather during the survey period was mixed with both clear, calm conditions and cloudy, windy weather. Access to the sites was from existing public roads. A series of ten minute point counts were taken at several locations on the two sites (Fig. 1). All birds seen or heard at these point count stations were tallied and form the basis for the relative abundance estimates given in the results portion of this report. Data in the form of observations of native and migratory species seen between the point count stations were also kept along with sightings of uncommon introduced species. Data were collected both early and late in the day when birds are most active and detectable. The night of 3

NATIVE BIRDS: (Waterbirds)

No native waterbirds were tallied on the survey. The absence of wetland habitat on the two sites limits the value of these lands for waterbirds. Following heavy, prolonged rains there may be some ephemeral wet areas in low lying sections and in the adjoining flood basins. In such situations the endangered Hawaiian or Black-necked Stilt (*Himantopus mexicanus knudseni*) might temporarily forage in these flooded areas. This opportunistic species uses a variety of wetlands (Prait et al. 1987).

MIGRATORY BIRDS:

The only migratory shorebird found on the survey was the Pacific Golden-Plover (*Pluvialis fulva*). A total of 16 plover were counted over the course of the survey. This shorebird is the most abundant migrant in Hawaii. Extensive long-term studies have yielded much information on the life history of this species (Johnson et al. 1981, 1989, 1993, 2001). Pacific Golden-Plover are territorial on both the breeding grounds in western Alaska and on the wintering grounds in Hawaii and the insular Pacific (Bruner 1993, Johnson and Connors 1996). All of the plover were seen along roadsides and in open patches in the fields.

The only other migratory shorebird that might utilize the same habitats as the plover is the Ruddy Turnstone (*Arenaria interpres*). None were recorded. Neither of these two migratory shorebirds are listed as threatened or endangered (Pyle 2002).

INTRODUCED BIRDS:

A total of 13 species of introduced birds were tallied on the survey. Table One gives the names of these species and their relative abundance. None of these are listed as threatened or endangered. Other field surveys in similar habitats elsewhere on Maui have also found the same general array of introduced species (Bruner 1991, 1994, 1995, 1997, 2001).

MAMMALS:

Two cats (*Felis catus*) and four Small Indian Mongoose (*Herpestes auripunctatus*) were seen on the survey. No rats or mice were recorded but undoubtedly occur in this area. The endangered Hawaiian Hoary Bat (*Lasiurus cinereus semotis*) was not found despite the extensive use of the Ultrasound Detector. Hawaiian Hoary Bats roost individually in trees. They forage in a wide variety of habitats including grasslands, forests, agricultural lands and urban areas (Tomich 1986, Kepler and Scott 1990).

SUMMARY AND CONCLUSIONS

The field survey examined all of the habitats on the two sites. The typical array of introduced birds and mammals expected at this location and in these habitats were recorded. The relative abundance of these species was likewise similar to that found on other field surveys conducted on comparable lands elsewhere on Maui.

The proposed development will alter the existing habitats. This will result in a change in the kinds of birds and their relative abundance at these sites. Birds which

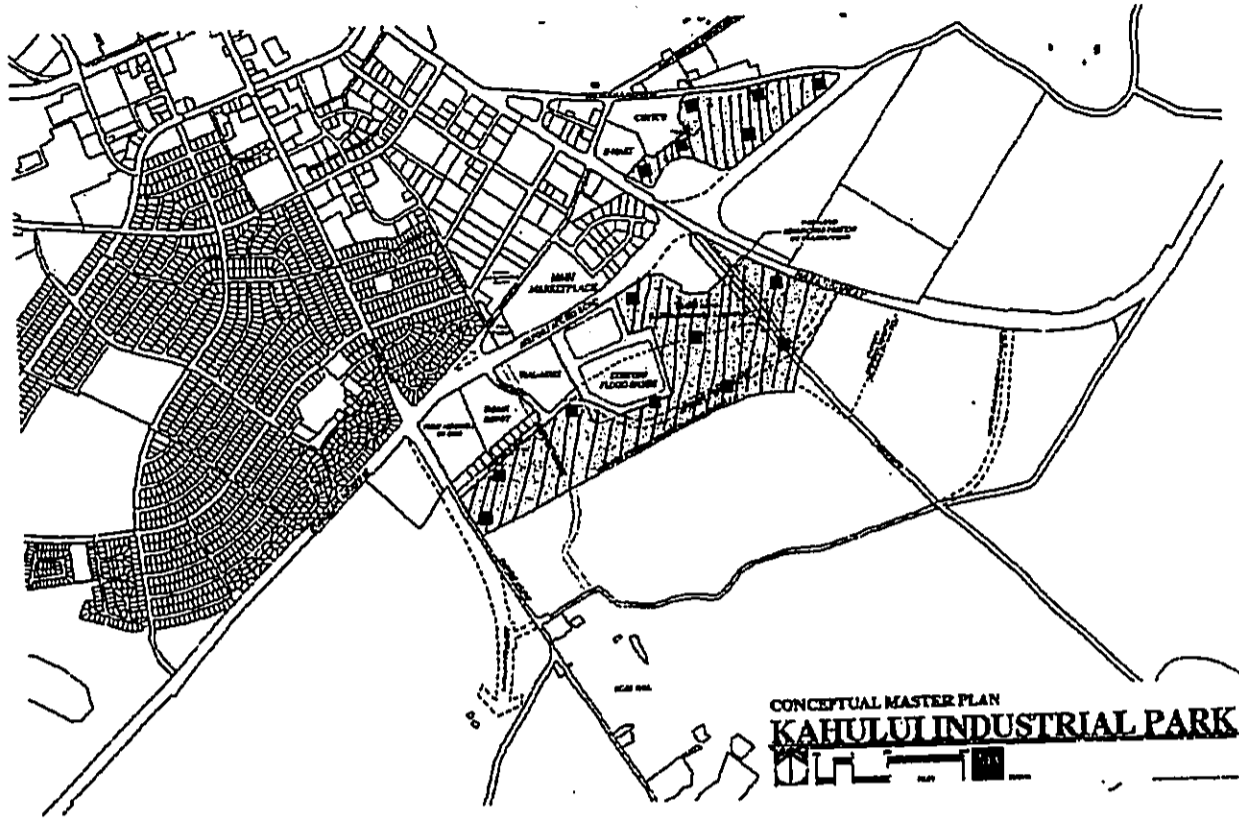


Fig. 1. Location of faunal (bird and mammal) survey. Two sites of the A&B Maui Business Park - Phase II property. The solid squares mark the approximate locations of the point count stations.

-7-

utilize fields such as Gray Francolin and Ring-necked Pheasant will decline in abundance while urban species like House sparrow and Common Myna will likely increase in numbers. The presence of wintering Pacific Golden-Plover on the property was expected given the available habitat. Their numbers on these sites will decline with the loss of open fields.

The only native land bird that might use this area is the Hawaiian Owl, however, none were observed on the survey days. The potential frequency of its occurrence in this area, to my knowledge, has not been studied.

The absence of the endangered Hawaiian Hoary Bat on this survey was not unexpected since it is much less common on Maui than on Kauai and the Big Island (Kepler and Scott 1990). They forage in a variety of habitats including those found on these sites. Their relative abundance at this location on Maui has not been reported in the literature and is likely unknown.

TABLE ONE

Introduced birds recorded on Alexander and Baldwin's Business Park-Phase II sites on 3, 4 January 2003. Relative abundance estimates are based on the following criteria:
 A = abundant (10+ per point count station in appropriate habitat)
 C = common (5-9 per point count)
 U = uncommon (1-4 per point count)
 R = recorded (total number found on entire survey, may or may not have been recorded on a point count station).

Common Name	Scientific Name	Relative Abundance
Cattle Egret	<i>Bubulcus ibis</i>	R = 6
Gray Francolin	<i>Francolinus pondicerianus</i>	C
Ring-neck Pheasant	<i>Phasianus colchicus</i>	R = 2
Spotted Dove	<i>Sirenotopelia chinensis</i>	C
Zebra Dove	<i>Geopelia striata</i>	A
Barn Owl	<i>Tyto alba</i>	R = 1
Japanese White-eye	<i>Zosterops japonicus</i>	A
Common Myna	<i>Acridotheres tristis</i>	A
Red-crested Cardinal	<i>Paroaria coronata</i>	U
Northern Cardinal	<i>Cardinalis cardinalis</i>	U
House Finch	<i>Carpodacus mexicanus</i>	C
House Sparrow	<i>Passer domesticus</i>	U
Nutmeg Mannikin	<i>Lonchura punctulata</i>	C

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D LETTER TO AND RESPONSE FROM
THE U.S. FISH AND WILDLIFE SERVICE



ALEXANDER & BALDWIN, INC.

February 5, 2003

Mr. Paul Henson
U.S. Fish and Wildlife Service
Pacific Islands EcoRegion
Attention: Ms. Lorena Wada
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850-0001

148 DIH LNA JAC PWH VR DIH CWL
LR SMK AM
DMS FEB 7 2003 SKM
DVL P
A:GW
S:SWR CC SG

Subject: Removal of Tree Tobacco Shrubs at Maui Business Park

Dear Mr. Henson:

As discussed with Ms. Lorena Wada of your staff, Alexander & Baldwin, Inc. (A&B) has identified an estimated three dozen mature tree tobacco shrubs (Nicotiana glauca) in and around a rock pile on its land in Kahului, Maui designated as Tax Map Key (TMK) Number (2) 3-8-004. The Maui County Waialuku-Kahului Community Plan designation for this area is Light Industrial and A&B plans to develop a portion of this parcel as the next phase of its Maui Business Park project. The rock pile was created by land clearing and grubbing operations during an earlier phase of the project, and has since become populated with tree tobacco, along with castor bean, haole koa, and other weeds. As you know, larvae of the endangered Blackburn's sphinx moth (BSM) are sometimes found on tree tobacco plants. The purpose of this letter is to outline measures which A&B intends to take to ensure that our project will not adversely impact any BSM that may be present on the tree tobacco shrubs. We request that the Service review our plan of action and provide written concurrence that these actions are adequate to avoid "take" of the moth when the tree tobacco plants are removed. It is our hope that this proactive approach will help to address any concerns about endangered species on the property that may arise during the development process.

As outlined to Ms. Wada during our conversation of January 21, 2003, A&B intends to implement the following measures to identify and protect any BSM that may be present on the property:

- 1. All tree tobacco plants planned to be removed will be examined for the presence of BSM eggs or larvae and/or signs of recent BSM larval feeding. A&B anticipates contracting an experienced biologist with knowledge of the BSM to conduct this initial survey. A&B may request the biologist to provide training to A&B personnel during the initial survey so that subsequent surveys may potentially be conducted in-house.
2. Plants on which BSM larvae or eggs are found will be documented, flagged for temporary preservation, and resurveyed at a later date. Per guidance provided by the Service, BSM caterpillars may be removed from individual plants and moved to other tree tobacco plants in the area (note that under no circumstances will BSM caterpillars be handled; instead, the occupied tree tobacco branch will be broken off

A&B Environmental Affairs • P.O. Box 266 • Paopao, Hawaii 96714 • Telephone: (808) 872-9559 • Fax: (808) 871-1661

Mr. Paul Henson
February 5, 2003; Page 2 of 2

- and transported to another nearby tree tobacco plant so that the caterpillar can crawl onto the nearby plant). BSM eggs, if found, will not be moved.
3. Plants which do not exhibit signs of the presence of BSM will either be removed during the survey or flagged for removal after the survey is completed.
4. In order to address the potential presence of pupae in the soil around plants showing signs of recent larval feeding, clear ground in a five-foot radius around such plants will not be disturbed for a 30-day period to allow any pupating moths to emerge and disperse. It should be noted, however, that most such plants are expected to be located within the rock pile, where soil conditions are unlikely to be conducive to the survival of pupae. Such plants located within the rock pile may be removed (cut down) despite showing signs of recent feeding, so long as larvae or eggs are not present.

- 5. In the event that any tree tobacco plants need to be temporarily preserved based on results of the initial biological survey, A&B will conduct follow-up surveys to monitor the status of BSM on these plants and will remove additional plants as the results of such surveys permit, with the expectation that all mature tree tobacco plants in the area to be developed will eventually be removed through this iterative process. A&B also intends to conduct periodic maintenance at the site to prevent tree tobacco from re-infesting the area.

As noted above, the purpose of implementing these measures is to avoid "take" of the BSM as a result of A&B's activities at the site. Because the tree tobacco plant is ubiquitous on Maui and is not considered to be essential to the conservation of the species (i.e., has not been designated as a "primary constituent element" of moth habitat), it is not A&B's intent to replant or otherwise replace any tree tobacco plants that may have served as BSM host plants prior to being removed from the property.

A&B appreciates the input that your staff has provided in the development of this plan of action, and we look forward to receiving your approval of the plan at your earliest convenience. We are scheduled to apply for government approvals necessary for this project in late March 2003, and would like to resolve issues related to the potential presence of BSM on the property by that time.

Thank you for your assistance in this matter, and please feel free to call me at (808) 877-2959 if you have any questions regarding our plans.

Sincerely,

[Signature]

Sean O'Keefe
Director, Environmental Affairs
Alexander & Baldwin, Inc.

C: R. Slack, A&B Properties



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Box 50088
Honolulu, Hawaii 96850

In Reply Refer To:
PI-03-52

MAY 21 2003

Sean O'Keefe
Alexander & Baldwin, Inc.
P.O. Box 266
Puunene, Hawaii 96784

Dear Mr. O'Keefe:

This responds to your February 5, 2003, letter in which you request the U. S. Fish and Wildlife Service (Service) review the proposed project of the removal of tree tobacco shrubs at Maui Business Park in Kahului, Maui, Hawaii.

Per your conversation with Ms. Lorena Wada of our staff, Alexander & Baldwin, Inc. (A&B) has identified an estimated three dozen mature tree tobacco shrubs (*Nicotiana glauca*) in and around a rock pile on its land in Kahului, Maui designed as Tax Map Key Number (2) 3-8-6-004. The Maui County Wailuku-Kahului Community Plan designation for this area is Light Industrial and A&B plans to develop a portion of this parcel as the next phase of its Maui Business Park project. The rock pile was created by land clearing and grubbing operations during an earlier phase of the project, and has since become populated with tree tobacco, along with castor bean, haole koa, and other weeds. The larvae of the endangered Blackburn's sphinx moth (BSM) are sometimes found on tree tobacco plants. A&B intends to take measures to ensure that their project will not adversely impact any BSM that may be present on the tree tobacco shrubs.

A&B intends to implement the following measures to identify and protect any BSM that may be present on the property. These measures are listed below.

1. All tree tobacco plants planned to be removed will be examined for the presence of BSM eggs or larvae and/or signs of recent BSM larval feeding. A&B anticipates contracting an experienced biologist with knowledge of the BSM to conduct this initial survey. A&B may request the biologist to provide training to A&B personnel during the initial survey so that subsequent surveys may potentially be conducted in-house.
2. Plants on which BSM larvae or eggs are found will be documented, flagged for temporary preservation, and resurveyed at a later date.
3. Plants which do not exhibit signs of the presence of BSM will either be removed during the survey or flagged for removal after the survey is completed.

Sean O'Keefe

2

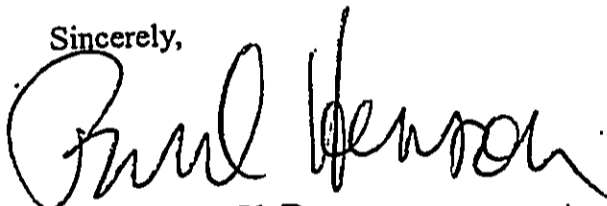
4. In order to address the potential presence of pupae in the soil around plants showing signs of recent larval feeding, clear ground in a five-foot radius around such plants will not be disturbed for a 30-day period to allow any pupating moths to emerge and disperse. It should be noted, however, that such plants are expected to be located within the rock pile, where soil conditions are unlikely to be conducive to the survival of pupae. Such plants located within the rock pile may be removed (cut down) despite showing signs of recent feeding, so long as larvae or eggs are not present.

5. In the event that any tree tobacco plants need to be temporarily preserved based on results of the initial biological survey, A&B will conduct follow-up surveys to monitor the status of BSM on these plants and will remove additional plants as the results of such surveys permit, with the expectation that all tree tobacco plants in the area to be developed will eventually be removed through this iterative process. A&B also intends to conduct periodic maintenance at the site to prevent tree tobacco from re-infesting the area.

Based on the information you provided, we agree that implementation of these measures for the proposed project are unlikely to result in violations of section 9 of the Endangered Species Act.

We appreciate your efforts to conserve endangered species. If you have any questions, please contact Lorena Wada, Supervisory Fish and Wildlife Biologist (phone: 808/541-3441; fax: 808/541-347).

Sincerely,



Paul Henson, Ph.D.
Field Supervisor

E

**LETTER TO AND RESPONSE FROM
THE STATE HISTORIC PRESERVATION DIVISION**

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
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AQUATIC RESOURCES
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CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

HAWAII HISTORIC PRESERVATION
DIVISION REVIEW

Log #: 2003.0700
Doc #: 0305CD59

Applicant/Agency: Tom Schneil
Address: PBR Hawaii
1001 Bishop Street
Pacific Tower, Suite 650
Honolulu, Hawaii 96813-3429

SUBJECT: Chapter 6E-42 Historic Preservation Review – Information Request for the
Proposed Maui Business Park Phase II
Ahupua'a: Kahului
District, Island: Wailuku, Maui
TMK: (2) 3-8-001:002 (portion) and 3-8-079:013

1. We believe there are no historic properties present, because:

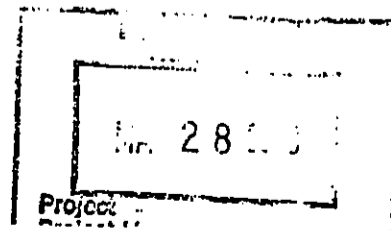
- a) intensive cultivation has altered the land
- b) residential development/urbanization has altered the land
- c) previous grubbing/grading has altered the land
- d) an acceptable archaeological assessment or inventory survey found no historic properties
- e) other: see SHPD DOC NO.: 9308KD01/LOG NO.:9086; SHPD DOC NO.: 9308AG35/LOG NO.: 9147; SHPD DOC NO.: 9310AG43/LOG NO.: 9851; SHPD DOC NO.: 9401AG23/LOG NO.: 10576; SHPD DOC NO.: 9406KD37/LOG NO.: 11896; SHPD DOC NO.: 9704SC35/LOG NO.: 19217; SHPD DOC NO.: 0004CD05/LOG NO.: 25198; SHPD DOC NO.: 0107CD34/LOG NO.: 27908.

2. This project has already gone through the historic preservation review process, and mitigation has been completed ____.

Thus, we believe that "no historic properties will be affected" by this undertaking

Staff: Cathleen A. Dagher
Cathleen A. Dagher
Assistant Maui/Lana'i Island Archaeologist
(808) 692-8023

Date: 25 May 2003





LAND PLANNING
ARCHITECTURE
ENVIRONMENTAL STUDIES

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Chairman

5. JAMES S. WITTON, ASLA
Secretary

6. JANE DUNN, ASLA
Secretary (1997-1998)

7. JAMES S. WITTON, ASLA
Secretary (1999-2000)

8. JANE DUNN, ASLA
Secretary (2001-2002)

9. JANE DUNN, ASLA
Secretary (2003-2004)

10. JANE DUNN, ASLA
Secretary (2005-2006)

11. JANE DUNN, ASLA
Secretary (2007-2008)

12. JANE DUNN, ASLA
Secretary (2009-2010)

13. JANE DUNN, ASLA
Secretary (2011-2012)

14. JANE DUNN, ASLA
Secretary (2013-2014)

April 23, 2003

Holly McEldowney,
Acting Administrator
State Historic Preservation Division
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

ATTN: Cathleen Dagher

SUBJECT: HISTORIC PRESERVATION REVIEW OF MAUI BUSINESS
PARK PHASE II (TMK 3-8-06:4 (portion); TMK 3-8-01:2 (portion);
and TMK 3-8-79:13)

Dear Ms. McEldowney:

PBR HAWAII is assisting A&B Properties, Inc., in obtaining a State Land Use District Boundary Amendment and a Change in Zoning for Maui Business Park Phase II, a new light industrial business park in Kahului, Maui, adjacent to the existing Maui Business Park Phase I. The Maui Business Park Phase II site is comprised of two noncontiguous properties totaling approximately 179 acres (see Figure 1). These properties are identified by TMK 3-8-06:4 (portion); TMK 3-8-01:2 (portion); TMK 3-8-79:13 (see Figure 2).

Our consulting archaeologist, Aki Sinoto, previously contacted the State Historic Preservation Division and spoke to Cathleen Dagher and Melissa Kirkendall regarding conducting an archaeological survey of the Maui Business Park Phase II site. During the course of coordinating with the State Historic Preservation Division, the staff archaeologist determined that no further archaeological procedures were warranted for the Maui Business Park Phase II site. This determination was given verbally during a telephone conversation and was based on the long history of sugar cultivation of the area, the negative results of a previously completed survey by Xamanek Researches (Fredericksen & Fredericksen 1988) (see attached), and several "no effect" determinations for portions of the subject area or adjoining areas (see attached).

Based on this determination, we have not undertaken a new archeological survey for the Maui Business Park site, however Aki Sinoto is preparing a cultural impact assessment for the project.

With this letter we are requesting a formal written "no effect" letter from the State Historic Preservation Division regarding the Maui Business Park Phase II site. Your letter is necessary for us to proceed with the State Land Use District Boundary Amendment and the Change in Zoning requests that will be filed soon with the State of Hawaii and the County Maui.

Holly McEldowney
SUBJECT: HISTORIC PRESERVATION REVIEW OF MAUI BUSINESS PARK PHASE II
(TMK 3-8-06:4 (portion); TMK 3-8-01:2 (portion); and TMK 3-8-79:13)
April 23, 2003
Page 2

Thank you for your attention to this request. Please contact me if you have any questions or require additional information.

Sincerely,
PBR HAWAII

Tom Schnell, AICP
Associate

cc: Richard Stack/A&B Properties, Inc. (w/o attachments)
Aki Sinoto/Aki Sinoto Consulting (w/o attachments)
Melissa Kirkendall/SHPD Maui (with attachments)

Aki Sinoto Consulting - Cultural Resource Management
233E Kapiolani Blvd., Ste. 200A, Honolulu, Hawaii 96815 Tel: (808) 944-5539 Fax: (808) 944-4926

April 16, 2003

Mr. Richard Stack, Jr.
A & B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Stack:

Subject: Historic Preservation Review of the Maui Business Park - Phase II
Kahului, Wailuku, Maui (TMK: 3-8-06:74 and 3-8-79:13)

Following the execution of our agreement to undertake the archaeological inventory survey in conjunction with the proposed phase II development of the Maui Business Park, during the course of coordinating the scope of subsurface testing with the State Historic Preservation Division (SHPD), the staff archaeologist determined that no further archaeological procedures are warranted for the subject area. This was based on the negative results of the previously completed survey by Xamanek Researches (Fredricksen & Fredericksen 1988) and the issuance of several "no effect" determinations for portions of the subject area or adjoining area on previous occasions.

The following eight letters with "no effect" determinations are attached herewith:

1. August 16, 1993 to Mr. Glen Ueno (LOG/DOC NO: 90869308KD01)
2. August 23, 1993 to Mr. Glen Ueno (LOG/DOC NO: 91479308AG35)
3. November 15, 1993 to Mr. Brian Miskae (LOG/DOC NO: 98519310AG43)
4. January 14, 1994 to Mr. Bert Raffle (LOG/DOC NO: 105769401AG23)
5. June 30, 1994 to Mr. Brian Miskae (LOG/DOC NO: 118969406KD37)
6. May 1, 1997 to Mr. Robert Siroto (LOG/DOC NO: 192179704SC35)
7. April 11, 2000 to Mr. Michael Mumelekyo (LOG/DOC NO: 25198/0004CD05)
8. August 3, 2001 to Mr. Michael Summers (LOG/DOC NO: 27908/0107CD34)

Based on the current determination, the proposed archaeological inventory procedures are not necessary. According to the SHPD/DLNR, a new letter of "no effect" shall not be forthcoming until the matter comes to them for review.

The cultural impact assessment report is being revised and will be submitted shortly. Should you have any questions or comments, please contact me at the numbers listed above or by email at akisinoto@aol.com. We appreciate this opportunity to work with you on this project.

Sincerely,

Aki Sinoto
Consulting Archaeologist

cc with attachments: Mr. Tom Schnell, PBR Hawaii

JOHN W. LARSEN
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

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August 16, 1993

LOG NO: 9086
DOC NO: 9308KD01

Mr. Glen Ueno
Department of Public Works
Land Use and Codes Administration
County of Maui
250 S. High Street
Wailuku, HI 96793

Dear Mr. Ueno:

SUBJECT: Historic Preservation Review of the Preliminary Plat for the
Kahului Industrial Park Subdivision
(Local File No. 3-1597)
Kahului, Wailuku, Maui
TMK: 3-8-06:1 Portion of 4

Thank you for the opportunity to comment on the proposed Kahului Industrial Park Subdivision.

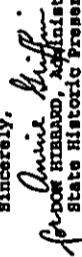
The subject subdivision is located near the intersection of Dairy Road and Punahoa Avenue, adjacent to the First Assembly of God Church. Parcel 4, which is being subdivided, is a portion of land Grant #13 to Claus Spreckels; it is currently owned by Alexander and Salovin, Inc. The subdivision will create a 33.8 acre parcel, to be further subdivided for light industrial use; a road easement consisting of 2.99 acres; and a large parcel consisting of 387.4 acres. The large parcel will continue to be used for sugar cultivation.

The proposed subdivision was inspected June 29, 1993 by our staff archaeologist Theresa K. Donham. The entire property is in active use for sugar cultivation and is transected by irrigation ditches, field roads and case fields. A single area of rock accumulation was observed. This was examined and found to consist of large boulders that had been moved by machinery. No traces of historic sites were observed within the area.

Based on the results of the field inspection and the long history of sugar cane cultivation in this area, we believe that historic sites are highly to be present. Therefore, we have determined that the proposed subdivision will have "no effect" on historic sites.

Please contact Ms. Theresa K. Donham at 243-5169 or Ms. Annie Griffin at 597-0013 if you have any questions regarding these comments.

Sincerely,


ANNE GRIFFIN, Administrator
State Historic Preservation Division

AD:111

JOHN WALANCE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 4TH FLOOR
HONOLULU, HAWAII 96813

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October 29, 1993

Mr. Brian Miskae, Director
Maui Planning Department
250 South High Street
Wailuku, Maui, Hawaii 96793

Dear Mr. Miskae:

SUBJECT: County of Maui, Historic Preservation Review the SMA
Use Permit Application for Sam's Club (93/SML-27)
Kahului, Wailuku, Maui
TKML 3-8-721 12

LOG NO: 9851
DOC NO: 9310RG43

Thank you for the opportunity to comment on the proposed construction of Sam's Club, a wholesale store, and accessory parking.

The applicant's consultant, Michael T. Munkiyko Consulting, Inc., consulted our office regarding historic preservation concerns. Our letter of June 2, 1993 has been attached to this application as Appendix B. Portions of this letter have been used on pages 13 and 20 of the Project Assessment Report.

The field inspection conducted by our staff archaeologist identified no remains of historic sites and it is highly unlikely that significant historic sites are present due to extensive alteration of the property. Therefore, we have determined that the proposed Sam's Club will have "no effect" on historic sites.

Please contact Ms. Annie Griffin at 587-0013 if you have any questions about these comments.

Sincerely,

DON HIBBARD, Administrator
State Historic Preservation Division

AG:jen

c: Steve Tagawa, OCEA

JOHN WALANCE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 4TH FLOOR
HONOLULU, HAWAII 96813

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WATER AND LAND DEVELOPMENT

January 14, 1994

Mr. Bert Ratte, Engineer
Department of Public Works
Land Use and Codes Administration
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Ratte:

SUBJECT: County of Maui, Historic Preservation Review of the
Construction Plans for the Kahului Industrial Park,
Phase 1B
Kahului, Wailuku, Maui
TKML 3-8-51 4 (ppr.)

LOG NO: 10576
DOC NO: 940JAG23

Thank you for the opportunity to comment on these plans for the proposed Kahului Industrial Park.

We believe that the proposed project will have no effect on historic sites. The findings of an archaeological survey indicate the absence of significant historic sites in the proposed construction area. Sheet 2 of the plans include two notes providing for the procedures to be followed in case of the inadvertent discovery of historic sites during construction work. The note under REQUIREMENTS OF STATE HISTORIC PRESERVATION DIVISION is more appropriate to follow.

Please contact our office at 587-0047 if you have any questions.

Sincerely,

DON HIBBARD, Administrator
State Historic Preservation Division

AG:jen

3 1994



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813

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August 23, 1993

Mr. Glen Ueno
Department of Public Works
Land Use and Codes Administration
250 South High Street
Wailuku, Hawaii 96793

LOG NO: 9147
DOC NO: 9308AG35

Dear Mr. Ueno:

SUBJECT: County of Maui, Historic Preservation Review of the
First Assembly of God Subdivision (LUCA File No.
3-1610)
Kahului, Wailuku, Maui
TKM 3-8-061, BOX 04

Thank you for the opportunity to comment on the proposed
subdivision of a portion of this parcel into 3 lots.

This area has been extensively disturbed by sugarcane
cultivation. Archaeological surveys conducted in former cane
lands near this property have identified no historic sites. It
is highly unlikely that historic sites are present in the
proposed subdivision. Therefore, we believe that this
subdivision will have "no effect" on historic sites.

Please contact Ms. Annie Griffin at 587-0013 if you have any
questions.

Sincerely,

DON HIBBARD, Administrator
State Historic Preservation Division

AG:111

November 15, 1993

MEMORANDUM

LOG NO: 9989
DOC NO: 9311AG14

TO: Royce C. Evans, Administrator
Office of Conservation and Environmental Affairs

FROM: Don Hibbard, Administrator

SUBJECT: Historic Preservation Review of SMA Management Area
Permit Application (93/SMA-27), Sam's Club (File No.:
94-295)
Kahului, Wailuku, Maui
TKM 3-8-79, BOX 12

We have sent our comments directly to the Maui County Planning
Department. Attached for your information is a copy of our
October 29, 1993 letter.

If you have any questions, please contact Ms. Annie Griffin at
587-0013.

AG:jen

Attachment

NOV 16 1993

JOHN WASKIE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

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June 30, 1994

Mr. Brian Miskae, Director
Maui Planning Department
250 South High Street
Wailuku, Maui, Hawaii 96793

LOG NO: 11896
DOC NO: 9406KD37

Dear Mr. Miskae:

SUBJECT: County of Maui, Historic Preservation Review of the
Special Use Permit - K-Mart Parking Lot Expansion
Kahului, Wailuku, Maui (I.D. No. 94/SUP-006)
TRK: 3-8-79: 13

Thank you for the opportunity to review and comment on the proposed K-Mart parking lot expansion project. The project involves a c. 6,000 square foot area directly behind and adjacent to the existing K-Mart facility. The purpose of the expansion is to replace parking lot stalls that will be lost when Dairy Road is widened.

The proposed parking lot expansion area is located on abandoned agricultural lands that have been impacted by mechanized cane cultivation and more recently by construction of the K-Mart store. The proposed construction will involve minor grading and paving.

Due to the extent of prior disturbance in the area, and the nature of the proposed construction, we believe that the proposed parking lot expansion project will have "no effect" on historic sites.

Page 2

Please contact Ms. Theresa Donham at 243-5169 if you have any questions.

Sincerely,

DON HIBBARD, Administrator
State Historic Preservation Division

KD: KH

c: Roger Evans (OCEA File No. 94-687)

11-5-1994



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
23 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813

MICHAEL B. WILSON, CHIEF EXECUTIVE
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- WATER AND LAND DEVELOPMENT

May 1, 1997

Mr. Robert Siarot, District Engineer
State of Hawaii Department of Transportation
650 Palapala Drive
Kahului, Maui, Hawaii 96732

LOG NO: 19217 ✓
DOC NO: 9704SC35

Dear Mr. Siarot:

SUBJECT: Chapter 6E-8 Historic Preservation Review of a Draft Environmental Assessment Prepared for the Proposed Mokulele Highway/Puunene Bypass, Project No. 311A-02-92, Wailuku District, Maui
TMKs: 3-8-004; Portions of 23, 24 & 27; 3-8-005; Portions of 02, 19, 20, 21, 22, 27, 28, 29, 30, 31 & 34; 3-8-006; Portions of 02, 03, 04, & 20; 3-8-008; Portions of 01, 07, 08 & 32; 3-8-077; Portion of 09

Thank you for the opportunity to comment on the draft Environmental Assessment (EA) prepared for the proposed Mokulele Highway/Puunene Bypass project. The subject undertaking will consist of two phases of roadway improvements: the widening of Mokulele Highway and Puunene Avenue from two-lane to four-lane roadways; and the future construction of the "Puunene Bypass" by the County of Maui. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the subject parcels.

We have previously reviewed an archaeological inventory survey of the proposed Mokulele Highway/Puunene Bypass Corridor, and concurred with the findings of the survey (*Inventory Survey of Puunene Bypass/Mokulele Highway Improvements Corridor, Pulehunui and Wailuku Ahupua'a, Wailuku District, Island of Maui, Hawaii'i*, [TMK: 3-8, 04, 05, 06, 07], 1996, Bargett & Spear). At the time our office concluded its review of the inventory survey, it appeared that the proposed widening of Mokulele Highway would have an "adverse effect" on a significant historic site (SHIP No. 50-50-04-4164, Naval Air Station Puunene) known to lie just to the east of the existing roadway. Site 4164 includes what may be a large dump site for abandoned aircraft and machinery which lies just to the east of the existing Mokulele Highway corridor. Thus, we advised the archaeological consultants that an acceptable mitigation plan would be needed in order to ensure that the proposed widening of Mokulele Highway would have "no adverse effect" on Site 4164.

Subsequent to our previous determination of "adverse effect" on Site 4164 and the recommendation to prepare a mitigation plan (see attached copy of Hibbard to Spear, dated July 8, 1996, DOC NO: 9606SC22), we received copies of 1951 aerial photographs taken of the vicinity of the dump site. The aerial photographs clearly show existing topographic features such as the highway, railroad berm, and the margins of the dump site. Our review of these photographs indicates that the proposed widening of Mokulele Highway at this point will not, in fact, adversely affect the dump site.

Mr. Robert Siarot
Page 2

Additionally, an addendum to the archaeological inventory survey report was prepared (*Addendum to: Inventory Survey of Puunene Bypass/Mokulele Highway Improvements Corridor, Pulehunui and Wailuku Ahupua'a, Wailuku District, Island of Maui, Hawaii'i*, [TMK: 3-8, 04, 05, 06, 07], 1996, Bargett & Spear). This addendum documents several representative structures from the Plantation Camp at McGerrow Village since the village may be under impact from the proposed highway improvements. Subsequent to the field work conducted pursuant to the subject undertaking, all buildings in the proposed corridor impact zone have been razed, and one structure (Building 4014) was preserved and moved to the grounds of The Sugar Museum.

Consequently, in view of these facts, we can now say that the proposed undertakings will have "no effect" on significant historic sites known to be in the vicinity of the project site.

Should you have any questions, please feel free to call Sara Collins at 587-0013.

AKA

RON HIBBARD, Administrator
State Historic Preservation Division

SC:jen

cc: Ms. Elizabeth Anderson, Cultural Resources Commission, Maui Planning Department,
250 S. High Street, Wailuku, HI 96793

STILLMAN J. CATTIANG
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813

July 8, 1996

Scientific Consultant Services, Inc.
711 Kapiolani Boulevard, Suite 777
Honolulu, Hawaii 96813

Dear Dr. Spear:

SUBJECT: Historic Preservation Review of a Revised Archaeological Inventory Survey of the
Punene Bypass/Mokule Highway Improvements Corridor
Pukunui and Waikaha, Waikaha, District, Maui
TMK: 3-8-04-05-06-87

LOG NO: 17431
DOC NO: 9608C22

MICHAEL S. WILSON, EMPLOYMENT
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
Kalahele Building, Room 555
801 Kalia Boulevard
Honolulu, Hawaii 96813

April 11, 2000

Michael T. Munekiyo
Munekiyo, Arakawa and Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Munekiyo,

SUBJECT: Chapter 6E-42 Historic Preservation Review of the Draft Environmental
Assessment for the Proposed Maui Business Park, Phase 1B Subdivision
Kahului Ahupua'a, Wailuku District, Island of Maui
TMK: 3-9-08-073

LOG NO: 25188
DOC NO: 0004CD05

Thank you for the opportunity to comment on your Draft Environmental Assessment of
January 21, 2000. Our review is based on reports, maps and aerial photographs maintained
at the State Historic Preservation Office; no field inspection was made of the subject property.

From the submitted plans, we understand the proposed undertaking entails the development
of a light industrial subdivision and the subject property will be divided into ten lots. The
proposed undertaking includes improvements involving the State-Right-of-Way, such as the
installation of traffic signals.

In 1988, an archaeological inventory survey was conducted of the subject property by
Xamane Research Inc. (Fredericksen and Fredericksen 1988). No significant historic sites
were identified during this investigation, however, a volcanic glass-like substance was
recovered. Subsequent analysis conducted on this material determined it not to be volcanic
glass.

Given the above information, it seems unlikely that significant historic sites will be impacted
by the proposed undertaking. Therefore, we believe that this project will have "no effect" on
significant historic sites.

If at a future date, expansion of this subdivision is planned for the lot adjacent to Phase 1B,
we request the opportunity to review all plans for development.

Please call Cathleen Dagher at 692-8023 if you have any questions.

Aloha,

Cathleen Dagher
Don Hibbard, Administrator
State Historic Preservation Division

CD:jen

APR 17 2000

STILLMAN J. CATTIANG
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813

July 8, 1996

Scientific Consultant Services, Inc.
711 Kapiolani Boulevard, Suite 777
Honolulu, Hawaii 96813

Dear Dr. Spear:

SUBJECT: Historic Preservation Review of a Revised Archaeological Inventory Survey of the
Punene Bypass/Mokule Highway Improvements Corridor
Pukunui and Waikaha, Waikaha, District, Maui
TMK: 3-8-04-05-06-87

LOG NO: 17431
DOC NO: 9608C22

MICHAEL S. WILSON, EMPLOYMENT
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Thank you for the prompt submission of requested revisions to the archaeological inventory survey report
for the proposed Punene Bypass/Mokule Highway corridor (Inventory Survey of Punene
Bypass/Mokule Highway Improvements Corridor, Pukunui and Waikaha Ahupua'a, Waikaha District,
Island of Maui, Hawaii). TMK: 3-8-04-05-06-07). We provide the following
comments.

In general, the requested revisions have been made acceptably. We now find that the report acceptably
inventories sites in the area, and we agree with significance evaluations.

We do not concur, however, with the proposed mitigation plan for the dump site portion of Site 50-50-09-
4164 that appears to lie within the proposed improvements corridor. We believe that the proposed mitigation
- passive preservation through depositing fill on top of the portions of dump site within the corridor - will
have an "adverse effect" on the significant historic aerospace artifacts. According to representatives of the
Pacific Aerospace Museum (PAM), the dump site was originally formed in 1947 when Naval Air Station
personnel pushed a number of outdated, damaged, and/or surplus aircraft, aircraft parts, and other military
vehicles into an excavated pit and then covered the abandoned materials with dry fill. According to the
PAM representatives, the placing of new fill and a portion of the highway over the dump site would likely
have an adverse effect on the hollow aircraft within the dump site, causing the aircraft and other intact
wrecks to collapse.

In view of these findings, we believe that an alternative, acceptable mitigation plan will be needed. We
would encourage you and your client to meet with us, in order to review the available information and
develop an acceptable mitigation plan for Site 50-50-09-4164. This work on a mitigation plan can be
handled separately from the report, with the resulting plan not needing to be in the report. Thus, the report
is considered complete.

Should you have any questions, please feel free to call Sara Collins at 587-0013.

Aloha,

Sara Collins
DON HIBBARD, Administrator
State Historic Preservation Division

SC:jen

JUL 8 1996

WILLIAM J. GATTI AND
PARTNERS
ATTORNEYS AT LAW



ROBERT B. COLUMBA-ARRIAGA, CHAIRMAN
STATE HISTORIC PRESERVATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES

DEPUTY
JAMES L. HANBOLD
LUNNEL RICHMOND

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KALANIANA'OLE PALACE, ROOM 1608
601 Kalia Road, Suite 1608
Honolulu, Hawaii 96817

AQUATIC RESOURCES
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COMMISSION ON WATER RESOURCES
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STATE PARKS

August 3, 2001

Michael J. Summers
Chris Hart & Partners, Inc.
1955 Main Street, Suite 200
Wahiawa, Hawaii 96793-1706

LOG NO: 27908 ✓
DOC NO 0107CD34

Dear Mr. Summers,

SUBJECT: Chapter 6E-42 Historic Preservation Review of an Information Request Pertaining to a Special Management Area Use Permit Application for the Proposed Construction of the Costco Wholesale Addition on a Property Located in Kahaione, Kahaione Ahupua'a, Waiuku District, Island of Maui
TMK: 3-8-79: 013

Thank you for the opportunity to provide comments pertaining to the information request for the Special Management Area Use Permit for the proposed construction of the Costco Wholesale Addition to be located on a property in Kahaione. Our review is based on reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was conducted of the subject parcel.


Based on the submitted information request, we understand the proposed project area is adjacent to the existing Costco and was previously utilized as the site of the Central Maui Power Plant. The subject property had previously been grubbed and graded and currently there are several dilapidated buildings on-site.

A search of our records indicates an archaeological inventory survey has not been conducted of the subject parcels. The general area seems likely to have once been the location of pre-Contact farming, perhaps with scattered houses. However, the subject property has undergone extensive alteration due to the construction of the power plant, making it unlikely that significant historic sites remain.

Given the above information, we believe that the proposed undertaking will have "no effect" on historic sites.

Please call Cathleen Dagher, at 692-8023, if you have any questions.

Aloha


Don Hibbard, Administrator
State Historic Preservation Division

CD:jen

8/6 16 2001

F CULTURAL IMPACT ASSESSMENT

CULTURAL IMPACT ASSESSMENT:

Maui Business Park Phase II
Kahului, Wailuku, Maui Island
(TMK 3-8-06: 4 portion and 3-8-79:13)
(and TMK 3-8-01:2 portion)



Aki Sinoto Consulting
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CULTURAL IMPACT ASSESSMENT:

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Preface

Maui Business Park Phase II—a continuation of A&B Properties, Inc.'s existing Maui Business Park Phase I in Kahului—will provide light industrial space in Maui's central commercial and business district in close proximity to the Kahului Airport and Kahului Harbor.

The Maui Business Park Phase II site is comprised of two noncontiguous properties totaling approximately 179 acres (the "Project").

The South Project Area is approximately 141 acres and is identified by Tax Map Key 3-8-06:4 (portion); and Tax Map Key Number 3-8-01:2 (portion). This property is bound to the west by Puunene Avenue; to the north by Maui Business Park Phase IB, a large retention basin area, and the State-owned right-of-way for the proposed Kahului Airport Access Road; to the northeast by Hana Highway; and to the southeast and the south by cane fields.

The North Project Area is approximately 38 acres and is identified by Tax Map Key Number 3-8-79:13. This property is bound to the west by Hana Highway; to northwest by the parcels owned by K-Mart and Costco, to the north by Haleakala Highway; and to the southeast and southwest by the State-owned right-of-way for the proposed Kahului Airport Access Road.

The primary access to the South Project Area will be via Hookele Street, which currently runs between Puunene Avenue and Pakaula Street and will be extended to Hana Highway. Primary access to the North Project Area will be via Haleakala Highway.

Currently, the South and North Project Areas are predominately sugarcane fields or fallow fields. The topography gently slopes to the north, but is generally level. Elevations range from 15 to 50 feet above mean sea level.

Land uses within Maui Business Park Phase II will be consistent with the M-1 Light Industrial district (Chapter 19.24 Maui County Code) and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses. Both project areas will contain a variety of lot sizes to serve the needs of various types of businesses allowed within in the Light Industrial District.

Maui Business Park Phase II will be developed in increments not greater than 70 acres. Onsite and offsite infrastructure improvements are expected to be constructed starting in 2005. The expected absorption and construction of commercial and industrial buildings is expected to take place over the next 12 to 18 years.

CULTURAL IMPACT ASSESSMENT:
Maui Business Park Development
Kahului, Waiakea, Maal Island
TMK: 3-8-06:4 (portion)
TMK: 3-8-01:2 (portion)
and TMK: 3-8-79:13

For:
A & B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

By:
Carol Kaiahiiki

May 2003

Aki Simoto Consulting
2333 Kapiolani Blvd. No. 2704
Honolulu, Hawaii 96826

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INTRODUCTION

A cultural impact assessment, requested by A & B Properties, Inc. of Honolulu, was undertaken by Aki Sinito Consulting of Honolulu. This assessment was prepared in conjunction with the proposed development of commercial facilities known as Maui Business Park - Phase II, in Kahului Town on Maui Island. An archaeological inventory survey was previously conducted by Xomanek Researches of Pukalani Maui (Fredericksen and Fredericksen 1988). The purpose of this study is to define the cultural resources of the subject area and assess the potential impacts of the proposed project upon resources pertinent to native Hawaiian or any other ethnic groups.

Project Location

The project area, situated in Kahului, Waiiuku *ahupua'a* and District, Maui Island, consists of two proximal parcels located on either side of Hana Highway at the proposed junction with the proposed Airport Access Road (Figs. 1). The northern parcel (TMK 3-8-79:13), encompassing 38 acres, is located on a portion of a triangular piece of land bounded by Haleakala Highway to the north, Hana Highway to the southwest, and the right-of-way of the proposed Airport Access Road to the southeast (Figs. 2, 3, & 4). The existing K-Mart and Costco stores occupy the western third of this area fronted by Dairy Road on the west. The more expansive southern parcel (TMK 3-8-06:4 portion and 3-8-01:2 portion), encompassing 141 acres, is located south and southeast of the existing First Assembly of God Church, Home Depot, Wal-Mart, and the flood basins. Beyond the existing developments, the area is partially bounded on the northwest by the right-of-way corridor of the proposed airport access road, Hana Highway on the northeast, open land formerly planted in sugar cane to the southeast, and Puunene Avenue to the southwest (Figs. 2, 5, & 6). The existing Maui Marketplace, fronting Dairy Road occurs northwest of the flood basins.

Waiiuku District, bounded by Lahaina District to the west and Makawao to the east, occupies the central portion of Maui Island including the isthmus that resembles a broad valley between the West Maui Mountains and the large dome of Haleakala on East Maui. The *manua* portion of Waiiuku *ahupua'a* centers on Iao Stream while its *makaia* portion expands eastward near Paia. Kahului roughly occupies the northwestern third of the coastal area and represents the commercial transportation center for the island. Maui's principal airport and its only deep-water harbor are in Kahului. The harbor, protected a breakwater, was formerly connected by rail with nearby pineapple canneries and sugar plantations and was the hub for exporting the products of the fertile central plain.

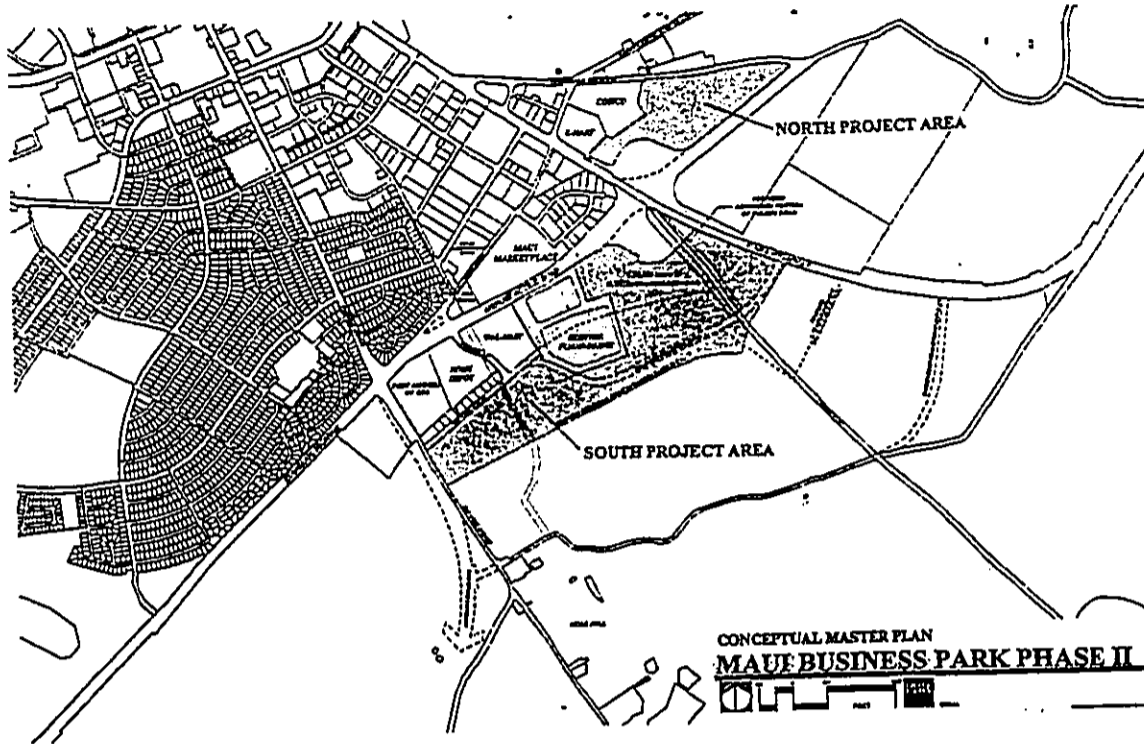


Figure 3. Tax Map Showing the Northern Parcel, TMK 3-8-79:13
(Map by PBR Hawaii)

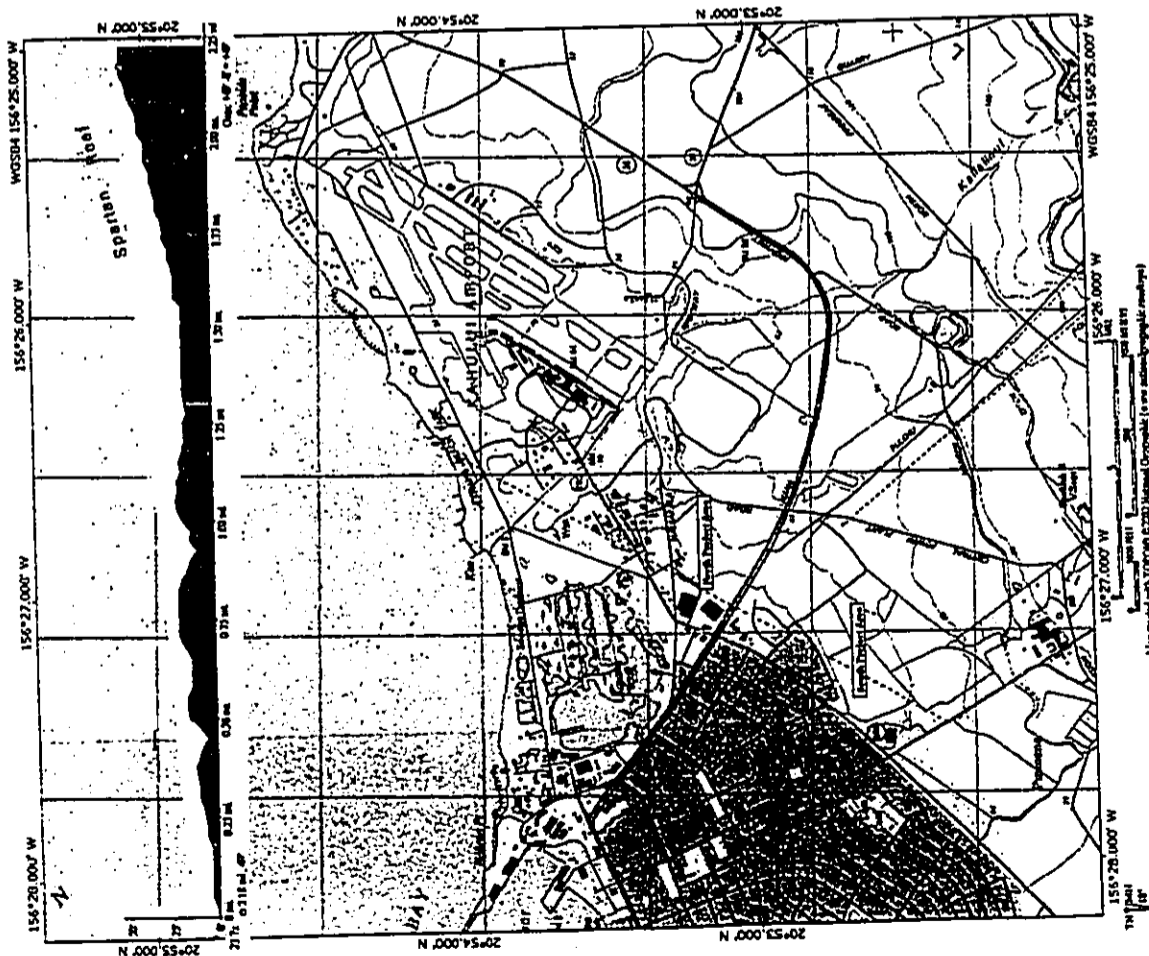


Figure 1. Location of Project Area on 1995 USGS Wailuku Quadrangle

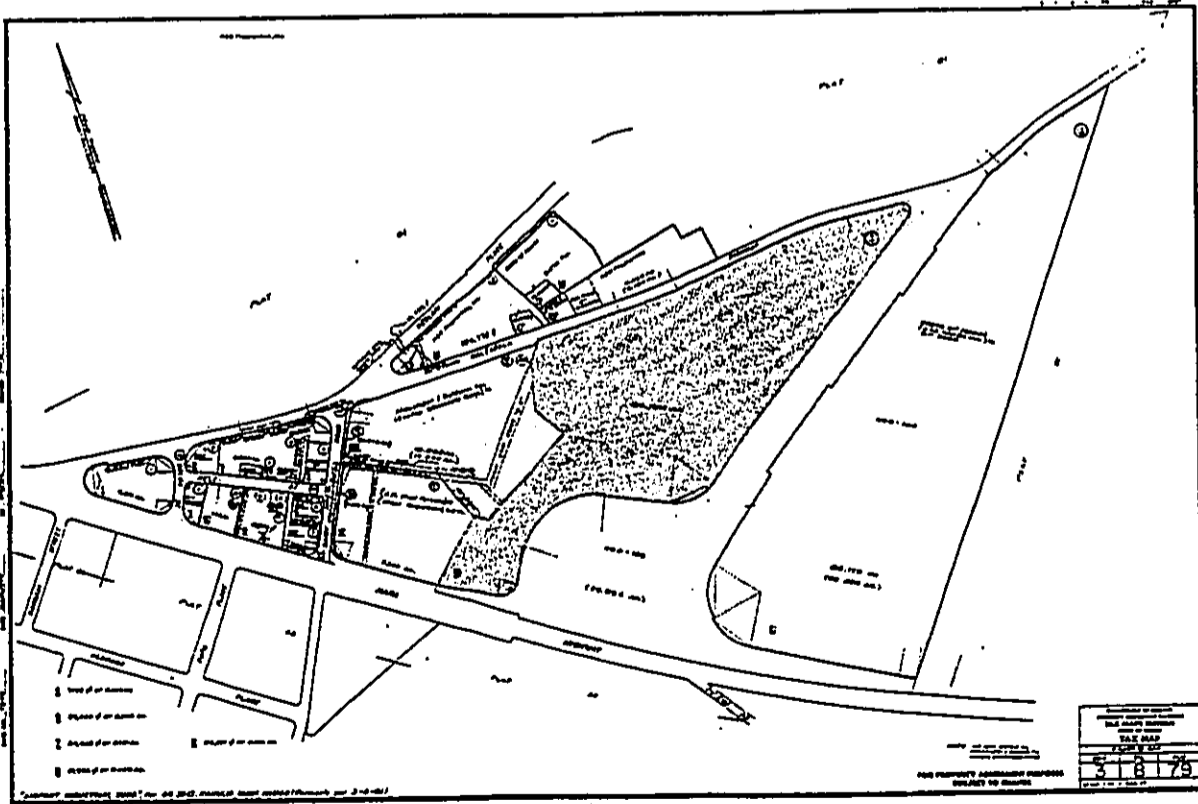


Figure 3. Tax Map Showing the Northern Parcel, TMK 3-8-79:13



Figure 4. Overview of Northern Parcel from Ilaha Highway to North

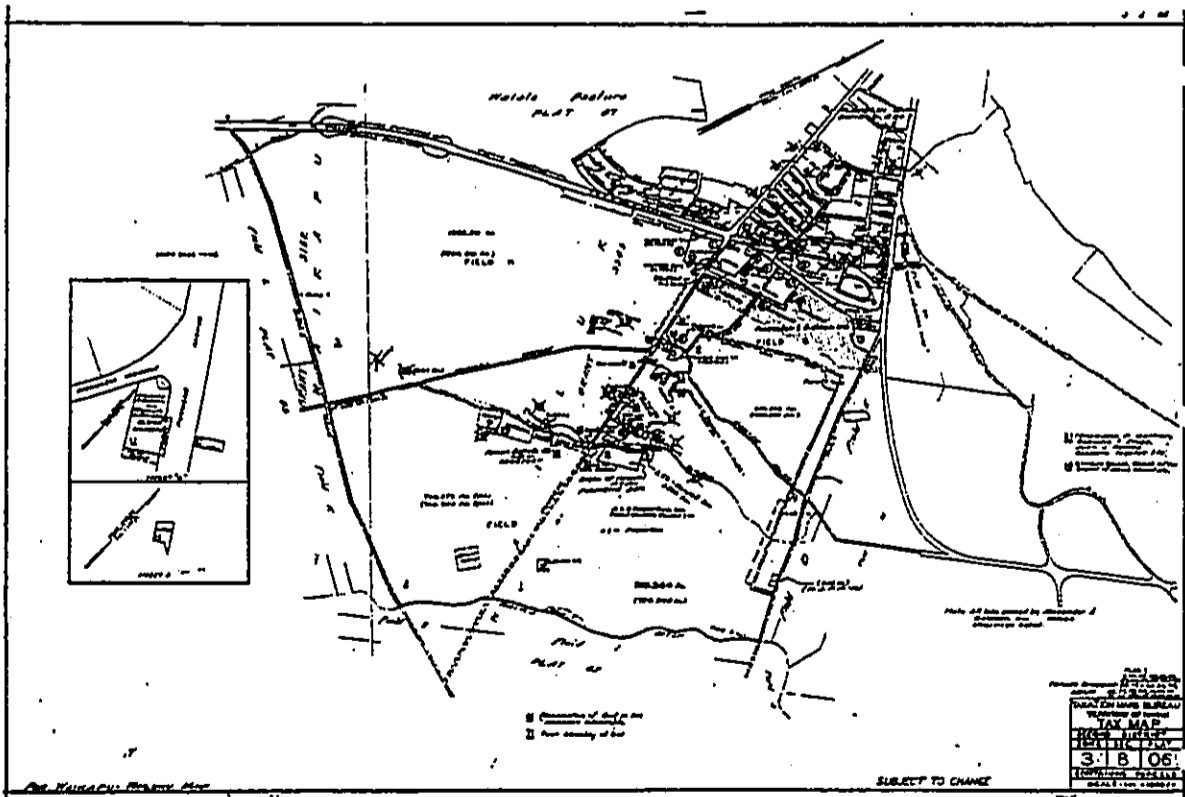


Figure 5. Tax Map Showing the Southern Parcel, TMK 3-8-06:4 (portion) and 3-8-01:2 (portion)



Figure 6. Overview of Southern Parcel from Pulehu Road to South

METHODS

This cultural impact assessment follows the methodology and protocol as set forth by the OEQC's *Guidelines for Assessing Cultural Impacts* (November 19, 1997) in meeting Section 343-2 (recently amended by Act 50) of the Hawaii Revised Statutes. This and other statutes, regulations, and laws stipulate the promotion and preservation of cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups. Information obtained through the conduct of informant interviews and other pertinent research is initially used to gauge the levels of current cultural use of the subject area and subsequently applied towards assessing the potential impact of the proposed development to existing cultural practices, features, and beliefs. The tasks undertaken included:

- 1) identifying individuals with expertise regarding the cultural practices and beliefs of the area,
- 2) conducting informal interviews with identified individuals,
- 3) conducting documentary research,
- 4) identifying the cultural resources pertinent to the project area,
- 5) evaluating the impact of the proposed development, and
- 6) recommending appropriate mitigation measures, as warranted.

Literature and historic documents review were also conducted in conjunction with this study.

HISTORICAL BACKGROUND

Maui Island, encompassing 1,174 square miles, is the second largest inhabited island in the Hawaiian Chain. During the late prehistoric through the early historic periods, it was an important center of political development and the seat of power for famous chiefs such as Kahakiki, Kamehameha's arch-rival. Much has been written regarding Maui's place in the island-wide power struggle among the different chiefly clans. In this section, those events considered pertinent to the current study shall be briefly discussed, starting with a generalized synopsis.

SYNOPSIS

There is little material to be found regarding the pre-contact era of Kahului. The climate, terrain, the presence of permanent streams, and its vast shoreline frontage would have made it a favored place of settlement. Much of what is known about Kahului derives from tradition and folklore associated with Wailuku *ahupua'a*. Wailuku was the center of political and military power on

Maui during the seventeenth and eighteenth centuries. Legendary battles were fought in Wailuku, including two battles involving Kihapili, son of Pi'ilani, and Kalanipou'u. Kihapili fought against his brother, Lono-e-Pi'ilani, for political control of Maui. This battle ended with Kihapili barely escaping with his life. With the assistance of Hawaii Island forces, he defeated his opposition and eventually became ruler of Maui. Another battle was fought on the Waikua Sand Hills during the 1700s when Kalanipou'u was defeated by O'ahu and Maui warriors.

The Mahele of 1848 instituted the Western concept of land ownership in Hawaii. During the Mahele, lands were divided among the government, royalty, and commoners. Wailuku *ahupua'a* was declared Crown Land (L.C.A. 7713, *opona* 23). The last of the royalty shown owning this land was Ruth Ke'elikouli, the great-granddaughter of Kamehameha I, who inherited this land following the death of her brother, Kamehameha V. In 1882, the eastern portion of Wailuku *ahupua'a* was awarded to Claus Spreckels as Grant 3343, totalling 24,000 acres. Spreckels established the Hawaiian Commercial and Sugar Company in 1882. Around this time, the Kahului area became the commercial hub with the harbor and train depot. In 1926, the Alexander and Baldwin purchase of Spreckel's HIC and S Company resulted in the intensification of the sugar industry in Wailuku.

ORAL TRADITIONS

The *ahupua'a* of Wailuku is referred by Handy and Handy (1972:496) as part of the old *'akama*, or land division of *na wai eha*, literally the "four streams." *Na wai eha* consisted of the four great stream valleys of Waiehu, Waiehu, Wailuku, and Waikapu. Wailuku Stream originated in Lao Valley and empties into Kahului Bay. Its banks were once extensively cultivated in wet taro. By the nineteenth and twentieth centuries, much of these areas were converted to the cultivation of sugarcane which together with modern development have obliterated the evidence of the pre-contact cultivation.

Wailuku is translated as, "water of killing or destruction" (Pukui and Curtis, 1974). There are three translations for the term, *kahului*, given in the Hawaiian Dictionary (Pukui and Elbert 1971):

1. Athletic contest; especially championship match,
2. Crescent shaped disposition of soldiers on a battlefield, and
3. Variety of sweet potato.

In the Place Names of Hawaii (Pukui, Elbert, and Mookini 1974) the probable literal meaning is listed as "winning." Another possibility is that the village was named after the crescent shaped battle formation (Malo 1951) and that seems to be the accepted translation, but there is no formal confirmation.

"If the battlefield was a plain, level and unbroken (*malae/lae*), the order of battle suitable was that called *kahului*. If it was a plain covered with scrub, the proper order of battle would be the *makawala*." (Malo, *Hawaiian Antiquities*, 196)

"The *kahului* was a disposition, or order of battle, in which the main body of the soldiers were drawn up in the form of a crescent, with the horns pointing forwards. This name was undoubtedly derived from the place of the same name. The region of *Kahului* was flat and treeless. (Malo, *Hawaiian Antiquities*, Emerson footnotes, Sect. 80, 203)

It is appropriate since for centuries it was here that the war canoes came.

"After the death of Kapakahihi the fighting ceased, and Kamehameha and his chiefs went on to principal encounter at Waikuku. The bay from *Kahului* to *Honukou* was filled with war canoes." (Kamakau, *Ruling Chiefs of Hawaii*, 148)

"When Kamehameha's war canoes arrived from Hawaii, the sands of *Kahului* were covered with them and it was said that the canoes extended from this side of *Kahului* to *Kalacihiti* at *Waiea* and below *Punehelo* and *Kamakanihema*." (John H. Wise, *Hookumu ana o na Paemoku, Ke Au Ihou*, Dec. 6, 1911, MS, SC Sterling 3.12.3)

Proverbs referring to *Kahului* usually refer to the bay or to fishing, such as:

Ke kal hola o Kahului.
The swaying seas of Kahului. (Pukui, *Olelo No'enu*, 1983:1722)

High ranking personages appear to have resided here with the area around *Kahului Bay* being a favorite gathering place:

"When the work was finished in this area the chief (*Kihapili*) moved on and lived at *Kahului* and began transporting of the stones for the walls of the ponds *Manoni* (*Mau'ou*) and *Kanaha*. He is the one who separated the water of the pond, giving it two names. This wall remains here to this day. Its greater part has disappeared, having been covered over by sand blown by the wind." (Moses Mann, *The Story of Kihapili*, *Ka Napepa Kiokea*, Aug. 21, 1884 MS SC Sterling 3.14.18)

"Modern settlements like *Hana*, *Keanae*, *Kailua*, *Panwela*, *Kahului*, *Makawao*, *Kula*, *Ulupakua*, and *Kanalo* are probably built on the sites of older villages. But there is no accurate way to determine just how large their former populations may have been. The villages on *Maui* were placed at the mouths of larger gulches or at least within sight of the sea. No villages were seen in the higher forested parts of the island although a few scattered house sites were seen." (W. M. Walker, *Archaeology of Maui*, 66-68)

The *Kahului Fishponds*

With the advent of commercial agriculture and ensuing urbanization of *Kahului*, not many archaeological remains are still extant. Perhaps one of the most notable is *Kanaha Fishpond* (State Site 50-50-04-1783), located adjacent to *Hana Highway* in *Kahului* immediately east of the harbor complex (Fig. 7).

Pakahi ka nehu o Kapiho

The nehu of Kapiho are divided, one to a person.

Kapiho, ruler of *Molokai*, had two ponds, *Mau'ou* and *Kanaha*, built on his land at *Kahului*, *Maui*. The men who were brought from *Molokai* and *Oahu* to build the ponds were fed on food brought over from *Molokai*. The drain on that island was often so great that the men were reduced to eating *nehu* fish, freshwater opae and poi. The saying is used when poi is plentiful but fish is scarce and has to be carefully rationed. (Pukui 1983:2578)

Here is the story of how the *Kanaha fishponds* at *Kahului* received their names:

*Kapiho*okalani, king of *Pahu* and half of *Molokai* built the ponds. Men were brought over from *Oahu* and *Molokai* to construct the ponds, which were known as the twin ponds of *Kapiho*. It is said that there were so many laborers that they were able to pass the stones hand to hand.

Before the ponds were completed, *Alapainui* killed *Kapiho* in the battle of *Kawela* on *Molokai*. His brother, *Peleholani* took the throne with the support of *Alapainui*. However, *Kapiho* had two children. A daughter, *Kahamaluhi* and a son, *Kanahookalani*. At the time of her father's death, *Kahamaluhi* was living in *Kailua* on *Oahu*. Along with her aunt, *Elelani*, she left *Oahu* to search for her brother. Arriving in *Lahaina*, *Kahamaluhi* had thought to find her brother at the court of the king, *Kamehamehamaui*. However, *Kahamaluhi* kept her identity secret. It was at *Kaawakapu* that she married a powerful chief, *Kauhokalani*. *Kahamaluhi* told him of the reasons for her journey and together they left for the court of the king. Despite her concern for her brother, the young chiefess was enjoying visiting the sites of *Maui*. After weeks, or perhaps months, they arrived at *Hana* and were told that the king had left for *Kahului* (*Kahului*) for the proclamation of *Kapu* on *Kuepa* of the twin ponds. *Kahamaluhi* with her husband, began their journey to *Kahului*, stopping at *Kula*. *Kula* was *Kauhokalani's* summer home. It was here that she revealed her identity to her husband, and told him that she would leave with only her attendant for the court of the king. She promised him that the child would be

given to him. Her husband agreed. Her rank was so high he knew he could only defer to her.

The next day Kahamaluhii, with her attendant the high chiefess Pau, left for Kahului. They arrived at dawn to see hundreds of people from far and near busy with the preparations for the arrival of the king. The princess saw them arriving and stripped off her pau and stepped upon the center *kuapa* of the ponds. She wore a white malo called the "*maitaker*", a special malo worn by the high priest of the blood royal. Meanwhile the people shouted out, "*Eia a'e Ke Kapu!*" "The Kapu is broken!"

The king's kapu was most severe. It was believed that there was no one on Maui of higher rank than the king, and it would require such a one, other than the king, to break the kapu.

The king raised his hand for silence and said, "*Ua ohi! He aii'i mau, ke a'e a ia.*" "Stop, it is a great chief who approaches."

The princess came straight towards the king. An insignia of royal rank, an '*ohu'ulu*', was suspended over an archway. It dropped as she approached and she stepped over it, coming face to face with the king who embraced her, with aloha, saying, "*O, oe ia, you have made me happy this day. I have mourned for you. Welcome cousin, the daughter of Kapitihoakalani is the rightful aii'i to tread the *kaupa* of the twin ponds. Let it be your home to christen the ponds, oh princess, my cousin.*"

Graciously the Oahu princess named the pond *makar*, Kanaha, in honor of her brother Kanahaokalani, and the *manua* pond, Manoni, the name of her incognito. (*Pua-a-Makamaka!*) (Mrs. Rosalie Blaisdell, March 17, 1923. In J. F. Stokes, Maui site notes, Anthropology Department Records, Grp 7, 10.10:9.)

Kamakau also wrote of the twin ponds:

"Keawe-nui-a-Umi sailed from Hilo to Kopekahi in Hana and from Hana to Kahului of Waikuku. There the chief of Hawaii met Kiha-a-Pihani, ruler of Maui. Kiha-a-Pihani was building the walls of the pond at Manoni. A wide expanse of water lay between Kaipoula and Kanaha, and the sea swept into Manoni. The two ruling chiefs met and greeted each other with affection." (1992:42)

HISTORIC DOCUMENTATION

Captain Cook first sighted Maui, off Kahului, in November 1778:

"In the country was an elevated saddle hill, whose summit appeared above the clouds. From this hill, the land fell in a gentle slope, and terminated in a steep rocky course, against which the sea broke in dreadful surf. Finding that we could not weather the island, I bore up, and ranged along the coast to the Windward. It was not too long before we saw people on several parts of the shore, and some



Figure 7. Overview of Kanaha Fishpond from Haleakala Highway to Northeast

houses and plantations. The country seemed to be both well wooded and watered, and running streams were seen falling into the sea in various places. (Beaglehole, J. C., The Journals of Captain James Cook, Volume III)

John Papa I'i tells of a trip in 1852 to the island of Hawaii when he accompanied the Princess Victoria Kamaehu. On the return trip, the royal party stopped at Kahului:

"Those aboard glanced at the cliffs of Koolau and Hamakua, reaching Halehaku at night, where they paused until daybreak. Then they moved along, looking at Halehaku at night, where they paused until daybreak. Then they moved along, looking at Halehaku and Hailu, seeing the growing koa and kukui trees of Lili'i and other sights until they reached Kahului. They went ashore there and went to Koo'o's houses at Wailuku and spent two nights there. When they left for Kahului on ox carts, Kamaehu and the others sang. Children, men and women accompanied them until they boarded the boats." (1993:172)

There is also this in *Olelo No'eana*:

*Nann lawe ika o Kahului.
Letter carrying pigeon of Kahului.*

In 1893, carrier pigeons arrived at Kahului, Maui. One was brought to Honolulu and released with a letter tied to its neck. It flew back to Kahului. This was of such great interest to the people that a song was written and a quilt design made to commemorate the event. (Pukui 1983:2351)

During the current assessment, attempts to obtain a photograph or see a sample of this quilt was unsuccessful.

HISTORIC PERIOD SUGAR CULTIVATION AND PERSONAGES

In the ancient times, sugar cane grew uncultivated in the islands. The provisions of the Great Mahele (1848) enabled sugar planters to collect vast tracts of land from the government or from the chiefs. Despite early attempts to collect vast tracts of land from the government or from the chiefs. Despite early attempts in the nineteenth century, it was not until the 1860s that sugar became a profitable commodity. Due to the Civil War, southern sugar was scarce and sugar prices rose, creating an ideal situation for the sugar plantations in Hawaii. Even with the heavy U.S. tariff, profits soared. The incentive for large landholdings increased with the rise of Hawaii's sugar economy. It was a stable economy for Hawaii, as sugar replenished itself. By the 1890s, sugar cane occupied four-fifths of Hawaii's arable land.

The sugar industry contributed to the development of Kahului Harbor, and the town of Kahului. Three men are chiefly responsible for that history.

Samuel T. Alexander & Henry P. Baldwin

Both Samuel Alexander and Henry Baldwin were Hawaii-born sons of Protestant missionaries. Lifelong friends and business partners, they were also brothers-in-law. Samuel Alexander's sister, Emily, having married H. P. Baldwin.

Baldwin and Alexander saw the possibilities in sugar, which could be achieved in Maui's central plains only if large quantities of water were available to irrigate the cane. Together they built the Hamakua ditch and brought the water in quantity from the rainy windward slopes of Haleakala to irrigate the East Maui fields. This was not an easy task. It required labor, land water and machinery to produce a profit-making product. With the continued growth of their company came the development and expansion of Kahului.

Claus Spreckels

Claus Spreckels was an independent California-German sugar magnate detested by the Hawaiian planters. He arrived in Hawaii from California in 1877. Arriving on the heels of the passing of the Reciprocity Treaty with the United States, Spreckels proceeded to buy over half of the sugar crop before the price rise had had time to take effect. Within a year, Spreckels had purchased half interest in 16,000 acres on the Waikapu Commons and leased from the government another 24,000 acres at Wailuku commons. In 1878, Spreckelsville Plantation was founded. Spreckels went on to purchase a half interest in W. G. Irwin & Co., a leading sugar factoring house in Honolulu. This purchase, along with additional land purchases, put Spreckels at the pinnacle of the sugar industry. He had the added advantage of being a close friend of King Kalakaua. Spreckels backed the king in various projects. It was a dangerous relationship, as it came with a high interest rate. In time, the king found himself in debt to Spreckels, who finally was bought off and left Hawaii.

Plantation Workers

It was evident, as sugar began its phenomenal growth on the islands that there would never be enough of the depopulated Hawaiian people to create an adequate labor force. Laborers were imported from China, the Azores, Japan, and the Philippines. Work on the plantations was very hard. It consisted of planting, tending the crop, harvesting, and processing the sugar cane. It was in the plantation communities that the individual cultures merged to form the basis of modern multi-cultural Hawaii. The following interviews tell the story of those days.

INFORMANT INTERVIEWS

Three individuals were selected for informal interviews. Mr. and Mrs. Ito worked and lived on the plantations. Mr. Kanckoa worked for the plantation, but he is also knowledgeable on native Hawaiian medicinal plants.

MR. & MRS. GEORGE ITO

George and Mabel Ito have been married for 54 years (Fig. 8). George Ito was born in Paia, Maui, 86 years ago. He moved to Kahului in the late 1930s. He was employed by the Kahului Development Company and later HIC&S. Mr. Ito has been a very active member of the Kahului community for many years. He is a member of the Lions Club, and served as District Governor. Mr. Ito helped to coordinate the Maui County Fair for 17 years, and was the chairman of the Maui March of Dimes. In 1996, he chaired the centenary celebrations for the town of Paia, his hometown.

Mabel Ito is 82 years old and was born in Kahului. She has lived there all her life. Mrs. Ito is a graduate of the University of Hawaii with a degree in home economy. She worked for many years as a home economist doing "informal teaching". This entailed extensive traveling throughout the island, as well as Molokai and Lanai. She is a volunteer for the A & B Sugar Museum, and is involved with the Maui Arts & Cultural Center. Mrs. Ito's love of art has led her to travel the globe in her retirement. She is currently planning a visit to France this spring.

This interview took place at their home in Kahului on February 21, 2003:

Mrs. Ito: My maiden name is Inada. Both my parents came from Japan. My father was a tailor on what was then the main highway, which is part of the parking lot now for the shopping center. I was born across from the train station and post office. When my father came here, he worked for the sugar plantation in Wailuku. Eventually he became an apprentice to a tailor there. After that, he needed a wife, so she came from Japan. Their marriage was traditional, arranged in Japan. Then he started his business here in Kahului. There were four tailors in Kahului. My father used to sew for the manager of Kahului. The manager, the overseers and the polo players came to him for their tailoring. He made the britches for all of them. When some went to other islands, they would still order from my father. I wish I had kept some of the clothes that he made.

In those days, Kahului Railroad Company had the train going out to haul the sugar to the pier, and they handled the shipping and the longshoremen. The longshoremen all lived in Kahului. We lived back of the shop. First street was by the beach. I grew up on what was the third street, where the parking lot is for Ah Fook. Today the main street is the same one. But in those days, there were homes there. After the first row was the Filipino camp. At that time, you had the Filipino



Figure 8. Mr. & Mrs. George and Mabel Ito at Home during the Interview

more or less in one section, the Japanese in another section. This is near where Long's Drugs is today, near the main highway. On this side. What is today Kahanamama Highway was our main street. The part where we live today (Lono St.) was all kuliwi and hilly and dunes. Kahului Development Company bulldozed all this down and flattened it. My husband was working with them then. They left some high areas because people wanted that.

The town was only maybe 1 1/2 blocks. But there were many people because of plantation camps. The camps went back from the back of main street all the way to the cannery.

Mr. Ito: This was the only road that ran to Punene. That road was rough, filled with rocks.

Mrs. Ito: Also, we had fair grounds. Used to be sand and kuliwi. There were tennis courts and things. But the big event was Maui County fair. People came from all over. We had horse racing. On weekends, they have a swap area now. We had sports games there too. Where the Safeway is, all that area was stock car races, polo games, and horse racing. We still have Maui County Fair, but that is at the gym complex below the school. But no horse racing or polo.

The central Power Plant sent the water and generated the power to the plantations. People lived there who took care of the plant. Then the Kahului Development Company took it over, and then later the ceramic people were making things in that building. Now it is falling apart.

Mr. Ito: I worked for HC&S and then Kahului Development opened up after the strike. So, I worked there. When they closed up the camps, they offered all this at a very reasonable price to employees. The Baldwin's felt that the people in the plantations should get a better place to live. They had a choice. They could either live at Kahului, what was being called a 'Dream City'. We moved in this home in 1950. Nothing but kuliwi here. We had a terrible time putting in the pipeline. Nothing but sand here. Some people moved up to Pukalani, some to Haiku or Wailuku. But they were given the chance to move to Dream City. The lots were very reasonable. Because it was so affordable, they expected all the plantation people to come. But quite a few of the workers, they say they could not afford it. So, a number of supervisors moved in to this area. People were also saying, "Oh no, I don't want to live there. It's nothing but sand." But after they saw this place develop, saw the second and third increment, oh, then everyone lined up the night before because they wanted a place. They could see then that it was worth buying. They saw how nicely everything was coming along and how well things were growing. For some who could not afford a new house, they moved the old camp houses over for them. That was a lot of hard work. I worked on that. Really hard work. Houses moved from Paia, and from other locations, moved them down. So, if you go through certain areas, you can see those old houses. Of course, they fixed them up. But they were not new houses like here. Kahului Development Company did all that. That was part of the plantation. HC&S, H. P. Baldwin started that. Then his sons, Frank and Harry Baldwin divided the company. HB, the older one, took the Puane Hawaii Commercial Company. And the other son formed Maui Agricultural Company. Then later they merged to HC&S.

Mrs. Ito: Reverend Akaka was our pastor here in Kahului. This is before he went to Hilo, and then later he went to Kawaihau in Honolulu. He married us 54 1/2 years ago. I was an extension home economist. I went to UH. I covered all of Mami, and part time Molokai and Lanai. It was hard work. A lot of traveling. I was doing informal teaching.

Mr. Ito: You know, Reverend Akaka named the streets in here. Notice the names. Kaula, Lani, Lono, Hapa, Molokai, Kahoolawe, Lanai. He was part of that naming of streets. He was a

member of the Kahului Town Association. I was a member of that group. I was born in Paia. My parents come from Japan to Kipahulu. They worked in sugar plantation. They said they cannot work there forever so they moved to Paia and my father became a foundry man. You know, casting. He did that at Pala Mill. That was real country.

Mrs. Ito: Many people started in Hana, or other parts of Mami and then eventually moved to Kahului. Our town did become a dream city. It is still a growing city. It is growing more towards Wailuku. Unfortunately, we have young people looking for jobs so they move to another island. We have many neighbors who are second generation to live in this area. They are doctors, lawyers, etc. Their parents were able to send them on to college. Now we notice some of the younger people returning.

Mr. Ito: It was a new town. One of the newspapers thought up that name, Dream City. It is a new Kahului. Even the town was done over. Everything was new. It was somebody's dream. I think it was Baldwin's dream. Sam Baldwin. The Board of Health felt that the sanitary system in the camp homes was out of order. They had an open ditch. And each one had a privy. No inside bathroom in those days for the camps, very seldom. They felt this was not a good way of living. So, they decided to build Dream City. So now, you see thirteen increments. We are in the first increment. It is a good town to live in. We no longer have all that flooding. A&B put in the breakfront. Kanaha Pond used to flood a lot and there was always the worry that someone would drown. And that did happen. Now it is being preserved.

Mrs. Ito: And so we built our house here in the first increment. And we added on as years went by. And put in swimming pool. It is well insulated. Cool when it is hot and warm when it is cold. It is a special place to live in, Kahului.

In response to the proposed development, Mr. and Mrs. Ito had the following comments:

Mr. Ito: You know we need more jobs for our young people. A lot of them are looking for part time jobs so they can go to school too. Or maybe just a job to get started in the job market. It helps to stimulate our economy here.

Mrs. Ito: I don't mind as long as it improves the area. I don't want to see just another 7-Eleven and places that we already have. It would be nice to have that area look good. For us and for the people that visit. You see, it's still a growing city.

MR. WILLIAM KANEKO

Mr. William Kaneko is 83 years old and was born in Hana. He worked with Kahului Railroad in a number of capacities, and was the last engineer for the company. He has lived in Kahului for over 60 years (Fig. 9). Mr. Kaneko is knowledgeable in *la im lapa'ana*, and is very proud of his garden.

This interview took place at his home in Kahului on February 21, 2003.

Mr. Kanekoa: I was born in Hana 83 years ago. My granddad was with the Nahiiku Rubber Company when I was born. My dad young man. The ship came to that section of the island and rubber shipped out. Was rubber plantation then in Hana. His father was an immigrant. One pake from China. Came here to work in rubber plantation. So my dad half-Chinese. Lots of people came from China and Japan.

I was drafted in World War II and then went to Haleakala Conservation Corps. After that, I was in the South Pacific until the end of the war. After the war, I was with the Kahului Railroad Company. The company was affiliated with HC&S, Hawaiian Commercial & Sugar Company. The railroad company was a branch of HC&S.

In the days of the railroad, we traveled to Libby Cannery in Hailku in afternoon. That's quite some ways up in the country. That's the hardest rail line that we traveled. Picking up pineapple from the Libby cannery. From Kahului, special train once a day to Hailku. We carried freight. To Paia, Hailku, the Commission stores. All the freight went up to the cannery. After pickup pineapple, then later in the day we pick up sugar in Paia and take to pier. When you group to cannery, you take whatever load you have and then bring to pier. Loaded up on ships. Sometimes six days a week. Overtime Saturdays. Depending on ships that came in. If they came in on weekend, have to work.

Railroad track ran a few feet above the ground. So if flooding, before my time, they must have laid rocks on the bottom to make it higher. My engine had no name. She was just #9. Early days they had names, but not in my time. There were three engines, #8, #9, and #10. They were steam in early days. Later diesel. Surplus from the navy, after the war. After the war they hardly used the steam, they said it was too backward. Have to light fire, get two people on locomotive. Diesel just engineer, and of course the brakeman. So we advance.

Before my time, there were passengers. When I came back after the war, there were no passengers. Used to be passengers and schoolchildren. High school up in Hailku. Way up about 15 miles from here. If they have students from here, they go to Hailku, and then students had to be picked up. The train did a lot. Lots of children went to Maui High. They had no other high school. That was quite sometime back. Those kids ride train to school. Some went on to UII.

There were plantation camps all over the place. Labor trucks picked up the laborers and took to plantations. Sugar was hauled in cars made special for hauling raw sugar. And grind there. Pick up molasses and sugar and ship to refinery. Big camps. Filipinos, Japanese, Chinese. Now they did away with camps. Camps close to what is today the highway and went towards airport. No airport then.

The turntable was where the old Kahului Railroad Building is. The trains were parked there at night. That building is still standing. The sugar put in cane car. Diesel. Car go to mill and sugar is washed there and then taken to grinder. Out of the cane, you have sugar and molasses.

I would leave Kahului just before lunch. All the freight is gathered. The ones going up country have their lunch before leaving. Then up to Paia and Hailku. Then we come back the same way. Coming back we ride backwards, no can turn around. All the way backwards. About 15 miles, as I remember. So later, we used diesel instead of steam. Diesel engine slow. Very slow. The steam was faster. It would take two diesels to do the work of one steam engine. I liked the steam engine. Save more by using the steam. Can carry more load. Diesel a powerful engine, but slow. Going up to Paia, you are climbing up. Slow trip on diesel.



Figure 9. Mr. William Kanekoa (left) with Mr. Mel Kalahiki at Home during the Interview

When they stopped the railroad, everything changed. The whole planting business, pineapple, etc. all stopped. Had to do the hauling on trucks to haul pine to harbor to ship out. That was Alexander Baldwin. That made quite a bit of changes in men and labor. Only airport was Lahaina. Where airport now, was all sugar cane area then. Plantation gave that up for the airport. Was all cane.

When sugar ended the stevedores stayed. They take care of raw sugar stored at pier. But everyone else not working. Now everything done by trucks. But train was better. Can haul much more in one trip. Trucks have to go back and forth with smaller loads.

I was in Guadalcanal in World War II. Shipped up north after that. Then ship had orders to return to Hawaii, so stayed here until war pau. Didn't like that. Go back and forth and do nothing. Best years of young life in service. Long way to north of U.S. from Guadalcanal. Hard to sleep. Too crowded. Went up on deck to sleep. Ship going in criss-cross path. Plenty rough, couldn't sleep. Bunch of young kids in the war. Young and frisky and we knew everything. I came back and decided to marry. I marry my girlfriend from small time. We decided to marry and bought this house through the company. The company was trying to get rid of the camps. The company gave the property and you buy your own home. You own your own home. This area was all bushes. Kuliwi. This area where I live now was just vacant back then. So, they made this housing area for the employees. They got rid of the camps that were here. I brought this area and moved up here. Lots of changes. More up to date now. Lots of people moving in and moving out to the mainland.

Where the town is now, that was all camps before. Kahului camp town was all railroad camps. Gradually had company stores and stuff, little by little. The railroad depot is still there.

When I'm discharged from war, we told we would have our jobs back. But so many coming back, it was hard to put everyone back in the job that they left. I was given the job of locomotive fireman and then worked my way up to engineer. And the money was there too, handy cause starting my family. When you become engineer everything else is not the same. You have more responsibility. You have to work the steam boilers and what you are pulling. Going from here to Paia is all upgrade so you need to be aware. Watch the fire so that you can get up to the mill at Paia. We used fuel oil after the war. Not coal. I started with coal, but got all dirty. I take off my shift, and it's all dirt, dust and coal!

In my spare time in those days, I went fishing I also would make table lamps out of coconuts. Also went to vocational school to study radio.

I was with railroad from after war thirty some odd years. I stayed until the railroad ended. Went with Chevron to be plant supervisor after I left railroad then I retired. I retire in my 60's. I lived in Kahului a long time.

When the railroad ended, they took part of the tracks to Lahaina for the tourist train. Sightseeing trains. The cars went to Honoluh. They used them on plantations in Honoluh. Quite a bit of flat cars. But my engine went to Kauai. She was the #9. I was the last engineer for the Kahului Railroad Company.

Regarding the proposed development Mr. Kanekoa stated:

No, there's no Hawaiian plants there. That was always where flooding used to be. Why not make it look better? Should use that area.

CULTURAL PRACTICES

Mr. Sam Ka'ai is a longtime resident of Puukalani, Maui, and a well-known contemporary authority on Hawaiian cultural practices. In an informal conversation earlier this month, he was questioned regarding traditional history and practices in the project area. He replied that very little is known. Mr. Ka'ai, as well as Mr. Kanekoa, who practices *la'au lapa'au*, have stated that they know of no current practitioners that gather or undertake other cultural practices within the subject project area. Also the subject area is not used to access the shoreline or other areas for the purposes of traditional cultural practices.

Regarding the proposed project, Mr. Ka'ai stated:

Those areas that you are talking about, you know, those are all flood-plain area. Ancient Hawaiians would never have built anything there. But, I hope it's not going to be another big parking lot.

According to all of the informants, there appear to be no special affinities to the project area for native Hawaiians or any other ethnic group.

CONCLUSION

The individuals interviewed for this study felt that growth and expansion was necessary for Kahului. However there was a common concern of visual impact. The hope is for appropriate presentation and landscaping. It was felt that the proximity of this development to the Kahului harbor and to the airport is a fundamental plus. There were positive perceptions of the economic impact, especially the availability of new jobs for the area.

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G TRAFFIC IMPACT ANALYSIS REPORT

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STATE OF HAWAII
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IN REPLY REFER TO

HWY-PS
2.2664

JAN 26 2004

Mr. Phillip J. Rowell, P.E., Principal
Phillip Rowell and Associates
47-273 'D' Hui Iwa Street
Kaneohe, Hawaii 96744

Dear Mr. Rowell:

Subject: Update of the Maui Business Park Traffic Impact Analysis Report (TIAR)

Thank you for your recent letter. We have the following responses to your questions.

1. We plan to initiate an amendment to the FY 2004-2006 Statewide Transportation Improvement Program (STIP) to include federal funds for design and construction of a 4-lane extension of Kuhelani Highway between Puunene Avenue and Hana Highway with signalized at-grade intersections. We plan to request bids for a design-build contract during FY 2005.
2. Timing and funding of the remainder of the planned Airport Access Road still need to be resolved and should not be addressed by your TIAR update. The same is true for the proposed interchange.
3. Your TIAR update should assume the retail/industrial scenario which generates the most trips.
4. It would be desirable for your TIAR update to address A&B participation in the cost of regional highway improvements. Since State extension of Kuhelani Highway will substantially reduce the scope and cost of required privately funded improvements to Hookele Street, it seems fair that A&B Properties provide a reasonable share of the local "match" required for federal funding of our State project.

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

Very truly yours,


RODNEY K. HARAGA
Director of Transportation

*ppm
1-28-04*

Phillip Rowell and Associates

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November 19, 2003

State of Hawaii
Hawaii Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813-5097

Attn: Mr. Rodney K. Haraga
Director of Transportation

Re: A03-739, A&B Properties, Inc.
Maui Business Park Phase II

Dear Mr. Hiraga:

This letter is a follow-up to the State Land Use Commission Hearings of September 18 and 19, 2003, regarding the above referenced petition. I have been requested by my Client, A&B Properties, Inc., to prepare this letter.

At the State Land Use Commission Hearings on September 18 and 19, 2003, Hawaii Department of Transportation officials announced that the Airport Access Road had been made a priority project and that the project would be completed within the next three to five years. This is contrary to information provided to us during preparation of the traffic study for the project and the subsequent agency review of the report.

We are now in the process of defining the scope of work to update the traffic study for the Maui Business Park to include the proposed Airport Access Road. In order to address the issue of the Airport Access property, we would like clarification of the project as we have received varying descriptions. Specifically, we need to know the following in order to prepare a traffic study acceptable to Hawaii Department of Transportation;

1. Should the traffic study assume that the Airport Access Road will connect with Kahului Airport, Hana Highway or Haleakala Highway?
2. We understand that the Airport Access Road at Hana Highway will initially be an at-grade, signalized intersection but will ultimately be a grade-separated interchange. Which configuration should the traffic study analyze?
3. Will the Airport Access Road be built in phases? If yes, should we analyze the incremental phases and what are the phases?
4. Should the revised traffic study analyze various retail/industrial splits, such as 50/50 and 75/25 versus the 25/75 used in the previous traffic study?

We would like to complete the revised traffic study during the first part of January 2004. In order to meet this deadline, we would appreciate direction from your office regarding the above issues as soon as possible. We would appreciate a contact with the Department that can provide official direction regarding the above issues.

Respectfully submitted:
PHILLIP ROWELL AND ASSOCIATES

Phillip J. Rowell

Phillip J. Rowell, P.E.
Principal

LINDA LINGLE
GOVERNOR



RODNEY K. HARAGA
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IN REPLY REFER TO:

STP 8.0890

September 17, 2003

TO: MS. MARY LOU KOBAYASHI, PLANNING PROGRAM ADMINISTRATOR
OFFICE OF PLANNING
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

FROM: RODNEY K. HARAGA *R. Haraga*
DIRECTOR OF TRANSPORTATION

SUBJECT: A03-739, A & B PROPERTIES, INC.
MAUI BUSINESS PARK PHASE II

It is the mission of the Department of Transportation to provide for the safe, economic, and efficient movement of people and goods. To this end, and in connection with the above petition filed by A&B Properties, Inc., I would like to clarify the position of the State Department of Transportation ("DOT") as it relates to the Kahului Airport and the roadway requirements in the area.

1. **Kahului Airport.** The lands south of Hana Highway in line with the existing Runway 2-20, must be reserved to accommodate future expansion of airport operations, including a possible runway extension. This would allow for greater capacity and safety at the Kahului Airport. Under one of our planning options, the primary runway at Kahului Airport would be extended to 9600 feet. To preserve our ability to do this, we would need to acquire about four acres of land for approach lights and navigation aids and avigation easements over an area of about 45 acres, all to establish a runway protection zone in accordance with FAA rules and regulations. I would like to emphasize that we have not made any final decisions regarding any runway extension at Kahului Airport; the possible runway extension up to 9600 feet is just one of a number of planning options the DOT is considering.
2. **Airport Access Road.** Our highway master plans identify a number of roadway projects to accommodate the traffic demands in the area. Among them is the Airport Access Road, a new roadway extending Kuihelani Highway to the vicinity of Haleakala Highway, with a major crossing at Hana Highway. This is a priority project for the DOT, and construction is anticipated to begin within three years; the project is contained within our short term CIP.
3. **Fair share contribution.** Major developers should provide their fair share contribution for transportation improvements required to mitigate the impact of their development.

We need to proceed with the above to protect our future. Good planning principles and practice require this. Your support and assistance would be greatly appreciated.

JT:sy

c: HWY-P, AIR-P, STP

TRAFFIC IMPACT ANALYSIS REPORT

**MAUI BUSINESS PARK PHASE II
AND
HOOKELE STREET EXTENSION**

IN KAHULUI, MAUI, HAWAII

Prepared For

A & B PROPERTIES, INC.

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May 19, 2003
Revised July 28, 2004

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1. INTRODUCTION

Philip Rowell and Associates has been retained by A&B Properties, Inc., to prepare the following traffic study for the proposed Maui Business Park Phase II, which includes the extension of Hookele Street from Pakaula Street to Hana Highway. The general location of this project on the island of Maui is shown in Figure 1.

This report is an update of the Traffic Impact Analysis Report for Maui Business Park Phase II and Hookele Street Extension¹ prepared May 19, 2003. The updated report is a condition of the State Land Use Commission (Docket No. A03-739) in response to comments received from Hawaii Department of Transportation. The Hawaii Department of Transportation requested that the traffic study be revised to consider the following:

1. Completion of the Airport Access Road, and
2. Develop scenarios with a higher percentage of retail versus industrial uses.

The purpose of this study is to identify and document the traffic impacts of the proposed project in addition to the issues outlined by Hawaii Department of Transportation. Copies of correspondence from Hawaii Department of Transportation providing direction for this TIAR are included in Appendix A.

¹ Philip Rowell and Associates, Traffic Impact Study for Maui Business Park Phase II and Hookele Street Extension, May 19, 2003

This introductory chapter discusses the background and location of the project, the proposed development, and the study methodology.

Background

This report is a revision of the previous traffic study for the Project. It has been revised in response to comments received from Hawaii Department of Transportation and conditions imposed by the State Land Use Commission (SLUC) in March 2004. In particular, the report was revised to account for (1) completion of the Airport Access Road and (2) development scenarios with a higher percentage of retail versus industrial uses.

The proposed Airport Access Road was not included in the previous traffic study (May 2003) because at that time there was no specific timetable for its construction. Hawaii Department of Transportation has since indicated that the Airport Access Road is a priority project and that requests for bids for a design-build contract will be issued during fiscal year 2005 for the initial segment from Pitumene Avenue to Hana Highway. For the purpose of this report, the remaining portion of the Airport Access Road is assumed to be completed prior to 2020, the horizon year for this study.

Additionally, certain conditions and requirements were also imposed on the Project as part of the SLUC's approval in March 2004. Approximately 25 acres of the South Project Area abutting Hana Highway are restricted in use due to its potential designation as a runway protection zone (RPZ) by Hawaii Department of Transportation. This RPZ is a requirement of the proposed extension of the Kahului Airport runway to 9,600 feet in length. Uses in this area are restricted to those which do not entail the congregation of people and as may be approved by the FAA. Hawaii Department of Transportation has further indicated the possibility of acquiring the RPZ area from A&B. The SLUC has also indicated a preference for light industrial development at the Project by requiring that at least 50% of the Project be developed for non-retail, light industrial use. Additionally, the SLUC specified that the TIAR be revised or supplemented as may be requested or required by the Hawaii Department of Transportation.

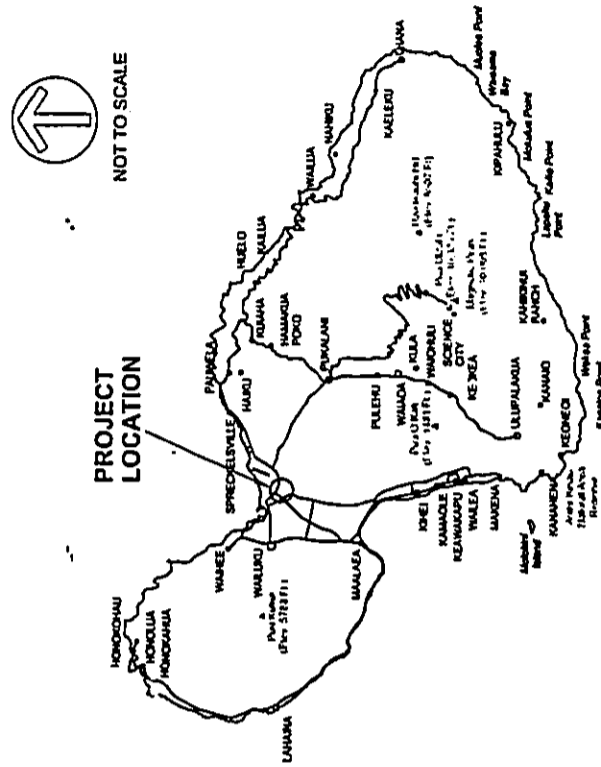


Figure 1
 PROJECT LOCATION MAP

*Traffic Impact Analysis Report for
Maui Business Park Phase II and Hookele Street Extension*

Project Location and Description

Maui Business Park Phase II - a continuation of A&B Properties, Inc.'s existing Maui Business Park Phase I in Kahului - will provide light industrial space in Maui's central commercial and business district in close proximity to Kahului Airport and Kahului Harbor.

The Maui Business Park Phase II site is comprised of two noncontiguous properties totaling approximately 178 acres (the "Project").

The South Project Area is approximately 141 acres and is identified by Tax Map Key Number 3-8-06:04 (portion); and Tax Map Key Number 3-8-01:2 (portion). This property is bound to the west by Puunene Avenue; to the north by Maui Business Park Phase 1B, a large retention basin area, and the State-owned right-of-way for the proposed Kahului Airport Access Road; to the northeast by Hana Highway; and to the southeast and the south by cane fields.

The North Project Area is approximately 38 acres and is identified by Tax Map Key Number 3-8-79:13. This property is bound to the west by Hana Highway; to the northwest by the parcels owned by K-Mart and Costco; to the southeast and southwest by the State-owned right-of-way for the proposed Kahului Airport Access Road.

Currently, the South and North Project Areas are predominantly sugarcane fields or fallow fields. The topography gently slopes to the north, but is generally level. Elevations range from 15 to 50 feet above sea level.

Land uses within Maui Business Park Phase II will be consistent with the M-1 Light Industrial District (Chapter 19.24 Maui County Code) and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices and other uses. Both project areas will contain a variety of lot sizes to serve the needs of various types of businesses allowed within the Light Industrial District.

The South Project Area will be developed in increments not greater than 70 acres. Onsite and offsite infrastructure improvements for the Project are expected to be substantially completed within 8 years following receipt of final project approvals. The expected absorption and construction of commercial and industrial buildings is expected to take place over the next 12 to 18 years.

A site plan indicating the roadway network within and adjacent to the proposed project is shown in Figure 2. The project will consist of industrial and retail uses as permitted under the M-1 Light Industrial District (Chapter 19.248, Maui County Code). The traffic related aspects of the project are discussed in further detail in Chapter 3 of this report. For introductory purposes, the following is a summary of the project:

1. The business park will consist of industrial and retail uses. For purposes of performing the traffic impact analysis, the South Project Area between Hana Highway and Puunene Avenue was divided into three zones and designated Zones A, B, and C. The North Project Area between Hana Highway and Haieakala Highway was designated D. These zones are also shown on Figure 2. In total, these four zones comprise approximately 179 acres.

*Traffic Impact Analysis Report for
Maui Business Park Phase II and Hookele Street Extension*

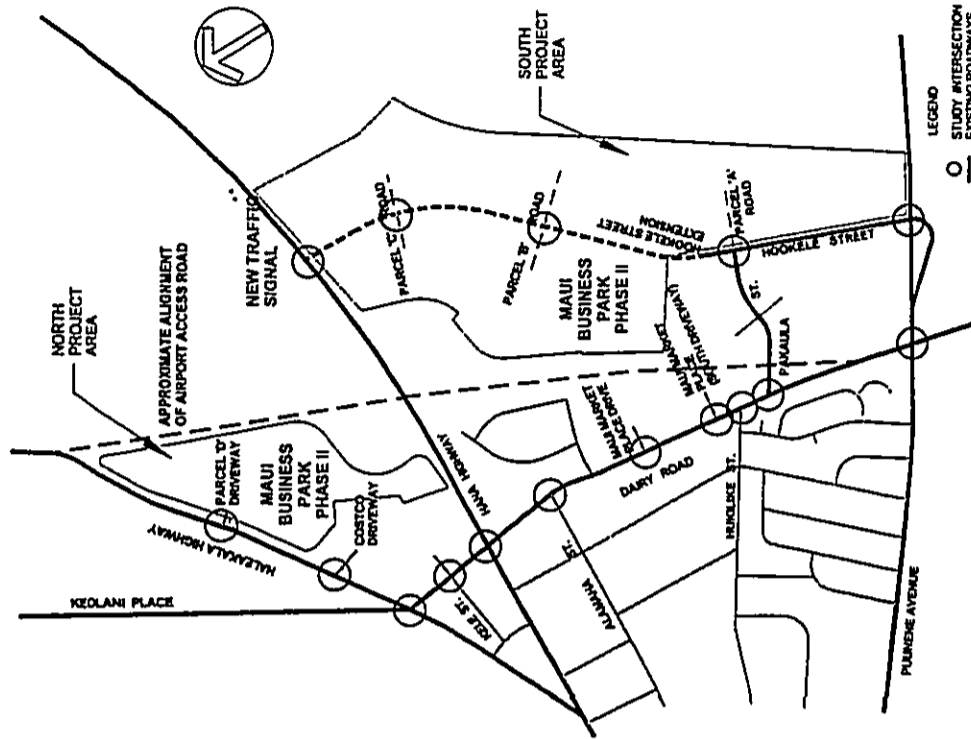


Figure 2
SCHEMATIC SITE DEVELOPMENT PLAN AND ADJACENT ROADWAY NETWORK

**Traffic Impact Analysis Report for
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2. Based on input from the State Land Use Commission and Hawaii Department of Transportation, three development scenarios were initially analyzed.

Scenario A assumes that 25% of the area, or 44.75 acres, would be used for retail. A total of 389,000 square feet of retail could be developed in the project. The remaining 134.25 acres would be developed with industrial uses.

Scenario B assumes that 50% of the area, or 89.50 acres, would be used for retail. A total of 779,724 square feet of retail could be developed in the project. The remaining 89.50 acres would be developed with industrial uses.

Scenario C assumes that 75% of the area, or 134.25 acres, would be used for retail. A total of 1,169,588 square feet of retail could be developed in the project. The remaining 44.75 acres would be developed with industrial uses.

3. Primary access to the project will be via a new roadway between Hana Highway and the existing end of Hookele Street. This extension of Hookele Street has been referred to as the "Proposed Collector Road" in previous documents. In addition to providing primary access to the major portion of the Maui Business Park Phase II, this roadway will provide an alternative route between Hana Highway and Puunene Avenue and thus relieve some of the congestion along the heavily traveled Dairy Road corridor.

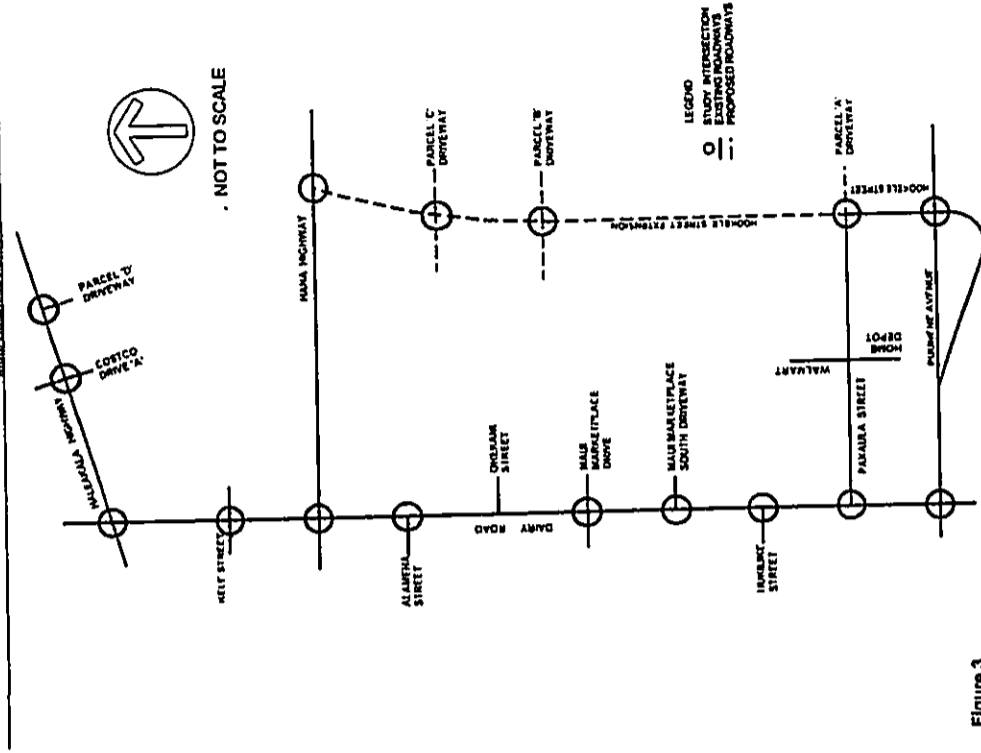
Purpose and Objective of Study

1. Document the traffic characteristics of the proposed Maui Business Park Phase II.
2. Document the impact of the proposed project, especially the impact of a new roadway on traffic conditions along Dairy Road between Puunene Avenue and Hana Highway.
3. Determine the optimum location for the intersection of Hookele Street along Hana Highway.
4. Identify and assess potential mitigation measures.

Study Area

The study area was determined based on input from Hawaii Department of Transportation. A schematic diagram of the study area is shown as Figure 3. In general, the study area includes the South Project Area bound by Hana Highway, Dairy Road, Puunene Avenue and Puhehu Road. The North Project Area is located between Hana Highway and Haleakala Highway south of the existing Costco and Kmart.

**Traffic Impact Analysis Report for
Maui Business Park Phase II and Hookele Street Extension**



**Figure 3
STUDY AREA AND STUDY INTERSECTIONS**

Also shown are the intersections included in the study area. The following intersections are in the study area and were analyzed for the TIAR:

1. Dairy Road at Puunene Avenue
2. Dairy Road at Pakaula Street
3. Dairy Road at Hukilike Street
4. Dairy Road at Maui Marketplace South Drive
5. Dairy Road at Maui Marketplace Drive
6. Dairy Road at Alamaha Street
7. Dairy Road at Hana Highway
8. Dairy Road at Kele Street
9. Dairy Road at Haleakala Highway
10. Haleakala Highway at Costco Drive A
11. Puunene Avenue at Hookele Street
12. Hookele Street at Pakaula Street
13. Pakaula Street at Walmart/Home Depot Entrance

Study Methodology

1. Data Collection

Data collection consisted of two phases. The first was to quantify existing traffic conditions within the study area. This was done by performing a field inventory of traffic and roadway facilities in the study area. Existing traffic conditions within the study area were determined by field surveys conducted for this study and other recent studies in the area. Traffic counts over two years old were updated. In addition to existing traffic volumes, speed limits, intersection configurations and right-of-way control information were also collected.

The second phase of the data collection task was to obtain and review any pertinent traffic studies. This included traffic impact studies for various projects in the vicinity as well as any other studies that document existing or anticipated traffic conditions in the study area, including the *Mauli Long Range Land Transportation Plan*.

2. Analysis of Existing Traffic Conditions

Using the data collected, existing traffic operating conditions in the vicinity of the project were determined. The methodology for signalized and unsignalized intersections described in the *2000 Highway Capacity Manual (HCM)*² was used to determine the level-of-service (LOS) at the study intersections. New traffic counts were performed during March 2004 rather than use the traffic data collected for the earlier traffic study. Therefore, the traffic data presented in this report considers recently completed development in the area (Kispy Kraeme, Walmart and Home Depot) and roadway improvement projects in the area. The roadway improvements include the widening of Puunene Avenue, installation of traffic signals at the intersections of Puunene Avenue at Hansen Road and Puunene Avenue at Hookele Street, and the widening of Kūhātani Highway from two to four lanes.

² Highway Capacity Manual, Institute of Transportation Engineers, Washington, D.C., 1997

3. Estimate Future Background Traffic Projections

The year 2020 was used as the design year. This does not necessarily represent the project completion date. It is a date for which background traffic conditions are estimated. Background traffic conditions are defined as future traffic conditions without the proposed project. Future background traffic consists of existing traffic plus ambient background growth, traffic generated by other development projects that are likely to occur within the study period, and redistributed traffic resulting from likely roadway improvement projects in and adjacent to the study area.

4. Estimate Traffic Characteristics of Proposed Project

Since the project consists of the Hookele Street Extension and the retail and industrial related development, estimation of project related traffic had to be performed in a two step process. The first was to estimate traffic volumes along the proposed roadway network without the development of Maui Business Park Phase II. Three sets of traffic forecasts were developed. The first forecast was for 2020 background traffic conditions (without development) with Hookele Street extended from Pakaula Street (the existing terminus) to Hana Highway. The second set of forecasts was for 2020 background conditions (without development) with Hookele Street extended from Pakaula Street to Hana Highway and the Airport Access Road between Dairy Road and Hana Highway. The third, and last, set of forecasts was for 2020 background conditions (without development) with Hookele Street extended from Pakaula Street to Hana Highway and the Airport Access Road between Dairy Road and Kahului Airport.

The next step in the traffic analysis was to estimate the peak-hour traffic that would be generated by the proposed Maui Business Park Phase II. This was done using standard trip generation procedures outlined in *Trip Generation*³. Trip generation estimates were prepared for three possible development scenarios:

- Scenario A: 25% Retail and 75% Light Industrial
- Scenario B: 50% Retail and 50% Light Industrial
- Scenario C: 75% Retail and 25% Light Industrial

These trips were distributed based on the available approach and departure routes. The project-related traffic was then superimposed on 2020 background traffic volumes at the study intersections.

5. Analysis of Traffic Impacts of Proposed Project

The HCM methodology was used to conduct a level-of-service analysis for background plus project conditions. The results of this analysis were compared to 2020 background conditions (without project) to determine the incremental impacts of this project. Intersections where the impacts were significant were identified. Potential mitigation measures were then identified and assessed. The impacts of Scenarios A, B and C are presented as Appendix C.

6. Refinement of Development Scenario

Based on the results of the level-of-service analysis, the assessment of required mitigation measures and certain conditions and requirements imposed on the project, a refined development scenario was developed and is referred to as Scenario D. This scenario reflects redistribution of the proposed uses within the Project

³ Trip Generation, Institute of Transportation Engineers, Washington, D.C., 1997

Order of Presentation

Chapter 2 describes existing traffic conditions, the Level-of-Service (LOS) concept and the results of the LOS analysis of existing conditions.

Chapter 3 describes the process used to estimate 2020 cumulative traffic volumes and the resulting cumulative traffic projections. Cumulative conditions are defined as future background traffic conditions without traffic generation by the study project.

Chapter 4 describes the methodology used to estimate the traffic characteristics of the proposed project, including 2020 cumulative plus project traffic projections.

Chapter 5 describes the traffic impacts of the proposed project, identifies potential mitigation measures and describes the recommended traffic circulation plans, including the recommended configurations of the new intersections.

Chapter 6 is a summary of the conclusions and recommendations.

in response to more specific conditions imposed by the SLUC and to mitigate traffic impacts of Scenarios A, B and C. The peak hour traffic characteristics of Scenario D were estimated using the same procedures as for the previous three scenarios. The trips were also distributed and assigned as with the previous development scenarios. The trips were assigned for two roadway scenarios. The first was with Hookele Street between Pakaula Street and Hana Highway and the Airport Access Road between Dairy Road and Kahului Airport. The second roadway scenario was with Hookele Street between Pakaula Street and Hana Highway and the Airport Access Road between Dairy Road and Hana Highway.

7. Final Development Plan and Recommendations

The impacts of Scenario D were identified and quantified. Required mitigation measures were then identified and assessed. The results of the mitigation analysis were then used to develop the final circulation plan for the project and recommendations. The results of the impact analysis and the mitigation analysis are presented in this report.

8. Recommended Intersection Configurations

The final set of traffic projections for development Scenario D with Hookele Street completed between Pakaula Street and Hana Highway and the Airport Access Road between Dairy Road and Kahului Airport were used to determine the required lane configurations of the new intersections. Schematic diagrams of the recommended intersection configuration were then prepared and are included in the report.

Hana Highway

Hana Highway is a State Highway. Generally, Hana Highway is a four-lane highway with widening at major intersections to provide separate left and/or right turn lanes. The eastbound approach to Dairy Road has one left turn only lane, two through lanes, and one through and right turn lane. The westbound approach has two left turn only lanes, two through lanes, and one right turn only lane.

Haleakala Highway

Between Dairy Road and the Costco Driveway, Haleakala Highway is a four-lane, undivided highway. The intersection with Dairy Road is signalized and has separate left turn storage lanes. The intersection with the Costco Driveway is unsignalized. East of the Costco Driveway, Haleakala Highway is a two-lane, undivided highway.

Hookele Street

Hookele Street is a four-lane, divided roadway. Currently, this roadway exists between Puunene Avenue and Pakaula Street.

The traffic characteristics of these roadways are summarized in Table 1.

2. ANALYSIS OF EXISTING CONDITIONS

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

Description of Existing Streets and Intersection Controls

The following is a summary of the major roadways in the study area:

Puunene Avenue

Within the study area, Puunene Avenue is a four-lane, east-west roadway with separate left turn storage lanes. East of Hookele Street, Puunene Avenue is being widened from a two-lane highway to a four-lane divided highway as part of the Puunene Avenue-Mokulele Highway widening project.

Dairy Road

Between Puunene Avenue and Haleakala Highway, Dairy Road is a five-lane roadway with two lanes in each direction and a left turn storage lane. There are traffic signals at the intersections with, Pakaula Street, Maui Marketplace Drive, Alamaha Street, Hana Highway and Haleakala Highway.

Hana Highway

Hana Highway is a State Highway. Generally, Hana Highway is a four-lane highway with widening at major intersections to provide separate left and/or right turn lanes. The eastbound approach to Dairy Road has one left turn only lane, two through lanes, and one through and right turn lane. The westbound approach has two left turn only lanes, two through lanes, and one right turn only lane.

Haleakala Highway

Between Dairy Road and the Costco Driveway, Haleakala Highway is a four-lane, undivided highway. The intersection with Dairy Road is signalized and has separate left turn storage lanes. The intersection with the Costco Driveway is unsignalized. East of the Costco Driveway, Haleakala Highway is a two-lane, undivided highway.

Hookele Street

Hookele Street is a four-lane, divided roadway. Currently, this roadway exists between Puunene Avenue and Pakaula Street.

The traffic characteristics of these roadways are summarized in Table 1.

Table 1 Existing Traffic Characteristics⁽¹⁾

Location	Puunene Highway	Dairy Road	Dairy Road	Hana Highway
Direction	EB	WB	NB	SB
ADIT ⁽²⁾	20389	33713	13681	33553
AM Peak Hour	6:30-7:30	7:00-8:00	7:45-8:45	7:30-8:30
AM Peak Volume	706	509	1127	907
PM Peak Hour	4:00-5:00	3:00-4:00	4:30-5:30	4:45-5:45
PM Peak Volume	972	1154	1149	1531
			543	647
			7:30-8:30	7:15-8:15
			863	2400
			4,30-5:30	3,00-4:00
			1475	1230

NOTES:
1. Source: Hawaii Department of Transportation, May 2001
2. ADIT = Average Daily Traffic

Existing Peak Hour Traffic Volumes

The existing morning and afternoon peak hour traffic volumes are shown in Figures 4 and 5. As noted in the introduction, new traffic counts were not performed for all the intersections in the study area. Traffic counts performed for other studies were used where applicable. The sources of the existing traffic volumes are summarized in Table 2.

No.	Intersection	Source of Data
1	Dairy Road at Puunene Avenue	Traffic Counts by PRA, March 2004
2	Dairy Road at Palakala Street	Traffic Counts by PRA, March 2004
3	Dairy Road at Hukilau Street	TIAR for Dairy Road Retail Center ⁽¹⁾
4	Dairy Road at Maul Marketplace South Driveway	TIAR for Dairy Road Retail Center ⁽¹⁾
5	Dairy Road at Maul Marketplace Drive	TIAR for Dairy Road Retail Center ⁽¹⁾
6	Dairy Road at Alenuhau Street	Traffic Counts by PRA, March 2004
7	Dairy Road at Hana Highway	Traffic Counts by PRA, March 2004
8	Dairy Road at Kale Street	Traffic Counts by PRA, March 2004
9	Dairy Road at Haleakala Highway	Traffic Counts by PRA, March 2004
10	Haleakala Highway at Costco	TIAR for Costco Expansion ⁽²⁾
11	Puunene Avenue at Hookele Street	Traffic Counts by PRA, March 2004
12	Hookele Street at Palakala Street	Calculated for traffic counts Puunene at Hookele by PRA, March 2004
13	Palakala Street at Walmart and Home Depot Driveway	Traffic Counts by PRA, March 2004

NOTES:
(1) Philip Rowell and Associates, TIAR for Dairy Road Retail Center
(2) Philip Rowell and Associates, Costco TIAR

The counts shown include buses and large vehicles such as trucks and tour buses. They do not include bicycles and mopeds.

The traffic data presented considers recently completed development in the area (Walmart, Home Depot and Krispy Kreme) and roadway improvement projects in the area. The roadway improvements include the widening of Puunene Avenue, installation of traffic signals at the intersections of Puunene Avenue at Hansen Road and Puunene Avenue at Hookele Street, and the widening of Kūihelani Highway from two to four lanes.

Also, the total approach and departure volumes of the intersections may not match those of adjacent intersections because the peak hour of one intersection may be different from that of an adjacent intersection and because there are driveways between intersections.

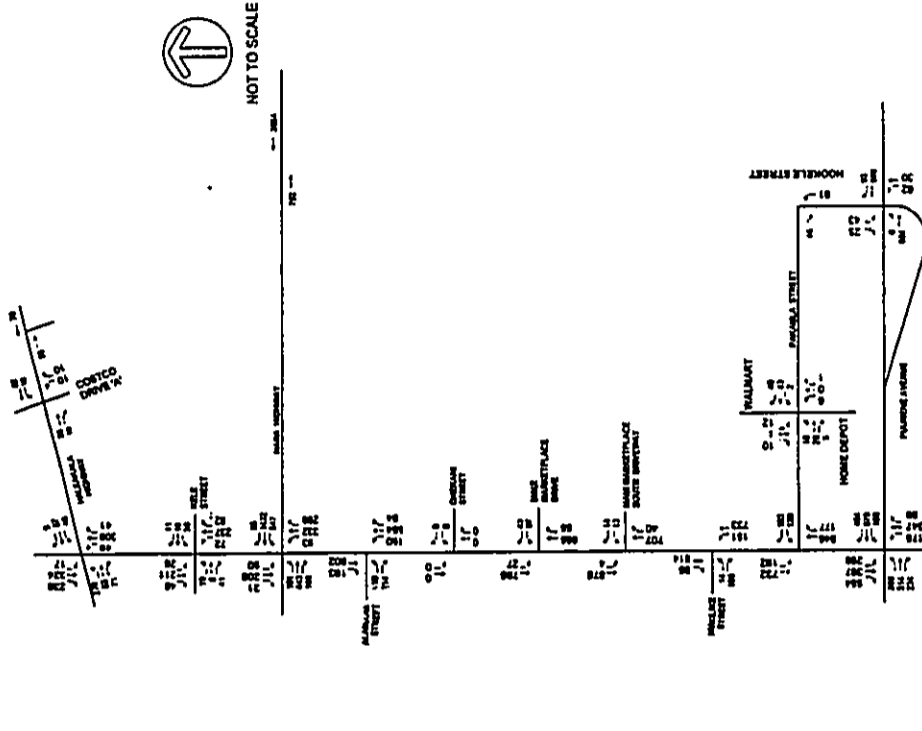


Figure 4
EXISTING (2004) AM PEAK HOUR TRAFFIC VOLUMES

Level-of-Service Concept

Signalized Intersections

The operations method described in the 2000 Highway Capacity Manual (HCM) was used to analyze the operating efficiency of the signalized intersections adjacent to the study site. This method involves the calculation of a volume-to-capacity (V/C) ratio and average vehicle delay that defines the level-of-service of the subject intersection.

"Level-of-Service" is a term that denotes any of an infinite number of combinations of traffic operating conditions that may occur on a given lane or roadway when it is subjected to various traffic volumes. Level-of-time, traffic interruptions, freedom to maneuver, safety, driving comfort, and convenience.

There are six levels-of-service, A through F, which relate to the driving conditions from best to worst, respectively. The characteristics of traffic operations for each level-of-service are summarized in Table 3. In general, LOS A represents free-flow conditions with no congestion. LOS F, on the other hand, represents severe congestion with stop-and-go conditions. Level-of-service D is typically considered acceptable for peak hour conditions in urban areas.

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

Table 3 Level-of-Service Definitions for Signalized Intersections⁽¹⁾

Level of Service	Interpretation	Volume-to-Capacity Ratio ⁽²⁾	Stopped Delay (Seconds)
A, B	Uncongested operations; all vehicles clear in a single cycle.	0.000-0.700	<20.0
C	Light congestion; occasional backups on critical approaches	0.701-0.800	20.1-35.0
D	Congestion on critical approaches but intersection functional. Vehicles must wait through more than one cycle during short periods. No long standing lines formed.	0.801-0.900	35.1-55.0
E	Severe congestion with some standing lines on critical approaches. Blockage of intersection may occur if signal does not provide protected turning movements.	0.901-1.000	55.1-80.0
F	Total breakdown with stop-and-go operation	>1.001	>80.0

Notes:
(1) Source: Highway Capacity Manual, 2000.
(2) This is the ratio of the calculated critical volume to Level-of-Service E Capacity.



Figure 5
EXISTING (2004) PM PEAK HOUR TRAFFIC VOLUMES

Level-of-Service Analysis of Existing Conditions

The results of the Level-of-Service analysis of the signalized intersections are shown in Table 5. Shown in the table are the volume-to-capacity ratio, the control delay, and the Level-of-Service of each intersection. The level-of-service of each movement is not shown.

Table 5 Existing (2004) Level-of-Service Analysis of Signalized Intersections^(a)

Intersection and Movement	AM Peak Hour		PM Peak Hour		LOS
	V/C ^(b)	Delay ^(c)	V/C ^(b)	Delay ^(c)	
1. Puunene Avenue at Dairy Road	1.18	36.4	0.99	35.1	D
2. Dairy Road at Pakaula Street	0.72	13.8	1.06	26.7	C
3. Dairy Road at Maui Marketplace Drive	0.34	7.1	0.56	12.4	B
4. Dairy Road at Alana Street	0.69	12.4	0.84	14.0	B
5. Dairy Road at Hana Highway	0.83	47.9	1.15	50.0	D
6. Hookele Highway at Dairy Road	0.56	19.7	1.15	55.5	E
7. Puunene Avenue at Hookele Street	0.51	17.0	0.71	22.8	C

NOTES:
1. Peak hour conditions analyzed are "worst case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the generator.
2. V/C denotes ratio of volume to capacity.
3. LOS is the level of service.
4. Delay is the control delay calculated using the approximate method described in Highway Capacity Manual. LOS is based on delay. See Tables 1 and 2 for definitions.

1. The LOS analysis indicates that the intersection of Dairy Road at Puunene Avenue operates at LOS D during the morning and afternoon peak hour.
2. The LOS analysis indicates that the intersection of Dairy Road at Pakaula Street operates at LOS B during the morning peak hour and LOS C during the afternoon peak hour. However, left turns from Dairy Road to Pakaula Street are heavy and typically backup through the intersection with Hookele Street. Traffic also backs up from the intersection with Puunene Avenue. Thus, southbound traffic through this intersection is constrained.
3. The calculated LOS at the intersection of Dairy Road at Maui Marketplace Drive is A during the morning and B during the afternoon. This is consistent with conditions observed during the traffic counts.
4. The LOS analysis indicates that the intersection of Dairy Road at Hana Highway operates at LOS D during the morning and LOS D during the afternoon. During both peak periods, left turns from westbound Hana Highway to southbound Dairy Road are heavy and are constrained by the traffic signal at the intersection of Dairy Road at Alana Street. Backups through the Hana Highway intersection are common.
5. The LOS analysis indicates that the intersection of Dairy Road at Hookele Highway operates at LOS B during the morning peak hour and LOS E during the afternoon peak hour. This is consistent with conditions observed during the traffic surveys.
6. The LOS analysis indicates that the intersection of Puunene Avenue at Hookele Street operates at LOS B during the morning peak hour and LOS C during the afternoon peak hour.

Unsignalized Intersections

Like signalized intersections, the operating conditions of intersections controlled by stop signs can be classified by a level-of-service from A to F. However, the method for determining level-of-service for unsignalized intersections is based on the use of gaps in traffic on the major street by vehicles crossing or turning through that stream. Specifically, the capacity of the controlled legs of an intersection is based on two factors: 1) the distribution of gaps in the major street traffic stream, and 2) driver judgment in selecting gaps through which to execute a desired maneuver. The criteria for level-of-service at an unsignalized intersection is therefore based on delay of each turning movement.

Table 4 summarizes the definitions for level-of-service and the corresponding delay.

Table 4 Level-of-Service Definitions for Unsignalized Intersections⁽¹⁾

Level-of-Service	Expected Delay to Minor Street Traffic	Delay (Seconds)
A	Little or no delay	<10.0
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	See note (2) below	>50.1

Notes:
(1) Source: Highway Capacity Manual, 2000.
(2) When the delay to a minor street exceeds the capacity of the lane, extreme delays will be encountered with queuing which may result in severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement of the intersection.

The results of the Level-of-Service analysis of the unsignalized intersections are summarized in Table 6. Shown are the control delays and Levels-of-Service of each controlled movement. Volume-to-capacity ratios are not calculated for unsignalized intersections.

The results of the level-of-service analysis for unsignalized intersections indicate that there are long delays for traffic waiting to turn left from the side streets onto Dairy Road, especially during the afternoon peak hours.

Intersection and Movement	AM Peak Hour		PM Peak Hour	
	Delay (Seconds/Vehicle)	Level-of-Service	Delay (Seconds/Vehicle)	Level-of-Service
Dairy Road at Hukilina Street				
Northbound Left	11.7	B	15.4	C
Eastbound Left & Right	26.7	D	381.8	F
Dairy Road at Maui Marketplace				
Southbound Left	9.6	A	10.8	B
Westbound Left & Right	21.8	C	117.5	F
Dairy Road at Kala Street				
Northbound Left	8.0	A	1.5	A
Southbound Left	8.0	A	0.7	A
Westbound	20.0	C	20.0	C
Eastbound	12.4	B	12.4	B
Haleakala Highway at Costco Drive A				
Westbound Left	7.4	A	4.7	A
Northbound Left	9.5	A	14.4	B
Northbound Right	8.8	A	9.2	A
Pakaula Street at Hookele Street				
Eastbound Right	8.5	A	8.7	A

3. PROJECTED BACKGROUND TRAFFIC CONDITIONS

The purpose of this chapter is to discuss the assumptions and data used to estimate 2020 background traffic volumes without the proposed project.

Future traffic growth consists of two components. The first is ambient background growth that is a result of regional growth and cannot be attributed to a specific project. The second component is estimated traffic that will be generated by other development projects in the vicinity of the proposed project. These other projects are referred to as related projects. Related projects include development projects and roadway improvement projects.

Background Traffic Growth

Data provided in the Maui Long-Range Land Transportation Plan⁴ was used to estimate the background growth rate of traffic along the roadways within the study area. This plan concluded that traffic on the Island of Maui would increase 1.6% per year between 1990 and 2020, which is the horizon year for this traffic study.

The Plan provided traffic projections for only four locations adjacent to the study area. The traffic growth of these locations was within the 1.6% per year except for two locations. However, the traffic forecasts were for peak hour traffic volumes per direction. Turning movements at key intersections were not provided in the Plan. There was insufficient data to apply these calculated growth rates to traffic volumes at the study

⁴ Kaku Associates, Maui Long Range Land Transportation Plan, October 1996

intersections.

Therefore for study, the average annual growth rate of the Plan would be applied to all the traffic volumes at the study intersections. This was the only way to apply the growth rate and have the traffic volumes balance with those of the adjacent intersections.

The background growth rate also includes growth within the study area and therefore includes projected traffic associated with the related projects used to estimate 2020 background traffic as well as traffic associated with the study project. The report for the plan did not document which projects were included in the 2020 forecasts. Therefore, some of the traffic is probably double counted. This means that application of the background traffic growth rate will result in conservative traffic forecasts.

The growth factor was calculated to be 1.29 using the following formula:

$$F = (1 + i)^n$$

where F = Growth Factor
i = Average annual growth rate (0.016)
n = Growth period, 16 years

Related Projects

The second component in estimating background traffic volumes is traffic resulting from other proposed projects in the vicinity. Related projects are defined as those projects that are under construction or have been approved for construction and would significantly impact traffic in the study area. Related projects may be development projects or roadway improvements.

The related projects identified are listed in Table 7 along with the estimated number of peak hour trips generated by each project. The peak hour trips shown were taken from the traffic study for each respective project.

Table 7 Trip Generation Summary of Related Projects

Related Project	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
Airport Hotel	87	31	112	68
Costco Retail Expansion	NOT OPEN DURING AM PEAK HOUR		45	52
Costco Gas Station	NOT OPEN DURING AM PEAK HOUR		22	22
Dairy Road Retail Center	90	35	169	183
TOTALS	177	66	348	323

Notes:
(1) Trips shown are new trips generated by the project. Net trips generated are total trips generated minus pass-by trips.

The trip generation estimates shown in the Table for the Costco projects and the Dairy Road Retail Center were obtained from the respective traffic studies. For the Airport Hotel project, the project description provided in the traffic study was used to perform a new trip generation analysis as more current trip generation data were available since completion of the traffic study for the project.

The traffic generated by the related projects was distributed and assigned to the roadway network within the study area. The traffic studies for these projects provided traffic assignments for the intersections adjacent to the respective project. The assignments were expanded to include all the study intersections. The morning and afternoon peak hour traffic assignments of the related projects are shown in Figures 6 and 7, respectively.

Roadway Improvement Projects

The Airport Access Road is a roadway project that will significantly affect traffic conditions within the study area. Construction of the Airport Access Road is included in the Maui Long Range Land Transportation Plan. This roadway will be constructed between the existing intersection of Dairy Road at Pakaula Street and Kahului Airport along a corridor east of Maui Marketplace and Costco, providing a more direct link to the airport from Puunene Avenue.

This project will divert a significant amount of traffic from Dairy Road. Based on information provided by Hawaii Department of Transportation, the first phase will be between Dairy Road and Hana Highway and will be completed within 3 years. The second phase will be between Hana Highway and Kahului Airport. Timing of funding for this second phase is yet to be determined. Background forecasts have been prepared for both of these scenarios in order to assess the impacts of traffic generated by the study project and the Airport Access Road.

A second project is the widening of Hana Highway from four to six lanes between Haleakala Highway and Kaahumanu Avenue. The project is a recommendation of the Maui Long-Range Land Transportation Plan.⁵

Widening of Puunene Avenue from west of Dairy Road to east of Wakea Avenue. The project is a recommendation of the Maui Long-Range Land Transportation Plan⁶ to accommodate future regional traffic growth.

Lastly, the intersection of Haleakala Highway at Costco will be signalized. This is a condition for approval of other developments in the area.

2020 Background Traffic Projections

2020 background traffic projections were developed for three roadway scenarios,

- (1) Existing roadway network (See Figures 6 and 7)
- (2) Existing roadway network with the Airport Access Road from Dairy Road to Hana Highway.
- (3) Existing roadway network with the Airport Access Road from Dairy Road to Kahului Airport

⁵ Kaku Associates, Maui Long-Range Land Transportation Plan, February 1997, page 100

⁶ Kaku Associates, Maui Long-Range Land Transportation Plan, February 1997, page 100

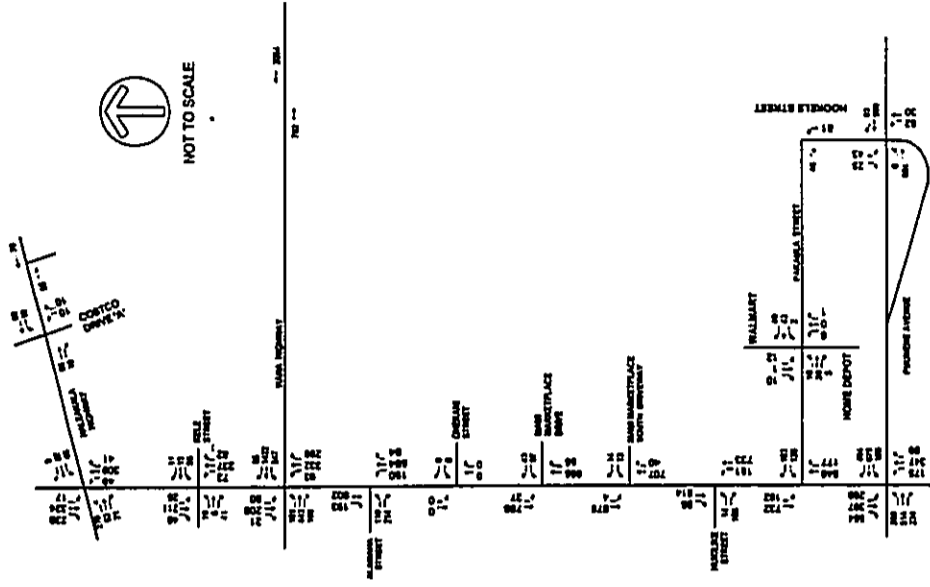


Figure 7
 2020 BACKGROUND PM PEAK HOUR TRAFFIC VOLUMES

Philip Rowell and Associates

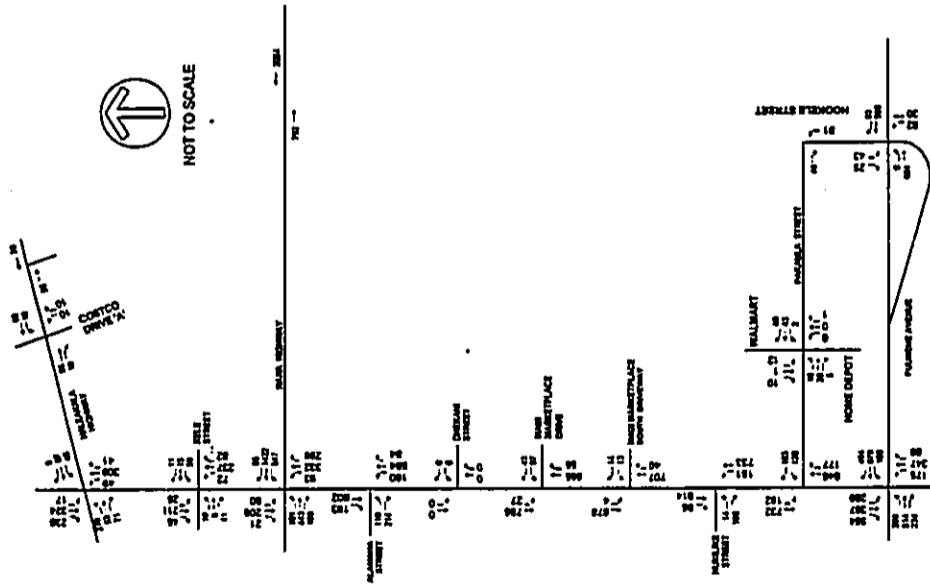


Figure 6
 2020 BACKGROUND AM PEAK HOUR TRAFFIC VOLUMES

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4. PROJECT-RELATED TRAFFIC CONDITIONS

This chapter discusses the methodology used to identify the traffic-related impacts of the proposed project. Typically, the process involves the determination of weekday peak-hour trips that would be generated by the proposed project, distribution and assignment of these trips on the approach and departure routes, and finally, determination of the levels-of-service at affected intersections and driveways subsequent to implementation of the project. In this case, the amount of traffic diverted from Dairy Road to Hookele Street as a result of extension to Hana Highway was estimated prior to the estimating traffic generated by the Maui Business Park Phase II.

This chapter presents diversion calculations and then the generation, distribution and assignment of project generated traffic and the background plus project traffic projections. The results of the level-of-service analysis of background plus project conditions are presented in the following chapter.

Hookele Street Extension

The extension of Hookele Street from Pakaula Street to Hana Highway is a major component of the project. There are two issues associated with the extension of Hookele Street to Hana Highway: the optimum location for the intersection with Hana Highway and estimating the traffic that would be diverted from Dairy Road to Hookele Street.

The intersection of Hookele Street with Hana Highway was established approximately 1800 feet east of the future intersection of the Airport Access Road with Hana Highway. This location was selected for the following reasons:

1. The distance between Dairy Road and the Airport Access Road along Hana Highway is also 1800 feet. Because these three intersections are equidistant, traffic signal coordination will be facilitated.
2. The intersection is in the approximate center of the Maui Business Park Phase II frontage along Hana Highway. This facilitates traffic flows within the project by having approximately equal development along both sides of Hookele Street.

The extension will be constructed concurrently with the first increment of the Maui Business Park Phase II project and will most likely be completed before occupancy by any proposed users. Accordingly, the first step in developing traffic forecasts for the project is to estimate the amount of traffic that will be diverted from Dairy Road to Hookele Street prior to any traffic being generated by the business park development. The background forecasts were estimated as follows:

1. Estimate the amount of through traffic along Dairy Road based on existing traffic data.
2. Estimate the percentage of the through traffic that will be diverted from Dairy Road to Hookele Street and calculate the traffic that would be diverted if Hookele Street were open today.
3. Project this traffic to 2020 using the growth rates described in the previous chapter.
4. Add traffic generated by the related projects described in the previous chapter.

It is estimated that in 2020, 1,225 trips will be diverted from Dairy Road to Hookele Street during the morning peak hour. During the afternoon peak hour, 1,610 trips will be diverted. The percentage of potential trips diverted to Hookele Street is high because travel times using the new street will be significantly less than using the Dairy Road corridor with traffic signals and driveways that cause significant delays.

Shown in Table 8 are the percentage of the total traffic along Dairy Road that would be diverted. It is estimated 40% of the morning peak hour traffic will be diverted to Hookele Street. During the afternoon peak hour it is estimated that 42% will be diverted.

Table 8 Summary of Diverted Traffic Calculations

	With Hookele Street Extension	
	AM Peak Hour	PM Peak Hour
Total Traffic Along Dairy Road ⁽¹⁾	3,030	3,810
Diverted Trips	1,225	1,610
Percentage	40%	42%

Notes:
(1) Peak hour volumes shown are calculated from 2020 projections along the south leg of the intersection of Dairy Road at Hana Highway.

Project Trip Generation

Future traffic volumes generated by a project are typically estimated using the procedures described in the Trip Generation Handbook, published by the Institute of Transportation Engineers. This method uses trip generation rates or equations to estimate the number of trips that a proposed project will generate during the morning and afternoon peak hours. For purposes of trip generation, three scenarios were assumed.

Scenario A

The following assumptions were used for the trip generation analysis:

1. The South Project Area is 141 acres and was divided into three zones (Zones A, B, and C). The North Project Area is 38 acres and was designated Zone D. These are shown in Figure 2.
2. Retail use is assumed to comprise 25% of both areas. For the trip generation analysis, the trip generation rates for shopping centers were used.
3. For the remaining 75% of the project, trip generation rates for light industrial uses were used.
4. For the retail areas, only 80% of the area will be useable for development. The remaining 20% will be used for roadways, utilities, or common uses.
5. For the retail area, the FAR is 0.25. The is the same FAR used for the Maul Market Place.

The above assumptions result in 44.75 acres of retail, which translates into a total of 389,861 square feet of retail, and 134.25 acres of light industrial. The trip generation rates for light industrial are based on acreage. Therefore, the square footage was not calculated.

The detailed land area and trip generation calculations are presented as Appendix B. Table 9 is a summary of the trip generation calculations.

Table 9 Trip Generation Summary for Scenario A

Zone	Weekly			AM Peak Hour			PM Peak Hour		
	Total	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound
A	9,954	394	120	514	455	633	1,048	871	871
B	8,082	306	96	402	368	503	871	871	871
C	8,082	306	96	402	368	503	871	871	871
D	7,431	278	89	367	340	463	803	803	803
Total	33,599	1,294	401	1,685	1,531	2,102	3,633	3,633	3,633

Scenario B

The following assumptions were used for the trip generation analysis:

1. 50% of the area of each parcel will be retail. For the trip generation analysis, the trip generation rates for shopping centers were used.
2. For the remaining 50% of the project, trip generation rates for light industrial uses were used.
3. For the retail areas, only 80% of the area will be useable for development. The remaining 20% will be used for roadways, utilities, or common uses.
4. For the retail area, the FAR is 0.25.

The above assumptions result in 89.50 acres of retail, which translates into a total of 779,724 square feet of retail, and 89.50 acres of light industrial. The trip generation rates for light industrial are based on acreage. Therefore, the square footage was not calculated.

The detailed land area and trip generation calculations are presented as Appendix B. Table 10 is a summary of the trip generation calculations.

Table 10 Trip Generation Summary for Scenario B

Zone	Weekly			AM Peak Hour			PM Peak Hour		
	Total	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound
A	13,642	353	139	492	618	762	1,380	1,380	1,380
B	11,199	281	113	394	506	618	1,172	1,172	1,172
C	11,199	281	113	394	506	618	1,172	1,172	1,172
D	10,407	257	106	363	469	571	1,040	1,040	1,040
Total	46,447	1,172	471	1,643	2,099	2,565	4,664	4,664	4,664

Scenario C

The following assumptions were used for the trip generation analysis:

1. 75% of the area of each parcel will be retail. For the trip generation analysis, the trip generation rates for shopping centers were used.
2. For the remaining 25%, trip generation rates for light industrial uses were used.
3. For the retail areas, only 80% of the area will be useable for development. The remaining 20% will be used for roadways, utilities, or common uses.
4. For the retail area, the FAR is 0.25.

The above assumptions result in 134.25 acres of retail, which translates into a total of 1,169,588 square feet of retail, and 44.75 acres of light industrial. The trip generation rates for light industrial are based on acreage. Therefore, the square footage was not calculated.

The detailed land area and trip generation calculations are presented as Appendix B. Table 11 is a summary of the trip generation calculations.

Table 11 Trip Generation Summary for Scenario C

Zone	Weekly Total	AM Peak Hour		Total	PM Peak Hour		Total
		Inbound	Outbound		Inbound	Outbound	
A	16,584	304	150	454	748	657	1,605
B	13,698	247	125	372	618	702	1,318
C	13,698	247	125	372	618	702	1,318
D	12,757	230	116	346	573	651	1,224
Total	56,737	1,028	516	1,544	2,533	2,912	5,465

Scenario D

The following assumptions were used for the trip generation analysis:

- 50% of the project area will be retail and office. For the trip generation analysis, the trip generation rates for shopping centers and general office, respectively, were used.
- For the remaining 50% of the project, trip generation rates for light industrial and warehouse uses were used.
- For the retail and office areas, only 80% of the area will be useable for development. The remaining 20% will be used for roadways, utilities, or common uses.
- For the retail and office areas, the FAR is 0.25.

The above assumptions result 603,742 square feet of retail, 175,982 square feet of office space, 25.0 acres of warehouse and 64.5 acres of light industrial uses. The detailed land area and trip generation calculations are presented as Appendix B. Table 12 is a summary of the trip generation calculations.

Table 12 Trip Generation Summary for Scenario D

Zone	Weekly Total	AM Peak Hour		Total	PM Peak Hour		Total
		Inbound	Outbound		Inbound	Outbound	
A	18,045	324	157	481	793	827	1,720
B	2,553	328	54	382	108	297	405
C	10,297	227	182	409	442	598	1,040
D	5,249	300	74	374	233	385	618
Total	36,144	1,178	487	1,666	1,576	2,207	3,783

Summary and Comparison

Table 13 is a summary comparison of the four scenarios. Note that as the larger the proportion of retail, the number of trips generated during the morning peak hour decreases. However, the afternoon peak hour increases significantly. This is because the retail portion typically is not open during the morning peak hour commutes period.

Table 13 Comparison of Trips Generated by Scenarios A, B, C and D

Scenario	Weekly Total	AM Peak Hour		Total	PM Peak Hour		Total
		Inbound	Outbound		Inbound	Outbound	
A	33,599	1,284	401	1,685	1,531	2,102	3,833
B	48,447	1,172	471	1,643	2,099	2,565	4,684
C	56,737	1,028	516	1,544	2,533	2,912	5,465
D	36,144	1,178	487	1,666	1,576	2,207	3,783

Trip Distribution and Assignments

The project generated trips were distributed and assigned based on data provided in the Maui Long-Range Land Transportation Plan. Separate distributions and assignments were prepared for each of the four zones within the business park and then added to estimate the total traffic generated by the project. The traffic assignments are presented in Appendix B. The morning and afternoon peak hour trip assignments for the total business park are shown in Figures 11 and 12, respectively.

2020 Background Plus Project Projections

Background plus project traffic conditions are defined as 2020 background traffic conditions plus project related traffic. The incremental difference between background and background plus project is the traffic impact of the project under study.

2020 background plus project traffic volumes with the project were estimated by superimposing the peak hourly traffic generated by the proposed project on the 2020 background peak hour traffic volumes presented in Chapter 3. Background plus project traffic projections were developed for each of the four development scenarios (A, B, C & D) and the alternative roadway plans. These cases are summarized in Table 14.

Table 14 Summary of Scenarios Analyzed

Case Number	Development Scenario				Roadway Scenario		
	A (25% Retail, 75% Industrial)	B (50% Retail, 50% Industrial)	C (75% Retail, 25% Industrial)	D (50% Retail, 50% Industrial, 25% Intermodal)	With Hookele's Street Extension	With Airport Access Road from Dairy Rd to Hana Highway	With Airport Access Road From Dairy Rd to Kahului Airport
3	•				•		
4	•					•	
5	•				•		•
6		•			•		
7		•			•		
8		•			•		•
9			•		•		
10			•		•		•
11			•		•		•
12				•	•		
13				•	•		•

Notes:
(1) Case 1 is existing conditions and Case 2 is 2020 background conditions.

5. TRAFFIC IMPACT ANALYSIS

The purpose of this chapter is to summarize the results of the level-of-service analysis, which quantifies the traffic related impacts of the project and identifies locations that require mitigation. Mitigation measures necessary and feasible are identified and other access, egress and circulation issues are discussed. The traffic impacts of the proposed project were quantified by analyzing the changes in the volume-to-capacity ratios, delays, and levels-of-service between future background and future background plus project conditions. The incremental difference between the two conditions is the impact of the project.

This report is a revision of the previous traffic study for the Project. It has been revised in response to comments received from Hawaii Department of Transportation and conditions imposed by the State Land Use Commission (SLUC) in March 2004. In particular, the report was revised to account for (1) completion of the Airport Access Road and (2) development scenarios with a higher percentage of retail versus industrial uses. Accordingly, a series of nine (9) development scenarios were defined and analyzed. These include three different assumptions concerning the proportion of retail and light industrial use at the Project (i.e. 25/75, 50/50 and 75/25) and three assumptions concerning the Airport Access Road (i.e. no Airport Access Road, construction of the Airport Access Road to Hana Highway and construction of the Airport Access Road to Kahului Airport). The results of the level-of-service analysis of these nine (9) scenarios (Cases 3 through 11) are presented at Appendix C to this report.

As noted earlier, the proposed Airport Access Road was not included in the previous traffic study (May 2003) because at that time there was no specific timetable for its construction. Hawaii Department of Transportation has since indicated that the Airport Access Road is a priority project and that request for bids for a design-build contract will be issued during fiscal year 2005 for the initial segment from Puunene Avenue to Hana Highway. The remaining portion of the Airport Access Road is assumed to be completed prior to 2020, the horizon year for this study.

Additionally, certain conditions and requirements were also imposed on the Project as part of the SLUC's approval in March 2004. Approximately 25 acres of the South Project Area abutting Hana Highway are restricted in use due to its potential designation as a runway protection zone (RPZ) by Hawaii Department of Transportation. This RPZ is a requirement of the proposed extension of the Kahului Airport runway to 9,600 feet in length. Uses in this area are restricted to those which do not entail the congregation of people and as may be approved by the FAA. Hawaii Department of Transportation has further indicated the possibility of acquiring the RPZ area from A&B. The SLUC has also indicated a preference for light industrial development at the Project by requiring that at least 50% of the Project be developed for non-retail, light industrial use.

As a result, an additional case scenario was formulated. The impact analysis of this scenario is presented in this chapter as Case 12. This scenario assumes the construction of the Airport Access Road between Dairy Road to Kahului Airport. It also assumes a roughly equal proportion of light industrial/warehouse use and retail/office use at the Project. This scenario is intended to forecast traffic under a development scenario that is consistent with the restrictions imposed by the SLUC and with the comments of Hawaii Department of Transportation.

Lastly, a scenario with the Airport Access Road between Dairy Road and Hana Highway was analyzed. This is an analysis of the initial section of the Airport Access Road that is programmed for 2005. The results of the level-of-service of this scenario are also presented in this chapter as Case 13.

The impact analysis was performed for existing intersections only. New intersections, such as those along Hookele Street between Pakaula Street and Hana Highway and the intersections along the Airport Access Road between Dairy Road and Kahului Airport, will be designed to State and/or County standards to provide an acceptable level-of-service based on the estimated traffic projections. Conceptual intersection configurations of the intersections along Hookele Street are presented separately. The State was not able to provide conceptual configurations of intersections along the Airport Access Road.

Accordingly, the level-of-service analysis presented in the following sections includes the following intersections:

1. Dairy Road at Puunene Avenue
2. Dairy Road at Pakaula Street (Case 3, 6 and 9)
3. Dairy Road at Hukilike Street
4. Dairy Road at Maui Marketplace South Driveway
5. Dairy Road at Maui Marketplace Drive
6. Dairy Road at Alamaha Street
7. Dairy Road at Hana Highway
8. Dairy Road at Kele Street
9. Dairy Road at Haleakala Highway
10. Haleakala Highway at Costco Driveway
11. Hookele Street at Puunene Avenue

Definition of Significant Impacts

Criteria defining a significant impact are used to determine whether project generated traffic significantly impacts traffic operations at a specific location. Use of an established standard to identify locations where mitigation is required:

1. To insure that improvements are recommended for only those locations where project generated traffic significantly impacts traffic operating conditions,
2. To insure that all projects are assessed using the same standard, regardless of the reviewing agency or reviewer's experience, and
3. To insure that the mitigation is sufficient to mitigate the impacts of the Project.

It was determined that Hawaii Department of Transportation nor the County of Maui have established standards defining a significant impact. Since there are no local criteria defining a significant traffic impact, criteria used by Los Angeles Department of Transportation was used for this study. The criteria shown in Table 15 are used to define a significant impact for a signalized intersection. These criteria are among the most restrictive found during a review of comparable standards in various communities.

Table 15 Definition of a Significant Traffic Impact⁽¹⁾

Final V/C Ratio ⁽²⁾	Project Related Increase in V/C
0.700-0.800	equal to or greater than 0.040
0.800 - 0.900	equal to or greater than 0.020
> 0.900	equal to or greater than 0.010

NOTES:

- (1) Los Angeles Department of Transportation, Traffic Study Policies and Procedures, 1992.
- (2) Volume-to-Capacity ratio is for the total intersection.

There are no similar criteria for unsignalized intersections. The Traffic Study Policies and Procedures suggest that (1) unsignalized intersections be analyzed assuming signalized conditions so that intersections are evaluated using comparable criteria and (2) the volume-to-capacity ratio for the overall intersection, rather than each traffic movement, be used to evaluate the intersection.

Traffic Impact Analysis for Case 12

The assumptions used for the level-of-service analysis are:

1. Hookele Street is a four-lane divided roadway. This is consistent with the existing section between Punahoa Avenue and Pakaula Street.
2. The intersection of Hana Highway at Hookele Street is signalized and all traffic movements are allowed.
3. The intersection of Haleakala Highway at the entrance to the North Project Area is signalized and has separate left turn lanes into and out of the project.
4. The intersection of Haleakala Highway at the entrance to Costco is signalized. This is a condition for approval of other developments in the area.
5. Hana Highway between Dairy Road and the proposed intersection with Hookele Street has been widened from four to six lanes. This is recommended in the Maui Long Range Land Transportation Plan to accommodate future background traffic growth.
6. The Airport Access Road is completed between Dairy Road and Kahului Airport. Based on the projected traffic volumes, the Airport Access Road is a four-lane, two-way highway. The intersection of the Airport Access Road at Hana Highway is an at-grade, signalized intersection. All traffic movements are allowed. Separate left turn lanes are provided along all four approaches and there is a separate eastbound to southbound right turn lane.

The intersection of Pakaula Street at Dairy Road has been realigned to be a four-legged intersection. The Airport Access Road is the north and south legs, Dairy Road is the west leg and Pakaula Street is the east leg. The intersection is signalized and all traffic movements are allowed. The lane configuration has been determined and used on the level-of-service calculations.

The morning and afternoon peak hour traffic projections for Case 12 are shown in Figures 8 and 9, respectively.

The results of the level-of-service analysis of the study intersections are summarized in Table 16. Shown in the table is the volume-to-capacity ratio, average vehicle delay (in seconds per vehicle) and level-of-service for the overall intersections.

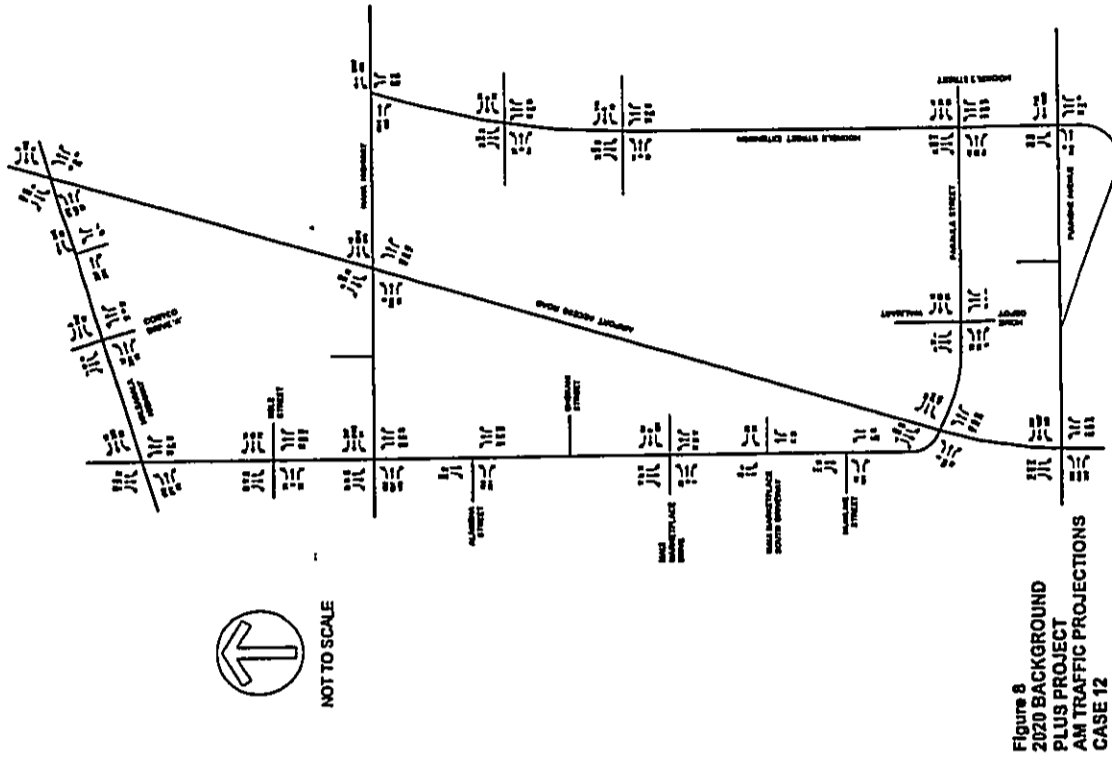


Figure 8
 2020 BACKGROUND
 PLUS PROJECT
 AM TRAFFIC PROJECTIONS
 CASE 12

Traffic Impact Analysis Report for
Maui Business Park Phase II and Hookele Street Extension

Table 18 Level-of-Service Analysis for 2020 Conditions - Case 12

Interaction	2020 Background (Case 2)			2020 Background Plus Project (Case 12)			Changes			Mitigation Required	
	V/C ¹	Delay ²	LOS ³	V/C	Delay	LOS	V/C	Delay	LOS	Yes	No
Dairy Rd at Puunene Ave	1.44	118.8	F	1.41	99.2	F	-0.03	-19.4		X	
Dairy Rd at Hialeha St	1.22	211.8	F	1.73	210.0	F	0.51	-1.8		X	
Dairy Rd at Maui	0.83	6.7	A	0.39	13.7	B	-0.44	7.0			X
Marketplace South	0.94	19.3	B	0.57	12.5	B	-0.37	-6.8			X
Dairy Rd at Hialeha St	0.44	3.4	A	0.06	7.9	A	-0.38	4.5			X
Marketplace South	0.74	10	B	0.29	7.7	A	-0.45	-2.3			X
Dairy Rd at Maui	0.50	8.9	A	0.20	17.4	B	-0.30	7.5			X
Marketplace Drive	0.96	44.8	D	0.60	21.9	C	-0.36	-22.9			X
Dairy Rd at Alanihale St	0.70	22.9	C	0.47	34.2	D	-0.23	11.3			X
Dairy Rd at Hialeha St	1.11	65.8	E	0.64	64.5	E	-0.47	-1.3			X
Dairy Road at Hialeha Hwy	1.20	148.6	F	1.04	95.5	F	-0.16	-53.3			X
Dairy Rd at Hialeha Hwy	1.39	325.5	F	1.10	83.7	F	-0.29	-241.8			X
Dairy Rd at Kale St	0.31	11.0	B	0.27	12.7	B	-0.04	1.7			X
Dairy Rd at Hialehale St	0.69	17.7	B	0.49	14.5	B	-0.20	-3.2			X
Dairy Rd at Hialehale St	0.82	40.8	D	0.54	23.6	C	-0.28	-17.0			X
Hialehale Hwy at Costco Drive	1.36	146	F	1.62	378.9	F	0.45	230.9			X
Hialehale Hwy at Puunene Ave	0.11	29.3	C	0.31	18.0	B	0.20	-11.3			X
Puunene Ave at Hialehale St	0.73	15.2	B	0.73	21.1	C	0.00	5.9			X
Puunene Ave at Hialehale St	0.65	98.5	F	0.92	48.9	D	0.27	-51.6			X
Hialehale St	0.62	498.6	F	2.06	392.3	F	1.28	-116.3			X

NOTE:
1. V/C denotes ratio of volume to capacity
2. Delay is in seconds per vehicle
3. LOS denotes Level-of-Service calculated using the operations method described in Highway Capacity Manual. LOS is based on delay.

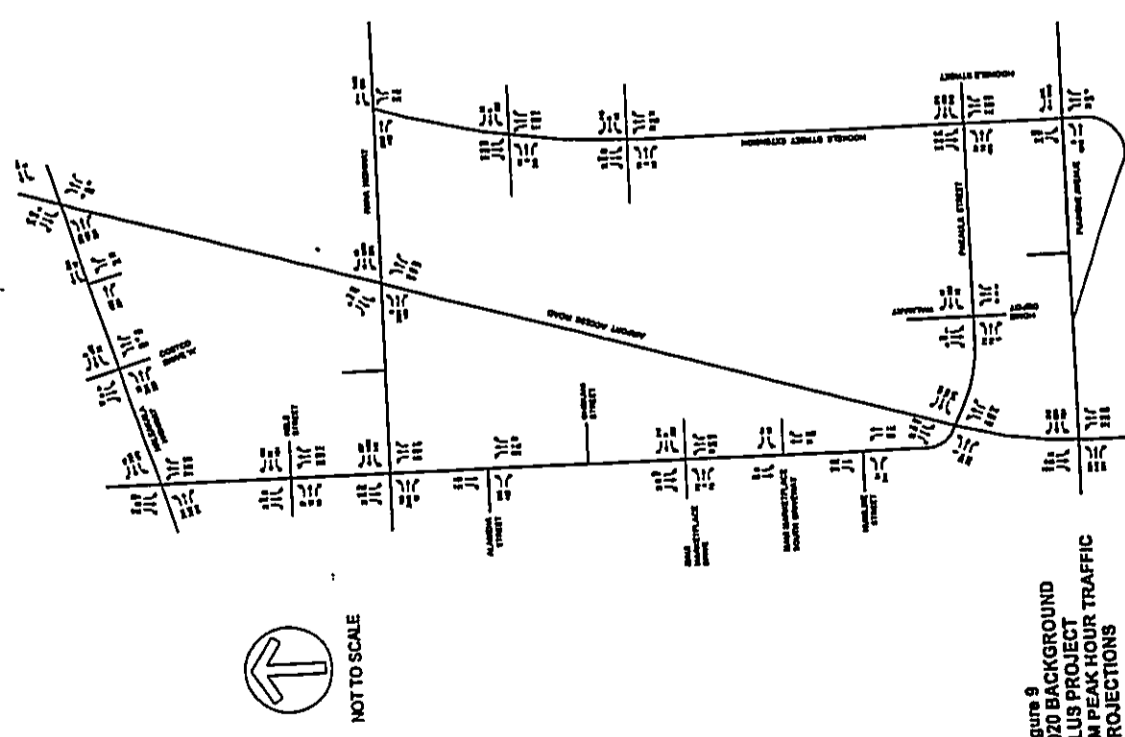


Figure 9
2020 BACKGROUND
PLUS PROJECT
PM PEAK HOUR TRAFFIC
PROJECTIONS
CASE 12

Mitigation Measures for Case 12

Based on the findings of the level-of-service analysis, mitigation is required at the following intersections:

1. Dairy Road at Puunene Avenue
2. Dairy Road at Haleakala Highway
3. Puunene Avenue at Hookele Street

Dairy Road at Puunene Avenue

1. Add second westbound to southbound left turn lane.
2. Add second northbound to westbound left turn lane.
3. Add second southbound to westbound right turn lane.
4. The improvements along Puunene Avenue at Dairy Road will require the widening of Puunene Avenue from two to four lanes from west of Dairy Road to east of Wakea Avenue. This is recommended in the *Maui Long Range Land Transportation Plan* to accommodate future background traffic growth.

Dairy Road at Haleakala Highway

1. Add second westbound to southbound left turn lane.

Puunene Avenue at Hookele Street

1. Add second southbound to eastbound left turn lane.
2. Add second westbound to northbound right turn lane.
3. Add westbound through lane.
4. Add northbound through lane.
5. Add eastbound through lane.

The level-of-service resulting from the mitigation measures discussed above are summarized in Table 17.

Table 17 Mitigation Analysis for 2020 Conditions - Case 12

Intersection	2020 Background (Case 2)		2020 Background Plus Project (Case 12)		Changes		Mitigation Required		With Mitigation	
	V/C	LOS ¹	V/C	LOS	V/C	Delay	Yes	No	V/C	Delay
Dairy Rd at Puunene Ave	1.44	F	1.41	F	-0.03	-18.4	X		1.09	41.0
Dairy Rd at Haleakala Hwy	1.22	F	1.73	F	0.51	-1.9	X		1.13	64.1
Puunene Ave at Hookele St	0.82	D	0.54	C	-0.28	-17.0		X	0.54	23.7
	1.36	F	1.82	F	0.46	230.9	X		1.15	71.3
	0.65	F	0.82	D	0.27	-51.5	X		0.51	18.0
	0.82	F	2.08	F	1.26	-118.3	X		0.99	49.6

NOTES:
 1. V/C denotes ratio of volume to capacity.
 2. Delay is in seconds per vehicle.
 3. LOS denotes Level-of-Service calculated using the operations method described in Highway Capacity Manual. LOS is based on delay.

Dairy Road at Puunene Avenue

With the proposed mitigation, the afternoon volume-to-capacity ratio improves from 1.73 to 1.13, and the level-of-service improves from F to E. These conditions are better than future conditions without the project.

Dairy Road at Haleakala Highway

Mitigation is required for the afternoon peak hour conditions. With the proposed mitigation measures, the morning peak hour volume-to-capacity ratio will be 0.54, which is less than background conditions without the project, which is at 0.82.

During the afternoon peak hour, the volume-to-capacity ratio will be 1.15, versus 1.36 for background without the project. This volume-to-capacity ratio of 1.15 is higher than desirable, but is better than background without the project. The conclusion is that the improvements recommended will both mitigate the project and improve background conditions that will exist without the project.

Puunene Avenue at Hookele Street

With the proposed mitigation, the morning volume-to-capacity ratio and level-of-service will be 0.51 and B, respectively.

For afternoon peak hour conditions, the proposed improvement will result in a volume-to-capacity ratio of 0.99 and a Level-of-Service D. The delay decreases from 498.6 (Level-of-Service F) to 49.6 (Level-of-Service D).

Volume Analysis for Case 12

Table 18 is an analysis of the percentage of project traffic at each study intersection during the peak hours. Shown in the table are the future total peak hourly volumes (2020 cumulative plus project), the number of project trips and the percentage of project trips of the total. The information is typically used to estimate pro-rata share of improvements.

Table 18 Percentage Project Trips of Total Peak Hour Trips - Case 12

Intersection	AM Peak Hour			PM Peak Hour		
	2020 With Project	Project Trips	Percent Project Trips	2020 With Project	Project Trips	Percent Project Trips
Dairy Rd at Puuene Av	5417	429	7.9%	6126	1017	16.6%
Dairy Rd at Pakaula St	2401	219	9.1%	4030	559	13.9%
Dairy Rd at Huelala	521	231	44.3%	1132	231	20.4%
Dairy Rd at Maui Marketplace South	152	54	35.5%	742	152	20.5%
Dairy Rd at Maui Marketplace Dr	173	46	26.6%	678	136	19.9%
Dairy Road at Alenuhau Street	768	64	8.3%	1867	152	8.1%
Dairy Road at Hana Highway	3403	200	5.9%	5459	435	8.0%
Dairy Road at Kale Street	681	73	10.7%	1548	143	9.2%
Dairy Road at Haleakala Highway	1820	103	5.6%	3411	164	4.8%
Haleakala Highway at Costco Drive A	635	49	7.7%	1691	615	36.3%
Puuene Avenue at Hookele Street	3459	811	23.4%	6065	1820	30.0%
Hookele Street at Pakaula Street	1805	615	34.1%	4416	2663	60.3%
Hana Highway at Hookele Street	5746	663	11.5%	5709	1307	22.9%
Hookele Street at Zone B	1447	857	59.2%	2818	1613	57.2%
Hookele Street at Zone C	1401	811	57.9%	3036	1831	60.3%
Hana Highway at Airport Access Road	4667	318	6.8%	5067	500	9.9%
Haleakala Highway at Airport Access Road	1226	79	6.4%	2191	347	15.8%

Traffic Impact Analysis for Case 13

The assumptions used for the level-of-service analysis are:

1. Hookele Street is a four-lane divided roadway. This is consistent with the existing section between Puuene Avenue and Pakaula Street.
 2. The intersection of Hana Highway at Hookele Street is signalized and all traffic movements are allowed.
 3. The intersection of Haleakala Highway at the entrance to the North Project Area is signalized and has separate left turn lanes into and out of the project.
 4. The intersection of Haleakala Highway at the entrance to Costco is signalized. This is a condition for approval of other developments in the area.
 5. Hana Highway between Dairy Road and the proposed intersection with Hookele Street has been widened from four to six lanes. This is recommended in the Maui Long Range Land Transportation Plan to accommodate future background traffic growth.
 6. The Airport Access Road is completed between Dairy Road and Hana Highway. Based on the projected traffic volumes, the Airport Access Road is a four-lane, two-way highway. The intersection of the Airport Access Road at Hana Highway is an at-grade, signalized intersection. All traffic movements are allowed. Separate left turn lanes are provided along all four approaches and there is a separate eastbound to southbound right turn lane.
- The intersection of Pakaula Street at Dairy Road has been realigned to be a four-legged intersection. The Airport Access Road is the north and south legs, Dairy Road is the west leg and Pakaula Street is the east leg. The intersection is signalized and all traffic movements are allowed. The lane configuration has been determined and used on the level-of-service calculations.

The morning and afternoon peak hour traffic projections for Case 13 are presented as Figures 10 and 11, respectively.

The results of the level-of-service analysis of the study intersections are summarized in Table 19. Shown in the table is the volume-to-capacity ratio, average vehicle delay (in seconds per vehicle) and level-of-service for the overall intersections.

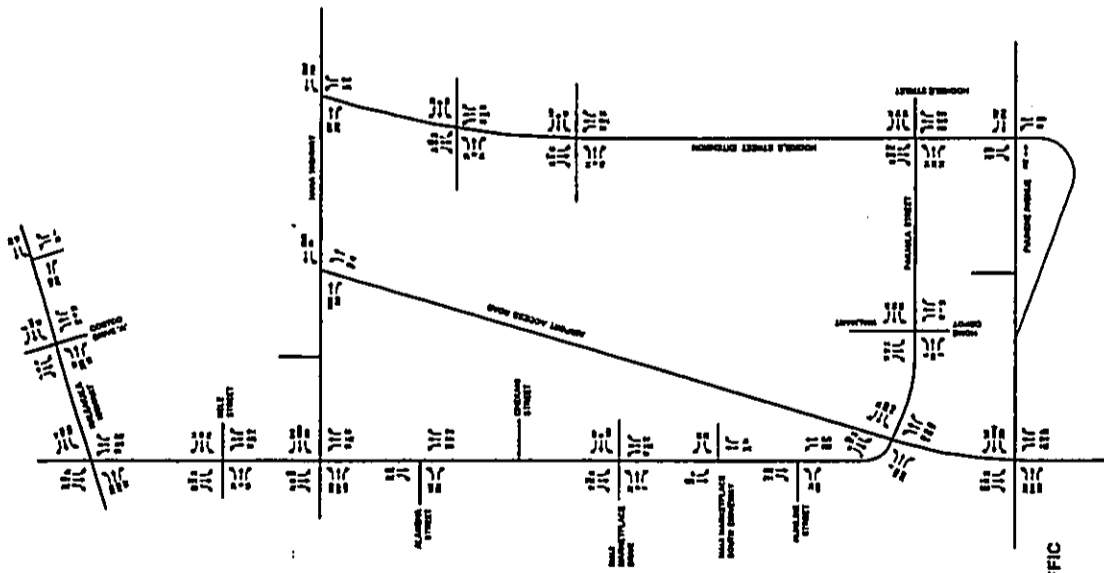


Figure 10
2020 BACKGROUND
PLUS PROJECT
AM PEAK HOUR TRAFFIC
PROJECTIONS
CASE 13

Philip Rowell and Associates

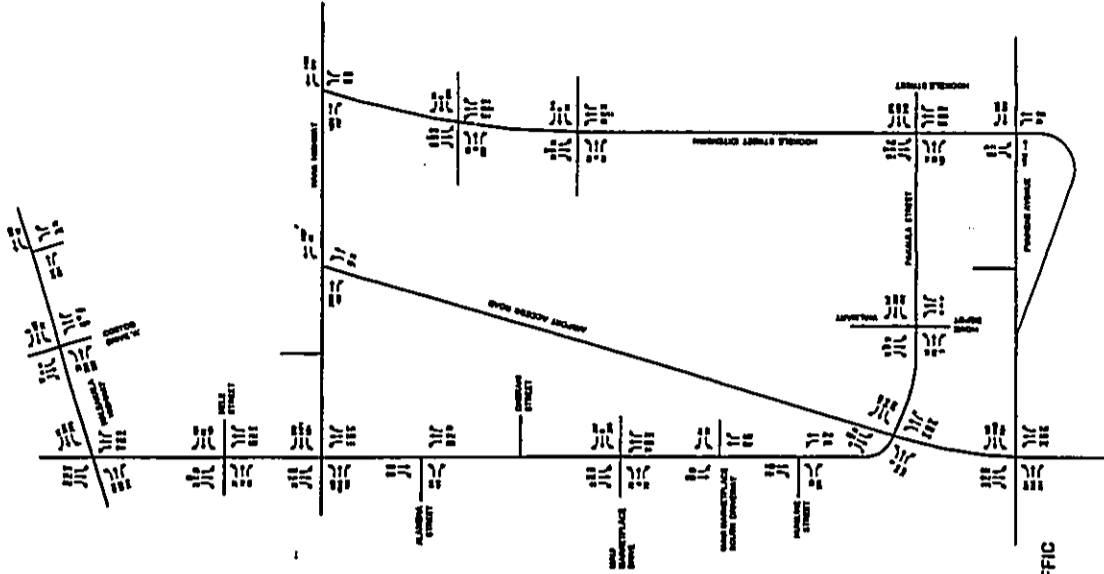


Figure 11
2020 BACKGROUND
PLUS PROJECT
PM PEAK HOUR TRAFFIC
PROJECTIONS
CASE 13

Philip Rowell and Associates

Table 19 Level-of-Service Analysis for 2020 Conditions - Case 13

Intersection	2020 Background (Case 2)				2020 Background Plus Project (Case 13)				Changes		Mitigation Required	
	V/C ^a	Delay ^b	LOS ^c	LOS ^d	V/C	Delay	LOS	LOS	V/C	Delay	Yes	No
Dairy Rd at Puunene Ave	AM 1.44	118.6	F	F	1.22	57.3	E	E	-0.22	-61.3	X	
	PM 1.22	211.8	F	F	1.44	106.1	F	F	0.22	-105.7		X
Dairy Rd at Haleakala Hwy	AM 0.83	6.7	A	A	0.49	10.5	B	B	-0.34	3.8	X	
	PM 0.94	19.3	B	B	0.69	11.8	B	B	-0.25	-7.5	X	
Dairy Rd at Maui Marketplace South	AM 0.44	3.4	A	A	0.22	3.3	A	A	-0.22	-0.1	X	
	PM 0.74	10	B	B	0.45	6.4	A	A	-0.29	-3.6	X	
Dairy Rd at Maui Marketplace Drive	AM 0.50	9.9	A	A	0.29	12.5	B	B	-0.21	2.6	X	
	PM 0.96	44.6	D	D	0.54	20.6	C	C	-0.44	-24.2	X	
Dairy Rd at Alamaha St	AM 0.70	22.9	C	C	0.54	32.9	C	C	-0.16	10.0	X	
	PM 1.31	65.9	E	E	0.77	48.6	D	D	-0.34	-17.2	X	
Dairy Road at Hana Hwy	AM 1.20	148.8	F	F	1.06	82.3	F	F	-0.14	-66.5	X	
	PM 1.39	325.5	F	F	1.60	267.4	F	F	0.21	-58.1		X
Dairy Rd at Kale St	AM 0.31	11.0	B	B	0.41	10.4	B	B	0.10	-0.6	X	
	PM 0.69	17.7	B	B	0.89	55.0	D	D	0.20	37.3	X	
Dairy Rd at Haleakala Hwy	AM 0.82	40.8	D	D	0.90	42.3	D	D	0.08	1.5	X	
	PM 1.36	148	F	F	3.09	660.4	F	F	1.73	514.4	X	
Haleakala Hwy at Costco Drive	AM 0.11	2.3	C	C	0.36	18.1	B	B	0.25	-11.2	X	
	PM 0.73	15.2	B	B	0.68	19.1	B	B	-0.05	3.9	X	
Puunene Ave at Hookele St	AM 0.65	98.5	F	F	0.97	49.0	D	D	0.32	-49.5	X	
	PM 0.82	498.6	F	F	2.00	346.6	F	F	1.18	-151.8		X

NOTE:
1. V/C denotes ratio of volume to capacity.
2. Delay is in seconds per vehicle.
3. LOS denotes Level-of-Service calculated using the operations method described in Highway Capacity Manual. LOS is based on delay.

Mitigation Measures for Case 13

Based on the findings of the level-of-service analysis, mitigation is required at the following intersections:

1. Dairy Road at Puunene Avenue
2. Dairy Road at Hana Highway
3. Dairy Road at Haleakala Highway
4. Puunene Avenue at Hookele Street

Dairy Road at Puunene Avenue

1. Add second westbound to southbound left turn lane.
2. Add second northbound to westbound left turn lane.
3. Add second southbound to westbound right turn lane.
4. The improvements along Puunene Avenue at Dairy Road will require the widening of Puunene Avenue from two to four lanes from west of Dairy Road to east of Waikes Avenue. This is recommended in the Maui Long Range Land Transportation Plan to accommodate future background traffic growth.

Table 20 Mitigation Analysis for 2020 Conditions - Case 13

Intersection	2020 Background (Case 2)				2020 Background Plus Project (Case 13)				Changes		Mitigation Required		With Mitigation	
	V/C ^a	Delay ^b	LOS ^c	LOS ^d	V/C	Delay	LOS	LOS	V/C	Delay	Yes	No	V/C	Delay
Dairy Rd at Puunene Ave	AM 1.44	118.6	F	F	1.22	57.3	E	E	-0.22	-61.3	X		1.02	41.5
	PM 1.22	211.8	F	F	1.44	106.1	F	F	0.22	-105.7		X	0.94	51.2
Dairy Rd at Hana Highway	AM 1.20	148.8	F	F	1.06	82.3	F	F	-0.14	-66.5	X		0.78	37.8
	PM 1.39	325.5	F	F	1.60	267.4	F	F	0.21	-58.1	X		1.19	101.3
Dairy Rd at Haleakala Hwy	AM 0.82	40.8	D	D	0.90	42.3	D	D	0.08	1.5	X		0.88	51.2
	PM 1.36	148.8	F	F	3.09	660.4	F	F	1.73	514.4	X		1.25	137.8
Puunene Ave at Hookele St	AM 0.65	98.5	F	F	0.97	49.0	D	D	0.32	-49.5	X		0.67	17.0
	PM 0.82	498.6	F	F	2.00	346.6	F	F	1.18	-151.8		X	1.10	48.9

NOTE:
1. V/C denotes ratio of volume to capacity.
2. Delay is in seconds per vehicle.
3. LOS denotes Level-of-Service calculated using the operations method described in Highway Capacity Manual. LOS is based on delay.

The level-of-service resulting from the mitigation measures discussed above are summarized in Table 20.

1. Add second southbound to eastbound left turn lane.
 2. Add third westbound through lane.
- Dairy Road at Haleakala Highway
1. Add second westbound to southbound left turn lane.
- Puunene Avenue at Hookele Street
1. Add second southbound to eastbound left turn lane.
 2. Add second westbound to northbound right turn lane.
 3. Add westbound through lane.
 4. Add two northbound through lanes.
 5. Add eastbound through lane.

Volume Analysis for Case 13

Table 21 is an analysis of the percentage of project traffic at each study intersection during the peak hours. Shown in the table are the future total peak hourly volumes (2020 cumulative plus project), the number of project trips and the percentage of project trips of the total.

Table 21 Percentage Project Trips of Total Peak Hour Trips - Case 13

Intersection	AM Peak Hour			PM Peak Hour		
	2020 With Project	Project Trips	Percent Project Trips	2020 With Project	Project Trips	Percent Project Trips
Dairy Rd at Puuene Av	5236	448	8.6%	5662	1048	18.5%
Dairy Rd at Palaula St	1971	189	9.6%	3437	431	12.5%
Dairy Rd at Hualaie	1179	169	14.4%	1849	396	21.5%
Dairy Rd at Maui Marketplace South	819	171	20.8%	1475	343	23.3%
Dairy Rd at Maui Marketplace Dr	841	164	19.5%	1618	328	20.1%
Dairy Road at Alamaa Street	1479	185	12.5%	2622	337	12.8%
Dairy Road at Hana Highway	4471	488	10.9%	6620	911	13.8%
Dairy Road at Hale Street	1394	361	25.9%	2333	618	26.5%
Dairy Road at Costco Drive B	909	0	0.0%	1663	0	0.0%
Dairy Road at Haleakala Highway	2348	408	17.3%	4908	681	13.9%
Haleakala Highway at Costco Drive A	608	352	57.9%	1764	568	32.2%
Puuene Avenue at Hookele Street	3638	808	22.2%	5974	1913	32.0%
Hookele Street at Palaula Street	2342	1009	43.1%	4503	2635	58.5%
Palaula Street at Waiwai/Hone Depot Driveway	287	77	26.8%	700	245	35.0%
Hana Highway at Hookele Street	5916	663	11.2%	5969	1442	24.1%
Hana Highway at Airport Access Road	4054	344	8.5%	4982	649	13.0%

Conceptual Configurations of New Intersections

The lane configurations of the new intersections required to accommodate projected traffic volumes was determined. The new intersections are the following:

1. Hookele Street at Hana Highway
2. Hookele Street at Palaula Street
3. Hookele Street at Zone B Roadway
4. Hookele Street at Zone C Roadway
5. Haleakala Highway at Zone D Entrance

The required lane configurations are shown schematically as Figures 12 through 16 respectively.

As the intersections along the Airport Access Road will be designed concurrently with the Airport Access Road to accommodate future traffic volumes, the lane configurations of these intersections are not included in this report.



NOT TO SCALE

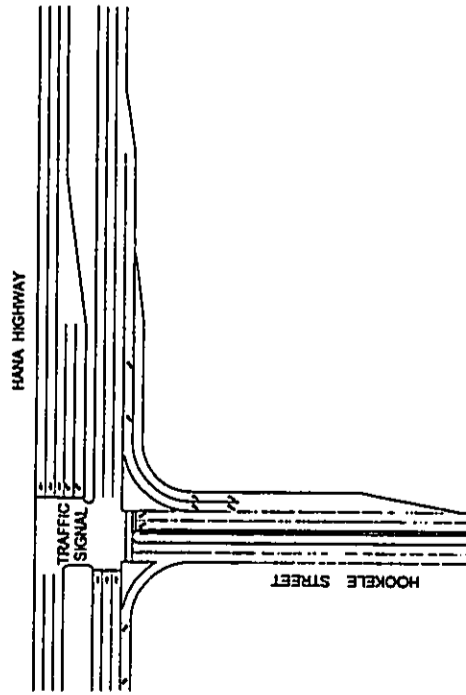


Figure 12
SCHEMATIC DIAGRAM
INTERSECTION OF HOOKELE STREET AT HANA HIGHWAY

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NOT TO SCALE

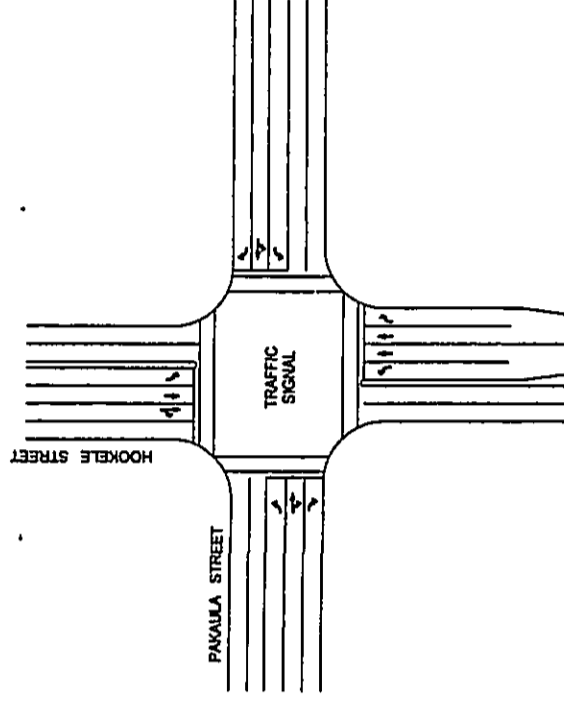


Figure 13
SCHEMATIC DIAGRAM
INTERSECTION OF HOOKELE STREET AT PAKAULA STREET

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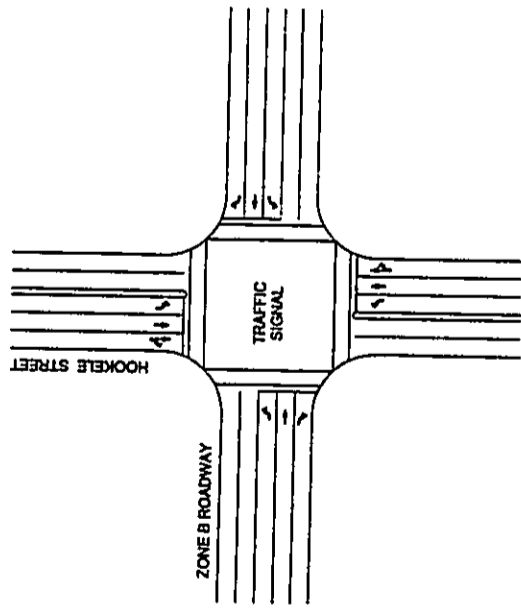


Figure 14
SCHEMATIC DIAGRAM
INTERSECTION OF HOOKELE STREET AT ZONE B ROADWAY

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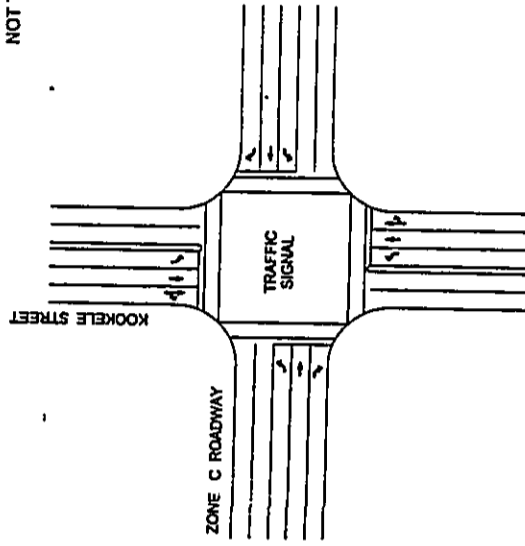


Figure 15
SCHEMATIC DIAGRAM
INTERSECTION OF HOOKELE STREET AT ZONE C ROADWAY

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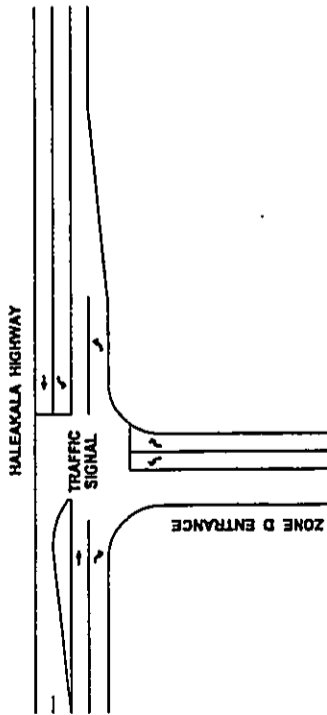


Figure 16
SCHEMATIC DIAGRAM
INTERSECTION OF HALEAKALA HIGHWAY AT ZONE D ENTRANCE

6. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

As indicated earlier, this report is a revision of the prior traffic study (May 2003) for the Project. This report has been revised in response to comments received from the Hawaii Department of Transportation and conditions imposed by the State Land Use Commission in March 2004. These specifically include:

1. Completion of the Airport Access Road, and
2. Development scenarios with a higher percentage of retail versus industrial uses.

The proposed Airport Access Road was not included in the prior traffic study because, at that time, there was no specific timetable for its completion. However, Hawaii Department of Transportation has since indicated that the Airport Access Road is a priority project and that a request for bids for a design-build contract will be issued during fiscal year 2005 for the initial segment from Puunene Avenue to Hana Highway. The remaining portion of the Airport Access Road is assumed to be completed prior to the year 2020, the horizon year for this study and the *Maui Long Range Land Transportation Plan*.

In March 2004, the State Land Use Commission imposed conditions and requirements on the Project. Approximately 25 acres of the South Project Area abutting Hana Highway are restricted in use due to its potential designation as a runway protection zone (RPZ) by Hawaii Department of Transportation. This RPZ is a requirement of the proposed extension of the Kahului Airport runway to 9,600 feet in length. Uses in this area are restricted to those that do not entail the congregation of people and as may be approved by the Federal Aviation Administration. Accordingly, Cases 12 and 13 have assumed warehouse use for this area.

Hawaii Department of Transportation has further indicated the possibility of acquiring the RPZ from A&B. The State Land Use Commission has also indicated a preference for light industrial development at the Project by requiring that at least 50% of the Project be developed for non-retail, light industrial use.

As a result of these factors, Cases 12 and 13 were formulated for analysis and highlighted in the report. These scenarios assume the construction of the Airport Access Road to Kahului Airport (Case 12) and to Hana Highway (Case 13). Both scenarios assume an equal proportion of light industrial/warehouse use and retail/office use at the Project and are intended to forecast traffic under a development scenario that is consistent with the recent restrictions imposed by the State Land Use Commission and with the comments of Hawaii Department of Transportation. It should be noted that while this impact study has attempted to analyze future traffic conditions under various Project assumptions, updates to the study will be undertaken to insure that the analysis is consistent with actual Project conditions.

The following conclusions resulted from the traffic analysis:

1. Projected volume-to-capacity ratios, levels-of-service and delays along Dairy Road between Puunene Avenue and Hana Highway will improve for future conditions with the Project versus future conditions without the Project and the Hookele Street Extension. The diversion of through traffic from Dairy Road to Hookele Street results in an improvement of volume-to-capacity ratios when compared to background traffic conditions without the Project and the Hookele Street Extension.
2. The roadway network, with the recommended mitigation, can accommodate traffic generated by development Scenario D, which is 50% retail/office and 50% light industrial/warehouse uses.
3. The intersection of Puunene Avenue at Dairy Road will require traffic mitigation measures under any of the development scenarios. Even with a significant amount of traffic diverted to Hookele Street, increased traffic will be making critical turning movements. As an example, traffic that currently turns from eastbound Puunene Avenue to northbound Dairy Road will continue eastbound along Puunene Avenue to Hookele Street and travel north along Hookele Street to Hana Highway. An improvement that has been identified as a mitigation measure for all scenarios is a northbound to westbound left turn lane from Kuiuhi Highway to Puunene Avenue. To accommodate this new left turn lane, as well as the westbound through traffic associated with any of the scenarios, Puunene Avenue should be widened west of the intersection with Dairy Road. This is recommended in the Maui Long Range Land Transportation Plan to accommodate future background traffic growth.
4. Traffic along Dairy Road between Hana Highway and Haleakala Highway will increase and will require improvements at the intersection of Haleakala Highway at Dairy Road. The completion of the Airport Access Road will divert projected traffic from Dairy Road and from this intersection.
5. The intersection of Puunene Avenue at Hookele Street will accommodate traffic diverted from Dairy Road plus traffic generated by the South Project Area. Traffic mitigation measures are proposed for this intersection.

Recommendations

1. The development scenarios described and analyzed herein are intended to illustrate potential impacts under varying assumptions. Actual development is anticipated to generate fewer peak hour trips than projected since other factors, such as pass-by trips and internal-internal trips can be estimated once specific land uses are determined. Traffic assessments should be performed for major development proposals within the business park. These would identify specific traffic characteristics associated with the individual projects.
2. This traffic impact analysis should be periodically updated to reflect changes in development within and adjacent to the study area. Development should be monitored to insure that traffic generated by the business park is consistent with the traffic projections used in the planning of the Project. If the actual number of peak-hour trips is below the forecasts used to develop mitigation measures, then the density of development could be adjusted accordingly.
3. The extension of Hookele Street from Pakaula Street to Hana Highway should be completed during the initial phase of development on the South Project Area. Hookele Street should be a four-lane roadway to accommodate projected traffic volumes. The intersection with Hana Highway should be approximately 1800 feet east of the planned intersection of Hana Highway with the Airport Access Road. This distance is equal to the estimated distance between the Airport Access Road and Dairy Road along Hana Highway. The equal distances will facilitate synchronization of these traffic signals along Hana Highway. The intersection of Hookele Street at Hana Highway should be a full-service, signalized, at-grade intersection.
4. Traffic forecasts associated with Case 12 are consistent with comments received from Hawaii Department of Transportation and conditions imposed by the State Land Use Commission. Mitigation measures associated with this scenario are:
Dairy Road at Puunene Avenue
 - a. Add second westbound to southbound left turn lane.
 - b. Add second northbound to westbound left turn lane.
 - c. Add second southbound to westbound right turn lane.
 - d. The improvements along Puunene Avenue at Dairy Road will require the widening of Puunene Avenue from two to four lanes from west of Dairy Road to east of Wakea Avenue. This is recommended in the Maui Long Range Land Transportation Plan to accommodate future background traffic growth.*Dairy Road at Haleakala Highway*
 - a. Add second westbound to southbound left turn lane.

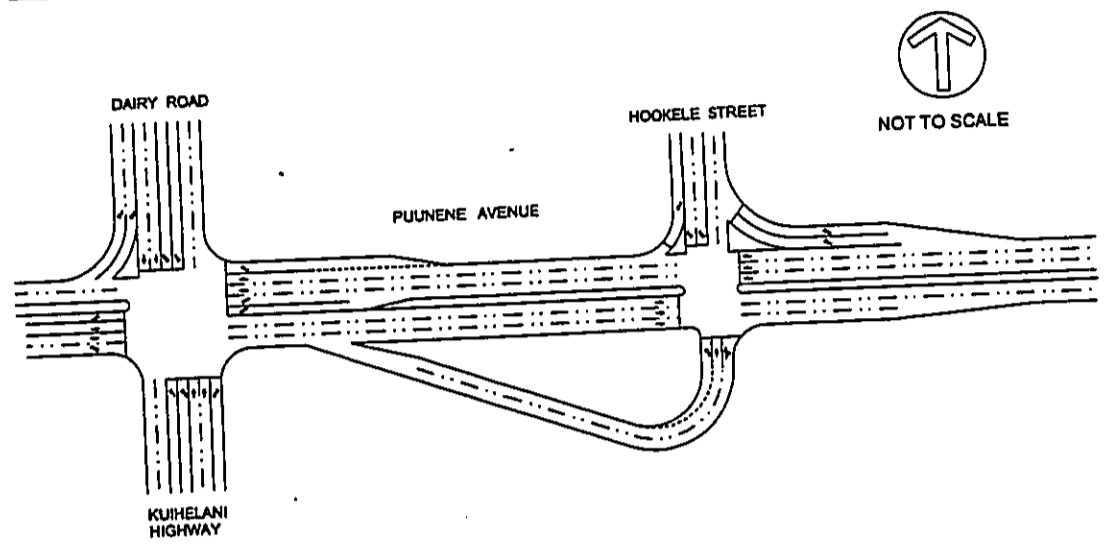


Figure 17
SCHEMATIC DRAWING OF MITIGATION ALONG PUUNENE AVENUE
BETWEEN HOOKELE STREET AND DAIRY ROAD - CASE 12

Philip Rowell and Associates

Traffic Impact Analysis Report for
Maui Business Park Phase II and Hookele Street Extension

Puunene Avenue at Hookele Street

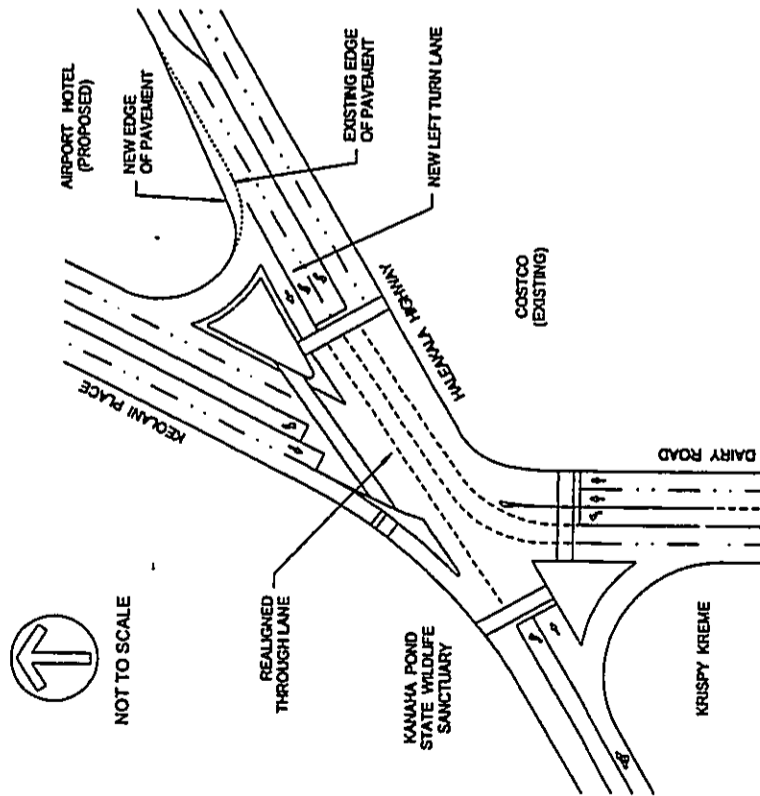
- a. Add second southbound to eastbound left turn lane.
- b. Add second westbound to northbound right turn lane.
- c. Add westbound through lane.
- d. Add northbound through lane.
- e. Add eastbound through lane.

The mitigation measures described above are shown schematically as Figures 17 and 18.

- 5. Access to the North Project Area should be provided along Hana Highway. An access providing right in and right out will divert a portion of the traffic to and from Hana Highway. In the design and planning of the North Project Area, consideration should be given to an internal connection between Hana Highway and Haleakala Highway.

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APPENDIX A
CORRESPONDENCE WITH HAWAII DEPARTMENT OF
TRANSPORTATION REGARDING AIRPORT ACCESS
ROAD AND DEVELOPMENT SCENARIOS

Figure 18
SCHEMATIC DRAWING OF MITIGATION AT
DAIRY ROAD AT HALEAKALA HIGHWAY - CASE 12

Philip Rowell and Associates

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88814

LEILA LUNCHE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
889 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5037

JAN 26 2004

Mr. Phillip J. Rowell, P.E., Principal
Phillip Rowell and Associates
47-275 'D' Hui Iwa Street
Kaneohe, Hawaii 96744

Dear Mr. Rowell:

Subject: Update of the Maui Business Park Traffic Impact Analysis Report (TIAR)
Thank you for your recent letter. We have the following responses to your questions.

1. We plan to initiate an amendment to the FY 2004-2006 Statewide Transportation Improvement Program (STIP) to include federal funds for design and construction of a 4-lane extension of Kamehamehi Highway between Puuwaia Avenue and Hana Highway with signalized at-grade interchanges. We plan to request bids for a design-build contract during FY 2005.
2. Timing and funding of the remainder of the planned Airport Access Road will need to be resolved and should not be addressed by your TIAR update. The same is true for the proposed interchange.
3. Your TIAR update should assume the retail/industrial scenario which generates the most trips.
4. It would be desirable for your TIAR update to address A&B participation in the cost of regional highway improvements. Since State extension of Kamehamehi Highway will substantially reduce the scope and cost of required privately funded improvements to Hookah Street, it seems fair that A&B Properties provide a reasonable share of the local "match" required for federal funding of our State project.

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

Very truly yours,

Rodney K. Haraga
RODNEY K. HARAGA
Director of Transportation

PHJ

Phillip Rowell and Associates
47-275 'D' Hui Iwa Street
Kaneohe, Hawaii 96744
Phone: (808) 238-4328 FAX: (808) 238-4175 Email: prrowell@pra.net

November 19, 2003

State of Hawaii
Hawaii Department of Transportation
889 Punchbowl Street
Honolulu, HI 96813-5037

Attn: Mr. Rodney K. Haraga
Director of Transportation

Re: A03-739, A&B Properties, Inc.
Maui Business Park Phase II

Dear Mr. Haraga:

This letter is a follow-up to the State Land Use Commission Hearings of September 18 and 19, 2003, regarding the above referenced petition. I have been requested by my Client, A&B Properties, Inc., to prepare this letter.

At the State Land Use Commission Hearings on September 18 and 19, 2003, Hawaii Department of Transportation officials announced that the Airport Access Road had been made a priority project and that the project would be completed within the next three to five years. This is contrary to information provided to us during preparation of the traffic study for the project and the subsequent agency review of the report.

We are now in the process of defining the scope of work to update the traffic study for the Maui Business Park to include the proposed Airport Access Road. In order to address the issue of the Airport Access property, we would like clarification of the project as we have received varying descriptions. Specifically, we need to know the following in order to prepare a traffic study acceptable to Hawaii Department of Transportation:

1. Should the traffic study assume that the Airport Access Road will connect with Kahului Airport, Hana Highway or Haleakala Highway?
2. We understand that the Airport Access Road at Hana Highway will initially be an at-grade, signalized intersection but will ultimately be a grade-separated interchange. Which configuration should the traffic study analyze?
3. Will the Airport Access Road be built in phases? If yes, should we analyze the incremental phases and what are the phases?
4. Should the revised traffic study analyze various retail/industrial splits, such as 50/50 and 75/25 versus the 25/75 used in the previous traffic study?

We would like to complete the revised traffic study during the first part of January 2004. In order to meet this deadline, we would appreciate direction from your office regarding the above issues as soon as possible. We would appreciate a contact with the Department that can provide official direction regarding the above issues.

Respectfully submitted:
PHILLIP ROWELL AND ASSOCIATES

Phillip J. Rowell
Principal

LEONARD K. HARAGA
GOVERNOR



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

ROONEY K. HARAGA
DIRECTOR
Deputy Director
SPENCE Y. MARTIN

REPLY REFER TO:
STP 8.0890

September 17, 2003

TO: MS. MARY LOU KOBAYASHI, PLANNING PROGRAM ADMINISTRATOR
OFFICE OF PLANNING
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

FROM: ROONEY K. HARAGA, *[Signature]*
DIRECTOR OF TRANSPORTATION

SUBJECT: A03-739, A & B PROPERTIES, INC.
MAUI BUSINESS PARK PHASE II

It is the mission of the Department of Transportation to provide for the safe, economic, and efficient movement of people and goods. To this end, and in connection with the above petition filed by A&B Properties, Inc., I would like to clarify the position of the State Department of Transportation ("DOT") as it relates to the Kahului Airport and the roadway requirements in the area.

1. **Kahului Airport.** The lands south of Hana Highway in line with the existing Runway 2-20, must be reserved to accommodate future expansion of airport operations, including a possible runway extension. This would allow for greater capacity and safety at the Kahului Airport. Under one of our planning options, the primary runway at Kahului Airport would be extended to 9600 feet. To preserve our ability to do this, we would need to acquire about four acres of land for approach lights and navigation aids and aviation elements over an area of about 45 acres. All to establish a runway protection zone in accordance with FAA rules and regulations. I would like to emphasize that we have not made any final decisions regarding any runway extension at Kahului Airport; the possible runway extension up to 9600 feet is just one of a number of planning options the DOT is considering.
2. **Airport Access Road.** Our highway master plans identify a number of roadway projects to accommodate the traffic demands in the area. Among them is the Airport Access Road, a new roadway extending Kuibehani Highway to the vicinity of Halekaha Highway, with a major crossing at Hana Highway. This is a priority project for the DOT, and construction is anticipated to begin within three years; the project is contained within our short term CIP.
3. **Fair share contribution.** Major developers should provide their fair share contribution for transportation improvements required to mitigate the impact of their development.

We need to proceed with the above to protect our future. Good planning principles and practice require this. Your support and assistance would be greatly appreciated.

JT:xy

c: HWY-P, AIR-P, STP

APPENDIX B

TRIP GENERATION CALCULATIONS

TRIP GENERATION CALCULATIONS
 PLANNING AND DESIGN INFORMATION
 July 2008

Land Use Per Area Estimate

Use	Area (sq ft)	Intensity	Trips per Hour
A	100,000	0.5	50
B	200,000	0.5	100
C	300,000	0.5	150
D	400,000	0.5	200
E	500,000	0.5	250

Final Area Calculations

Category	Area (sq ft)	Intensity	Trips per Hour
1	1,000,000	0.5	500
2	2,000,000	0.5	1,000
3	3,000,000	0.5	1,500
4	4,000,000	0.5	2,000
5	5,000,000	0.5	2,500

Adjusted Area Calculations

Category	Area (sq ft)	Intensity	Trips per Hour
1	1,000,000	0.5	500
2	2,000,000	0.5	1,000
3	3,000,000	0.5	1,500
4	4,000,000	0.5	2,000
5	5,000,000	0.5	2,500

TRIP GENERATION CALCULATIONS
 PLANNING AND DESIGN INFORMATION
 July 2008

Land Use Per Area Estimate

Use	Area (sq ft)	Intensity	Trips per Hour
A	100,000	0.5	50
B	200,000	0.5	100
C	300,000	0.5	150
D	400,000	0.5	200
E	500,000	0.5	250

Final Area Calculations

Category	Area (sq ft)	Intensity	Trips per Hour
1	1,000,000	0.5	500
2	2,000,000	0.5	1,000
3	3,000,000	0.5	1,500
4	4,000,000	0.5	2,000
5	5,000,000	0.5	2,500

Adjusted Area Calculations

Category	Area (sq ft)	Intensity	Trips per Hour
1	1,000,000	0.5	500
2	2,000,000	0.5	1,000
3	3,000,000	0.5	1,500
4	4,000,000	0.5	2,000
5	5,000,000	0.5	2,500

TRIP GENERATION CALCULATIONS
 PLANNING AND DESIGN INFORMATION
 July 2008

Land Use Per Area Estimate

Use	Area (sq ft)	Intensity	Trips per Hour
A	100,000	0.5	50
B	200,000	0.5	100
C	300,000	0.5	150
D	400,000	0.5	200
E	500,000	0.5	250

Final Area Calculations

Category	Area (sq ft)	Intensity	Trips per Hour
1	1,000,000	0.5	500
2	2,000,000	0.5	1,000
3	3,000,000	0.5	1,500
4	4,000,000	0.5	2,000
5	5,000,000	0.5	2,500

Adjusted Area Calculations

Category	Area (sq ft)	Intensity	Trips per Hour
1	1,000,000	0.5	500
2	2,000,000	0.5	1,000
3	3,000,000	0.5	1,500
4	4,000,000	0.5	2,000
5	5,000,000	0.5	2,500

TRIP GENERATION CALCULATIONS
 PLANNING AND DESIGN INFORMATION
 July 2008

Land Use Per Area Estimate

Use	Area (sq ft)	Intensity	Trips per Hour
A	100,000	0.5	50
B	200,000	0.5	100
C	300,000	0.5	150
D	400,000	0.5	200
E	500,000	0.5	250

Final Area Calculations

Category	Area (sq ft)	Intensity	Trips per Hour
1	1,000,000	0.5	500
2	2,000,000	0.5	1,000
3	3,000,000	0.5	1,500
4	4,000,000	0.5	2,000
5	5,000,000	0.5	2,500

Adjusted Area Calculations

Category	Area (sq ft)	Intensity	Trips per Hour
1	1,000,000	0.5	500
2	2,000,000	0.5	1,000
3	3,000,000	0.5	1,500
4	4,000,000	0.5	2,000
5	5,000,000	0.5	2,500

TRIP GENERATION CALCULATIONS
 PLANNING AND DESIGN INFORMATION
 July 2008

Land Use Per Area Estimate

Use	Area (sq ft)	Intensity	Trips per Hour
A	100,000	0.5	50
B	200,000	0.5	100
C	300,000	0.5	150
D	400,000	0.5	200
E	500,000	0.5	250

Final Area Calculations

Category	Area (sq ft)	Intensity	Trips per Hour
1	1,000,000	0.5	500
2	2,000,000	0.5	1,000
3	3,000,000	0.5	1,500
4	4,000,000	0.5	2,000
5	5,000,000	0.5	2,500

Adjusted Area Calculations

Category	Area (sq ft)	Intensity	Trips per Hour
1	1,000,000	0.5	500
2	2,000,000	0.5	1,000
3	3,000,000	0.5	1,500
4	4,000,000	0.5	2,000
5	5,000,000	0.5	2,500

APPENDIX C
TRAFFIC IMPACT ANALYSIS - CASES 3 THROUGH 11

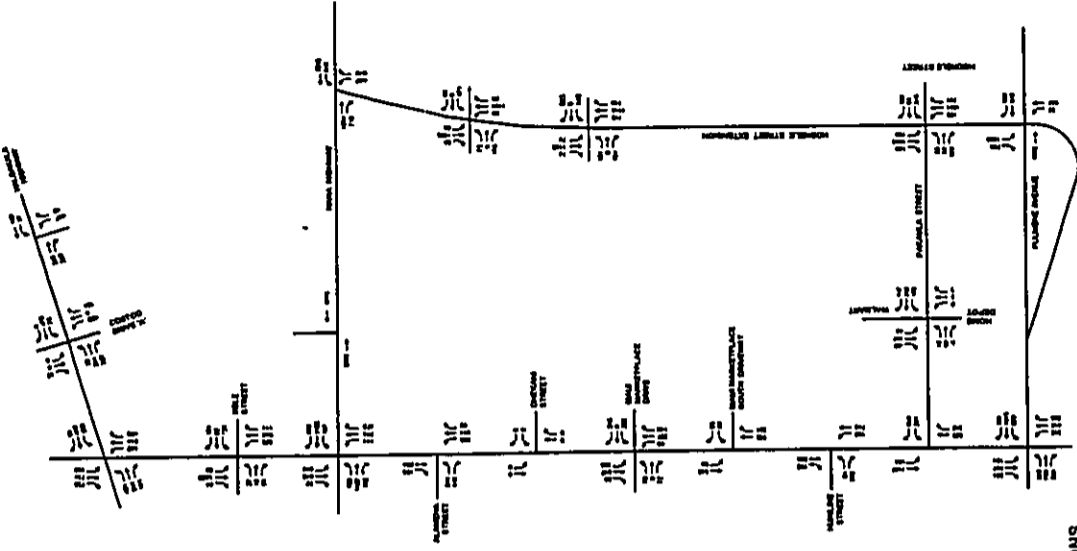
Traffic Impact Analysis for Case 3

The assumptions used for the level-of-service analysis are:

1. Hookele Street is a four-lane divided roadway. This is consistent with the existing section between Puunene Avenue and Pakaula Street. Separate left turn lanes are provided at all intersections.
2. The intersection of Haleakala Highway at the entrance to the North Project Area is signalized and has separate left turn lanes into and out of the project.
3. The intersection of Haleakala Highway at the entrance to Costco is signalized. This is a condition for approval for other developments in the area.
4. Hana Highway between Dairy Road and the proposed intersection with Hookele Street has been widened from four to six lanes. This is recommended in the *Mau Long Range Land Transportation Plan* to accommodate future background traffic growth.

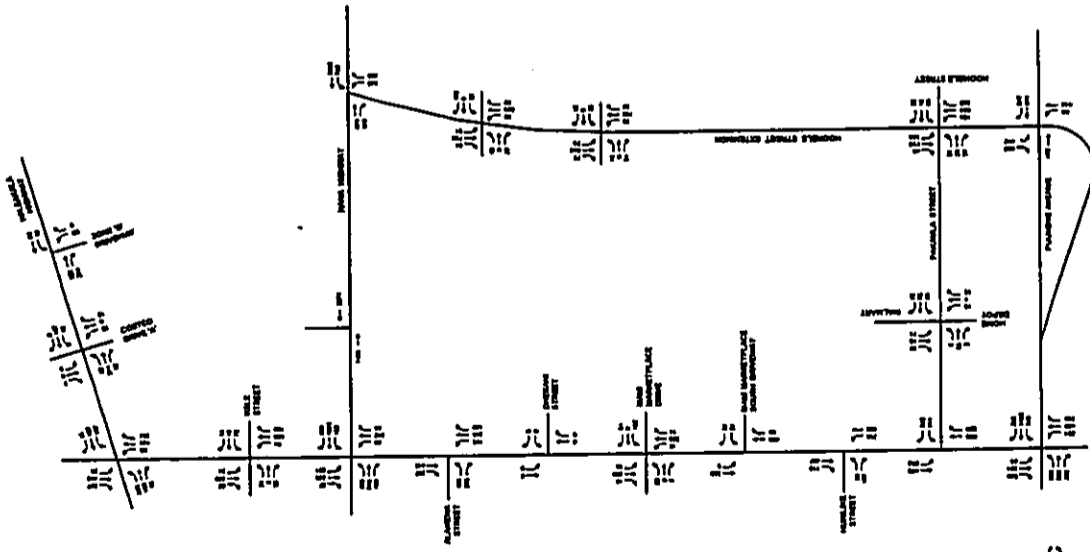
The morning and afternoon peak traffic projections for Case 3 are presented as Figure C-1 and C-2, respectively.

The results of the level-of-service analysis of the study intersections are summarized in Table C-1. Shown in the table is the volume-to-capacity ratio, average vehicle delay (in seconds per vehicle) and level-of-service for the various intersections. Individual traffic movements could not be assessed because the drastic changes in the traffic volumes resulting from redistribution of traffic from Dairy Road to Hookele Street require the traffic signal timings to be modified.



NOT TO SCALE

Appendix C
 Figure 2
 2020 BACKGROUND
 PLUS PROJECT
 PM TRAFFIC PROJECTIONS
 CASE 3



NOT TO SCALE

Appendix C
 Figure 1
 2020 BACKGROUND
 PLUS PROJECT
 AM PEAK HOUR TRAFFIC
 PROJECTIONS
 CASE 3

Table C-1 Level-of-Service Analysis for 2020 Conditions - Case 3

Intersection	2020 Background (Case 2)		2020 Background Plus Project (Case 3)		Changes		Mitigation Required
	V/C	LOS ^a	V/C	LOS	V/C	Delay	
Dairy Rd at Puunene Ave	AM 1.44 PM 1.22	F F	1.14 1.28	E F	-0.30 0.06	-83.2 -125.6	X X
Dairy Rd at Pakoaia St	AM 0.93 PM 1.36	C F	0.71 1.04	B C	-0.22 -0.28	-13.1 -58.2	X X
Dairy Rd at Haleakala St	AM 0.83 PM 0.94	B B	0.82 0.81	A C	-0.11 -0.13	-1.1 -4.8	X X
Dairy Rd at Maui Municipal Drive	AM 0.44 PM 0.74	A B	0.27 0.48	A A	-0.17 -0.26	0.1 -5.4	X X
Dairy Rd at Haleakala St	AM 0.50 PM 0.98	A D	0.33 0.65	B B	-0.17 -0.33	1.8 -28.0	X X
Dairy Rd at Hana Hwy	AM 0.70 PM 1.11	C E	0.59 0.87	C D	-0.11 -0.24	5.3 -30.8	X X
Dairy Rd at Hana Hwy	AM 1.20 PM 1.39	F F	0.99 1.33	E F	-0.06 -0.06	-87.0 -184.2	X X
Dairy Rd at Haleakala St	AM 0.31 PM 0.69	B B	0.42 0.82	B C	0.11 0.13	-0.7 4.0	X X
Haleakala Hwy at Puunene Ave	AM 1.36 PM 0.11	D C	0.91 0.15	D B	0.09 0.24	2.0 -10.8	X X
Puunene Ave at Hookele St	AM 0.73 PM 0.85	C F	0.70 1.05	C D	-0.03 0.40	8.2 -48.9	X X
Hookele St	AM 0.82 PM 1.75	F F	1.05 1.75	D F	0.40 0.83	-48.9 -254.5	X X

NOTES:
 1. V/C denotes ratio of volume to capacity. V/C ratio is not calculated for unsignalized conditions at unsignalized intersections.
 2. LOS is based on delay.
 3. LOS is based on delay.

Traffic Impact Analysis for Case 4

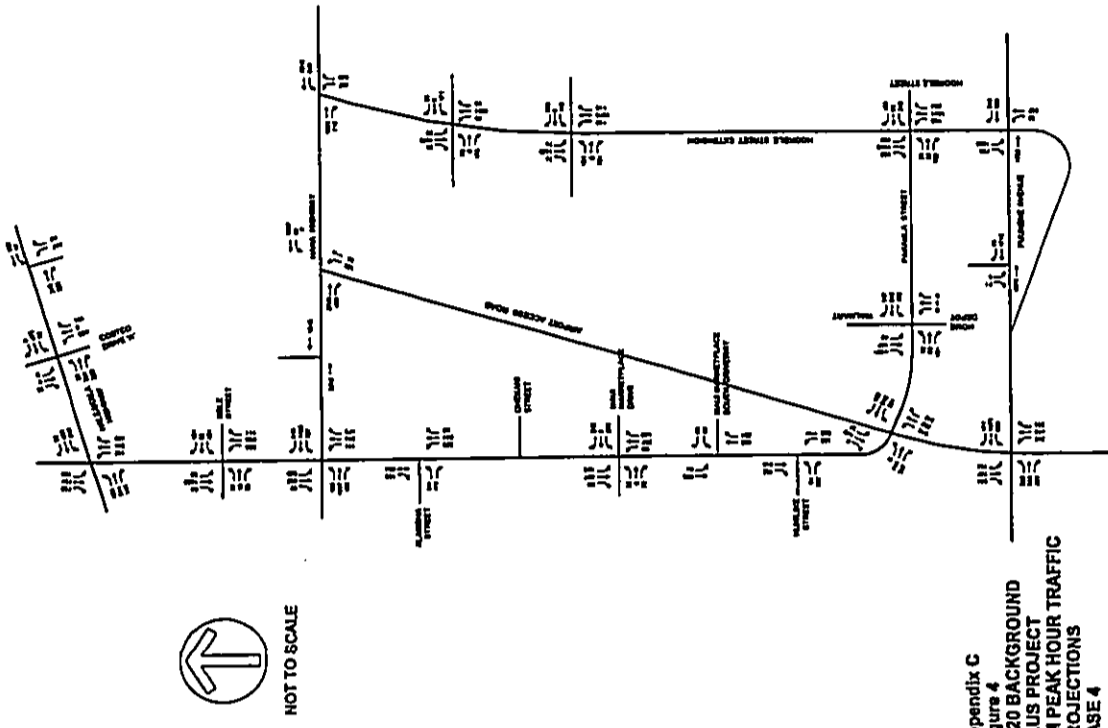
The assumptions used for the level-of-service analysis are:

1. Hookele Street is a four-lane divided roadway. This is consistent with the existing section between Puunene Avenue and Pakoaia Street.
2. The intersection of Hana Highway at Hookele Street is signalized and all traffic movements are allowed.
3. The intersection of Haleakala Highway at the entrance to the North Project Area is signalized and has separate left turn lanes into and out of the project.
4. The intersection of Haleakala Highway at the entrance to Costco is signalized. This is a condition for approval of other developments in the area.
5. Hana Highway between Dairy Road and the proposed intersection with Hookele Street has been widened from four to six lanes. This is recommended in the Maui Long Range Land Transportation Plan to accommodate future background traffic growth.
6. The Airport Access Road is completed between Dairy Road and Hana Highway. Based on the projected traffic volumes, the Airport Access Road is a four-lane, two-way highway. The intersection of the Airport Access Road at Hana Highway is an at-grade, signalized intersection. All traffic movements are allowed. Separate left turn lanes are provided along all four approaches and there is a separate eastbound to southbound right turn lane.

The intersection of Pakoaia Street at Dairy Road has been realigned to be a four-legged intersection. The Airport Access Road is the north and south legs, Dairy Road is the west leg and Pakoaia Street is the east leg. The intersection is signalized and all traffic movements are allowed. The lane configuration has been determined and used on the level-of-service calculations.

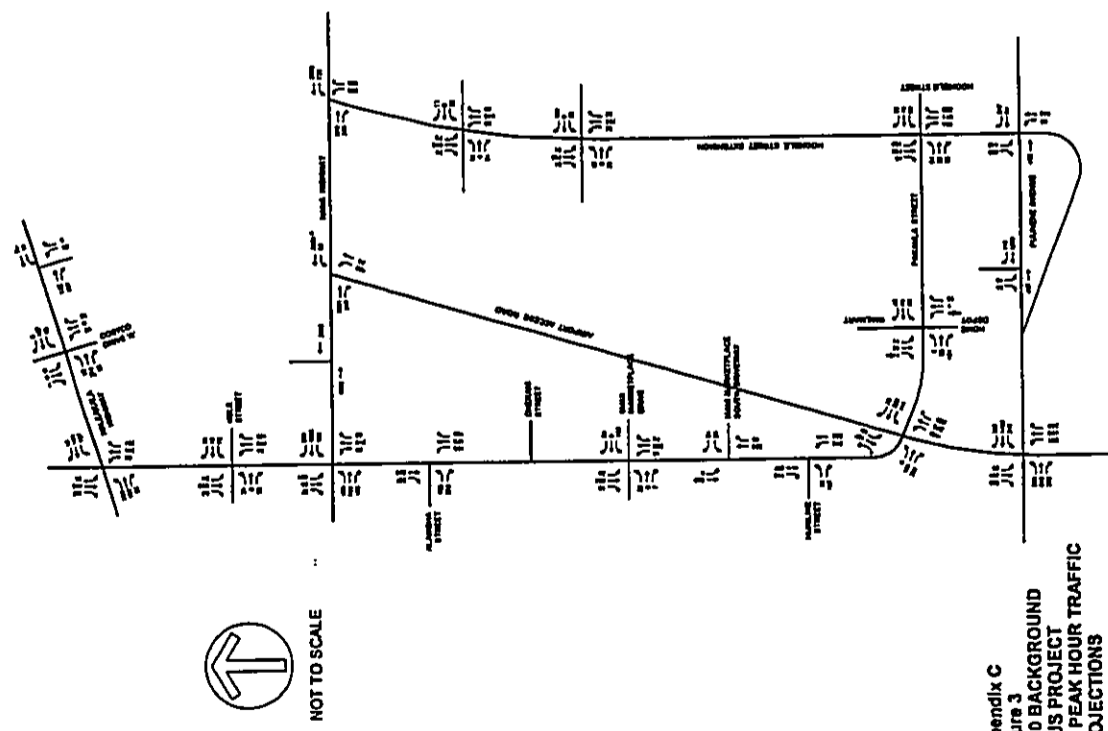
The morning and afternoon peak hour traffic projections for Case 4 are presented as Figures C-3 and C-4, respectively.

The results of the level-of-service analysis of the study intersections are summarized in Table C-2. Shown in the table are the volume-to-capacity ratio, average vehicle delay (in seconds per vehicle) and level-of-service for the overall intersections.



Appendix C
 Figure 4
 2020 BACKGROUND
 PLUS PROJECT
 PM PEAK HOUR TRAFFIC
 PROJECTIONS
 CASE 4

Philip Rowell and Associates



Appendix C
 Figure 3
 2020 BACKGROUND
 PLUS PROJECT
 AM PEAK HOUR TRAFFIC
 PROJECTIONS
 CASE 4

Philip Rowell and Associates

Table C-2 Level-of-Service Analysis for 2020 Conditions - Case 4

Intersection	2020 Background (Case 2)		2020 Background Plus Project (Case 4)		Changes		Mitigation Required				
	V/C ¹	Delay ²	V/C	Delay	V/C	Delay	Yes	No			
Dairy Rd at Puunene Ave	AM	1.44	118.6	F	1.22	58.5	F	-0.22	-60.1	X	X
	PM	1.22	211.8	F	1.42	102.3	F	0.20	-109.5	X	X
Dairy Rd at Hahaione St	AM	0.83	6.7	A	0.52	10.3	A	-0.31	3.6	X	X
	PM	0.94	19.3	B	0.75	17.8	B	-0.19	-1.5	X	X
Dairy Rd at Maui Manapala South	AM	0.44	3.4	A	0.19	4.3	A	-0.25	0.9	X	X
	PM	0.74	10	B	0.44	8.5	A	-0.30	-1.5	X	X
Dairy Rd at Ukaui Manapala Drive	AM	0.50	9.9	A	0.29	12.8	B	-0.21	2.7	X	X
	PM	0.95	44.8	D	0.55	29.5	C	-0.43	-24.3	X	X
Dairy Rd at Alamahe St	AM	0.70	22.9	C	0.55	32.9	C	-0.15	10.0	X	X
	PM	1.11	65.8	E	0.77	49.5	D	-0.34	-17.3	X	X
Dairy Road at Hahaione Hwy	AM	1.20	145.8	F	0.81	50.8	D	-0.39	-95.0	X	X
	PM	1.39	325.5	F	1.57	253.0	F	0.18	-72.5	X	X
Dairy Rd at Kale St	AM	0.31	11.0	B	0.42	10.3	B	0.11	-0.7	X	X
	PM	0.69	17.7	B	0.88	44.6	D	0.19	26.9	X	X
Dairy Rd at Hahaione Hwy	AM	0.82	40.8	D	0.68	38.6	D	0.08	-2.2	X	X
	PM	1.36	146	F	3.26	770.5	F	1.90	624.5	X	X
Hahaione Hwy at Costco Drive	AM	0.11	29.3	C	0.37	17.4	B	0.26	-11.9	X	X
	PM	0.73	15.2	B	0.78	23.4	C	0.03	8.2	X	X
Puunene Ave at Hahaione St	AM	0.65	68.5	F	1.00	54.8	D	0.36	-43.7	X	X
	PM	0.82	498.6	F	1.99	325.2	F	1.17	-173.4	X	X

NOTES:
 1. V/C greater than 1.0 indicates a capacity issue.
 2. Delay is in seconds per vehicle.
 3. LOS (Percent Level-of-Service) is based on the appropriate method described in Highway Capacity Manual. LOS is based on delay.

Traffic Impact Analysis for Case 5

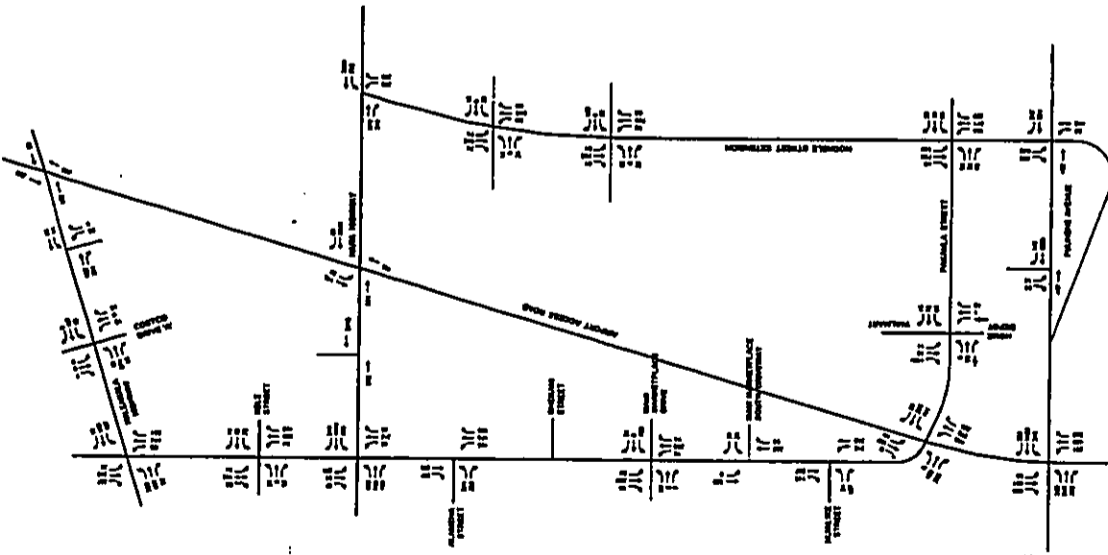
The assumptions used for the level-of-service analysis are:

1. Hookele Street is a four-lane divided roadway. This is consistent with the existing section between Puunene Avenue and Pakaula Street.
2. The intersection of Hana Highway at Hookele Street is signalized and all traffic movements are allowed.
3. The intersection of Haleakala Highway at the entrance to the North Project Area is signalized and has separate left turn lanes into and out of the project.
4. The intersection of Haleakala Highway at the entrance to Cosico is signalized. This is a condition for approval of other developments in the area.
5. Hana Highway between Dairy Road and the proposed intersection with Hookele Street has been widened from four to six lanes. This is recommended in the *Maui Long Range Land Transportation Plan* to accommodate future background traffic growth.
6. The Airport Access Road is completed between Dairy Road and Kahului Airport. Based on the projected traffic volumes, the Airport Access Road is a four-lane, two-way highway. The intersection of the Airport Access Road at Hana Highway is an at-grade, signalized intersection. All traffic movements are allowed. Separate left turn lanes are provided along all four approaches and there is a separate eastbound to southbound right turn lane.

The intersection of Pakaula Street at Dairy Road has been realigned to be a four-legged intersection. The Airport Access Road is the north and south legs, Dairy Road is the west leg and Pakaula Street is the east leg. The intersection is signalized and all traffic movements are allowed. The lane configuration has been determined and used on the level-of-service calculations.

The morning and afternoon peak hour traffic projections for Case 5 are presented as Figures C-5 and C-6, respectively.

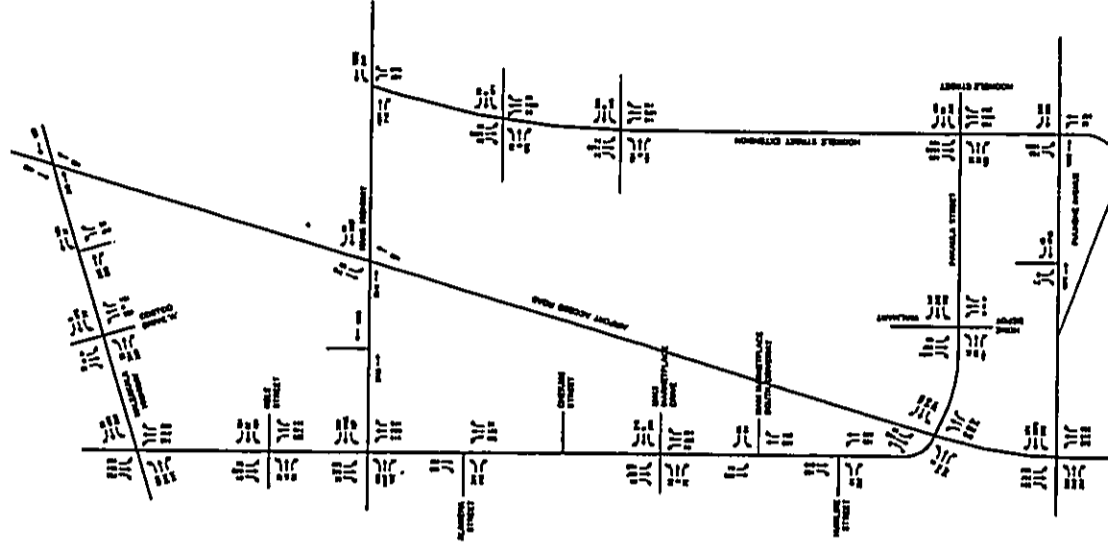
The results of the level-of-service analysis of the study intersections are summarized in Table C-3. Shown in the table is the volume-to-capacity ratio, average vehicle delay (in seconds per vehicle) and level-of-service for the overall intersections.



NOT TO SCALE

Appendix C
 Figure 5
 2020 BACKGROUND
 PLUS PROJECT
 AM PEAK HOUR TRAFFIC
 PROJECTIONS
 CASE 5

Philip Rowell and Associates



NOT TO SCALE

Appendix C
 Figure 6
 2020 BACKGROUND
 PLUS PROJECT
 PM PEAK HOUR TRAFFIC
 PROJECTIONS
 CASE 5

Philip Rowell and Associates

Table C-3 Level-of-Service Analysis for 2020 Conditions - Case 5

Intersection	2020 Background (Case 2)			2020 Background Plus Project (Case 5)			Changes		Mitigation Required	
	V/C ¹	Delay ²	LOS ³	V/C	Delay	LOS	V/C	Delay	Yes	No
Dairy Rd at Puunene Ave	AM 1.44 PM 1.22	118.6 211.8	F F	1.22 1.42	58.5 103.5	E E	-0.22 0.20	-62.1 -108.3	X	X
Dairy Rd at Hialeah St	AM 0.83 PM 0.84	8.7 19.3	A B	0.48 0.64	11.4 12.0	B B	-0.35 -0.36	4.7 -7.3	X	X
Dairy Rd at Maui Municipal South	AM 0.44 PM 0.74	3.4 10	A B	0.21 0.46	3.8 7.8	A A	-0.23 -0.28	0.4 -2.2	X	X
Dairy Rd at Maui Municipal Drive	AM 0.50 PM 0.86	9.9 44.8	A D	0.29 0.55	12.6 20.5	B C	-0.21 -0.43	2.7 -24.3	X	X
Dairy Rd at Alameda St	AM 0.70 PM 1.11	22.8 85.0	C E	0.56 0.77	58.5 48.5	E D	-0.14 -0.34	31.6 -17.3	X	X
Dairy Road at Hana Hwy	AM 1.20 PM 1.29	148.8 323.5	F F	0.93 1.37	55.2 181.0	E ⁴ F	-0.27 -0.22	-63.6 -164.5	X	X
Dairy Rd at Kala St Hwy	AM 0.31 PM 0.69	11.0 17.7	B B	0.31 0.70	11.1 18.1	B B	0.00 0.01	0.1 0.4	X	X
Dairy Rd at Hialeah Hwy	AM 0.82 PM 1.36	40.8 148.0	D F	0.78 1.26	34.7 74.9	C F	-0.08 1.90	-6.1 94.9	X	X
Hialeah Hwy at Costco Drive	AM 0.11 PM 0.73	28.3 15.2	C B	0.35 0.72	18.5 21.3	B C	0.24 -0.01	-10.8 6.1	X	X
Puunene Ave at Hialeah St	AM 0.65 PM 0.82	58.5 48.8	F F	1.03 1.99	54.8 325.2	D F	0.38 1.17	-53.7 -173.4	X	X

NOTE: Peak hour conditions analyzed are "worst-case" conditions, which is the hour of the day with the highest volume of traffic. V/C ratios are calculated for signalized intersections at unsaturated flow. LOS is based on delay. Delay is in seconds per vehicle. V/C ratios are not calculated for unsaturated intersections. LOS for unsaturated intersections is based on delay.

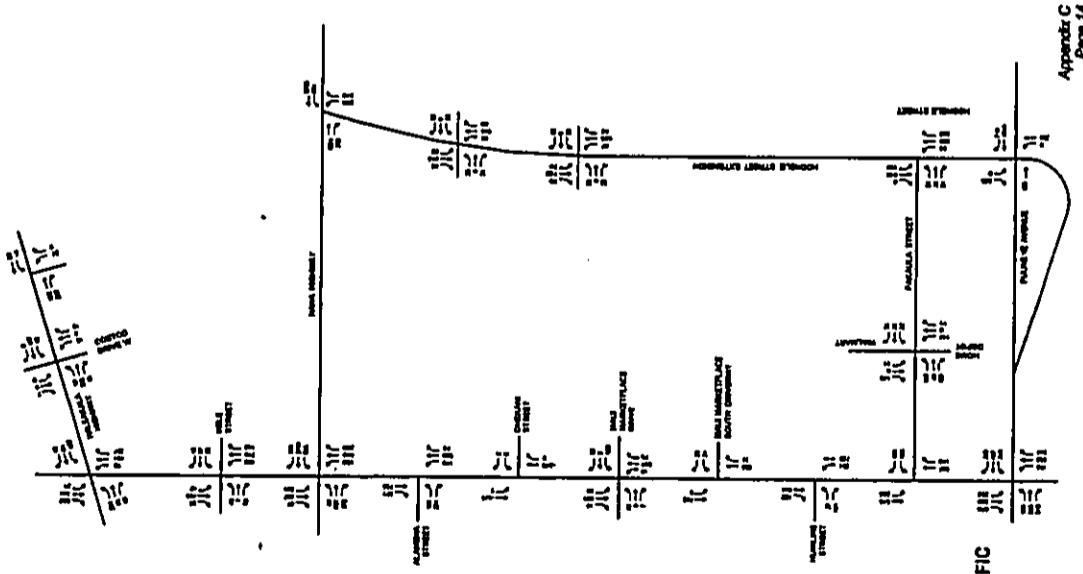
Traffic Impact Analysis for Case 6

The assumptions used for the level-of-service analysis are:

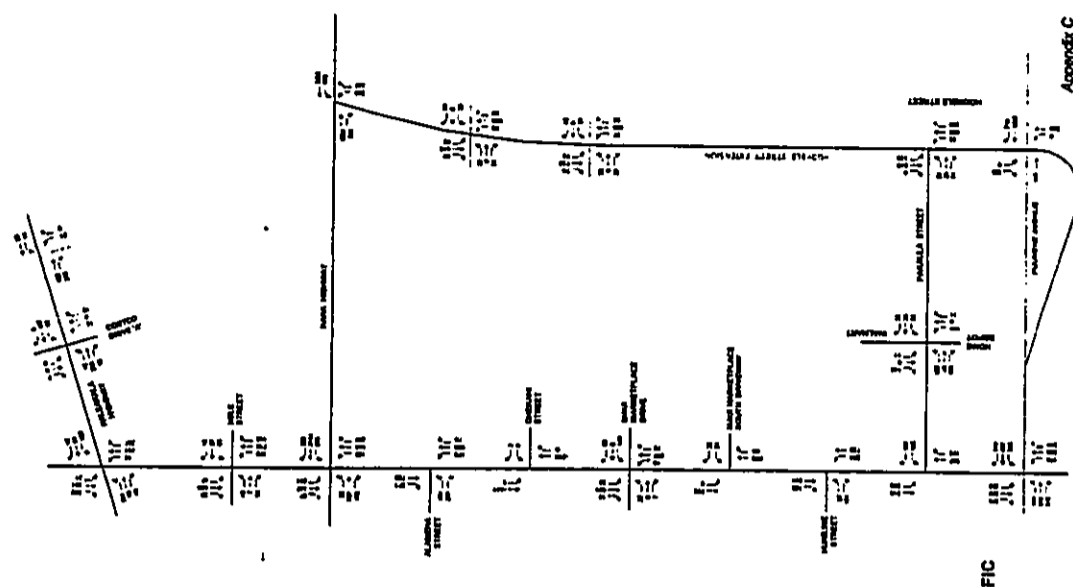
1. Hookele Street is a four-lane divided roadway. This is consistent with the existing section between Puunene Avenue and Pakaia Street. Separate left turn lanes are provided at all intersections.
2. The intersection of Hialeah Highway at the entrance to the North Project Area is signalized and has separate left turn lanes into and out of the project.
3. The intersection of Hialeah Highway at the entrance to Costco is signalized. This is a condition for approval for other developments in the area.
4. Hana Highway between Dairy Road and the proposed intersection with Hookele Street has been widened from four to six lanes. This is recommended in the Maui Long Range Land Transportation Plan to accommodate future background traffic growth.

The morning and afternoon peak traffic projections for Case 6 are presented as Figure C-7 and C-8, respectively.

The results of the level-of-service analysis of the study intersections are summarized in Table C-4. Shown in the table is the volume-to-capacity ratio, average vehicle delay (in seconds per vehicle) and level-of-service for the overall intersections. Individual traffic movements could not be assessed because the drastic changes in the traffic volumes resulting from redistribution of traffic from Dairy Road to Hookele Street require the traffic signal timings to be modified.



Appendix C
 Figure 7
 2020 BACKGROUND
 PLUS PROJECT
 AM PEAK HOUR TRAFFIC
 PROJECTIONS
 CASE 6
 Philip Rowell and Associates



Appendix C
 Figure 8
 2020 BACKGROUND
 PLUS PROJECT
 PM PEAK HOUR TRAFFIC
 PROJECTIONS
 CASE 6
 Philip Rowell and Associates

Table C-4 Level-of-Service Analysis for 2020 Conditions - Case 6

Intersection	2020 Background (Case 2)		2020 Background Plus Project (Case 6)		Changes		Mitigation Required	
	V/C ⁿ	Delay ⁿ	V/C	Delay ⁿ	V/C	Delay ⁿ	Yes	No
Dairy Rd at Puuone Ave	AM 1.44 PM 1.22	118.6 211.8	F F	1.15 1.32	56.1 65.7	E F	-42.5 -118.1	X X
Dairy Rd at Pakaula St	AM 0.93 PM 1.36	28.2 87.2	C F	0.71 1.13	14.9 33.4	B C	-0.22 -43.8	X X
Dairy Rd at Haleakala St	AM 0.83 PM 0.94	61.7 19.3	A B	0.57 0.85	11.0 27.2	B C	-0.26 -0.09	X X
Dairy Rd at Maui Interchange South	AM 0.44 PM 0.74	3.4 10	A A	0.27 0.56	3.1 8.6	A A	-0.17 -0.18	X X
Dairy Rd at Maui Interchange Drive	AM 0.50 PM 0.96	9.9 44.8	A D	0.33 0.66	11.7 18.9	B B	-0.17 -0.32	X X
Dairy Rd at Alenuwa St Hwy	AM 0.70 PM 1.11	22.9 65.8	C E	0.59 0.91	20.5 35.2	D E	-0.11 -0.21	X X
Dairy Road at Hana Hwy	AM 1.20 PM 1.39	148.8 375.5	F F	0.99 1.40	61.9 178.4	E F	-0.20 -147.1	X X
Dairy Rd at Maui Hwy	AM 0.31 PM 0.69	11.0 17.7	B B	0.42 1.06	10.2 85.2	B F	0.11 0.39	X X
Dairy Rd at Haleakala Hwy	AM 0.82 PM 1.36	40.8 146	D F	0.90 1.70	42.4 243.0	D F	0.08 0.34	X X
Haleakala Hwy at Costco Drive	AM 0.11 PM 0.73	29.3 15.2	C B	0.35 0.80	18.0 23.0	B C	0.24 0.07	X X
Puuone Ave at Pakaula St	AM 0.65 PM 0.82	98.5 428.6	F F	1.01 1.52	46.9 299.3	D F	0.36 -1.10	X X

NOTES:
 1. V/C denotes ratio of volume to capacity.
 2. Delay is in seconds per vehicle.
 3. LOS denotes Level-of-Service (as defined under the operations manual) derived from Highway Capacity Manual. LOS is based on delay.

Traffic Impact Analysis for Case 7

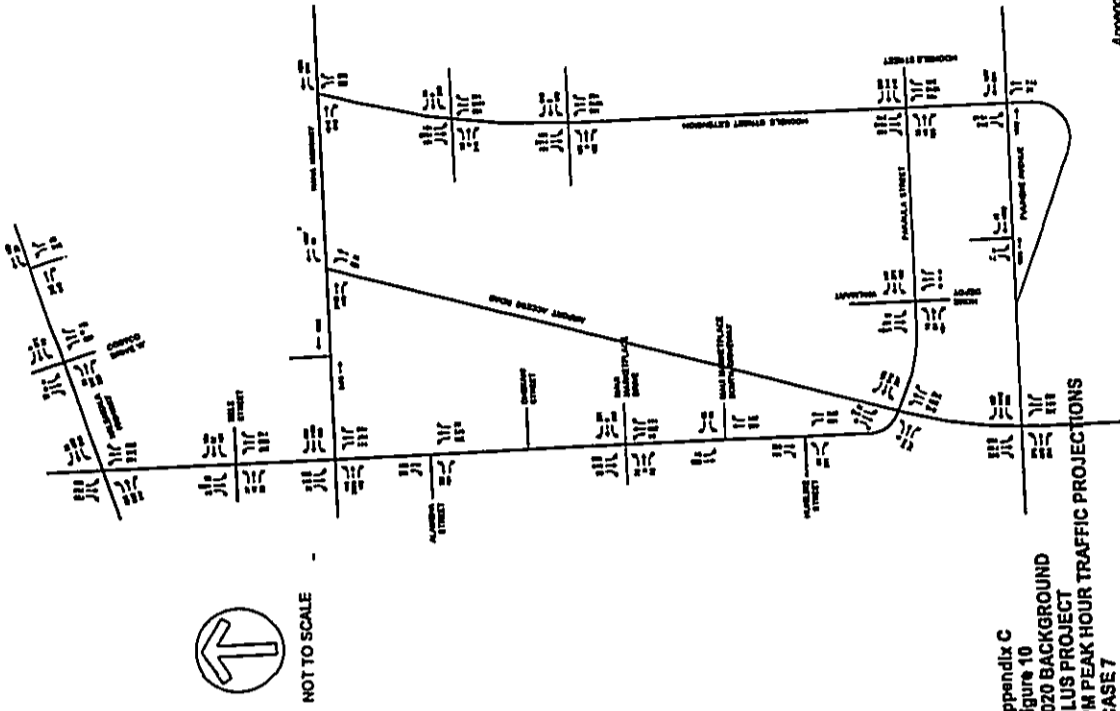
The assumptions used for the level-of-service analysis are:

1. Hookele Street is a four-lane divided roadway. This is consistent with the existing section between Puuone Avenue and Pakaula Street.
2. The intersection of Hana Highway at Hookele Street is signalized and all traffic movements are allowed.
3. The intersection of Haleakala Highway at the entrance to the North Project Area is signalized and has separate left turn lanes into and out of the project.
4. The intersection of Haleakala Highway at the entrance to Costco is signalized. This is a condition for approval of other developments in the area.
5. Hana Highway between Dairy Road and the proposed intersection with Hookele Street has been widened from four to six lanes. This is recommended in the Maui Long Range Land Transportation Plan to accommodate future background traffic growth.
6. The Airport Access Road is completed between Dairy Road and Hana Highway. Based on the projected traffic volumes, the Airport Access Road is a four-lane, two-way highway. The intersection of the Airport Access Road at Hana Highway is an at-grade, signalized intersection. All traffic movements are allowed. Separate left turn lanes are provided along all four approaches and there is a separate eastbound to southbound right turn lane.

The intersection of Pakaula Street at Dairy Road has been realigned to be a four-legged intersection. The Airport Access Road is the north and south legs. Dairy Road is the west leg and Pakaula Street is the east leg. The intersection is signalized and all traffic movements are allowed. The lane configuration has been determined and used on the level-of-service calculations.

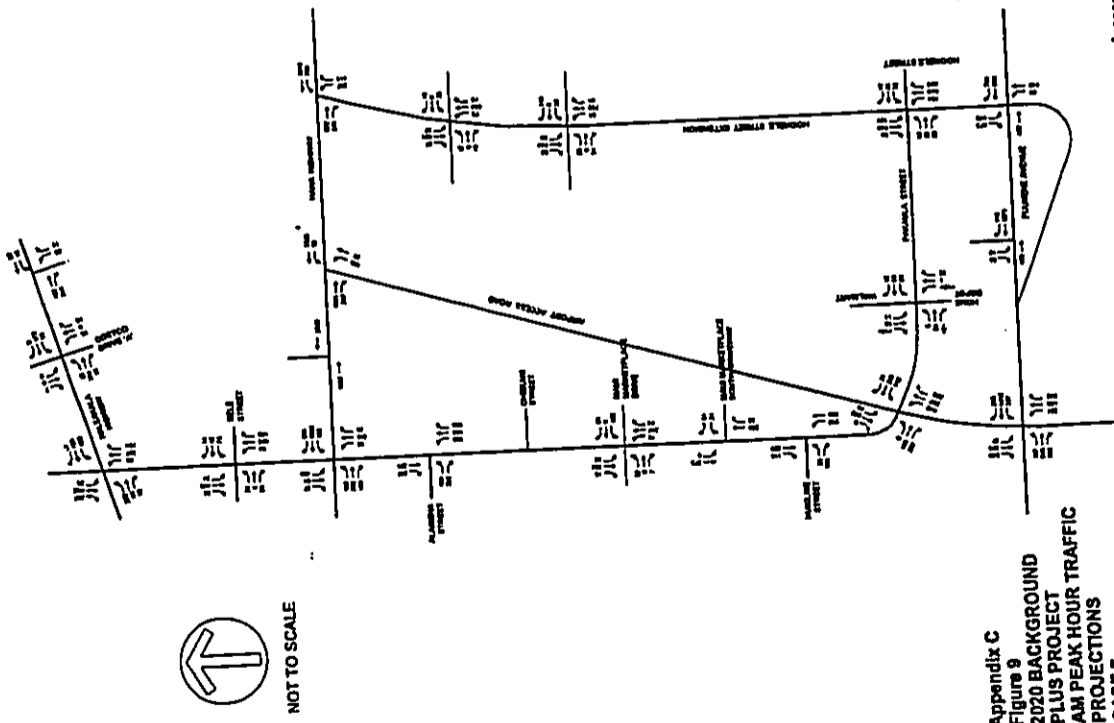
The morning and afternoon peak hour traffic projections for Case 7 are presented as Figures C-9 and C-10, respectively.

The results of the level-of-service analysis of the study intersections are summarized in Table C-5. Shown in the table is the volume-to-capacity ratio, average vehicle delay (in seconds per vehicle) and level-of-service for the overall intersections.



Appendix C
 Figure 10
 2020 BACKGROUND
 PLUS PROJECT
 PM PEAK HOUR TRAFFIC PROJECTIONS
 CASE 7

Philip Rowell and Associates



Appendix C
 Figure 9
 2020 BACKGROUND
 PLUS PROJECT
 AM PEAK HOUR TRAFFIC
 PROJECTIONS
 CASE 7

Philip Rowell and Associates

Table C-5 Level-of-Service Analysis for 2020 Conditions - Case 7

Intersection	2020 Background (Case 2)		2020 Background Plus Project (Case 7)		Changes		Mitigation Received		
	V/C ¹	LOS ²	V/C	LOS	V/C	LOS	Yes	No	
Dairy Rd at Puuene Ave	AM	1.44	1.06	F	1.06	F	0.38	20.5	X
	PM	1.72	211.6	F	1.48	F	0.26	-95.4	X
Dairy Rd at Haleakala St	AM	0.83	8.7	A	0.50	B	-0.33	4.0	X
	PM	0.94	19.3	B	0.72	B	-0.22	-7.0	X
Dairy Rd at Haleakala St	AM	0.44	3.4	A	0.21	A	-0.23	0.0	X
	PM	0.74	10	B	0.48	A	-0.25	-3.4	X
Dairy Rd at Maui Municipals Drive	AM	0.50	8.9	A	0.28	B	-0.22	2.7	X
	PM	0.98	41.6	D	0.81	C	-0.37	-24.6	X
Dairy Rd at Haleakala St	AM	0.70	22.9	C	0.55	C	-0.15	10.1	X
	PM	1.11	65.8	E	0.79	D	-0.32	-15.7	X
Dairy Rd at Haleakala Hwy	AM	1.20	148.8	F	0.82	D	-0.38	-87.6	X
	PM	1.30	325.5	F	1.64	F	0.25	-41.3	X
Dairy Rd at Haleakala Hwy	AM	0.31	11.0	B	0.41	B	0.10	-0.6	X
	PM	0.69	17.7	B	0.82	E	0.23	59.5	X
Dairy Rd at Haleakala Hwy	AM	0.62	40.8	D	0.87	D	0.05	-2.4	X
	PM	1.36	146	F	3.47	F	2.11	851.1	X
Haleakala Hwy at Costco Drive	AM	0.11	29.3	C	0.35	F	0.24	-11.6	X
	PM	0.73	15.2	B	0.83	D	0.10	22.8	X
Puuene Ave at Haleakala St	AM	0.65	98.5	F	1.09	F	0.44	-45.6	X
	PM	0.82	498.6	F	2.23	F	1.41	-106.4	X

NOTES: V/C: Average ratio of volume to capacity
 LOS: Level of Service
 Delay is in seconds per vehicle
 LOS includes (Level of) Service (including) the (percentage) method (provided) on (Highway Capacity Manual) LOS is based on delay

Traffic Impact Analysis for Case 8

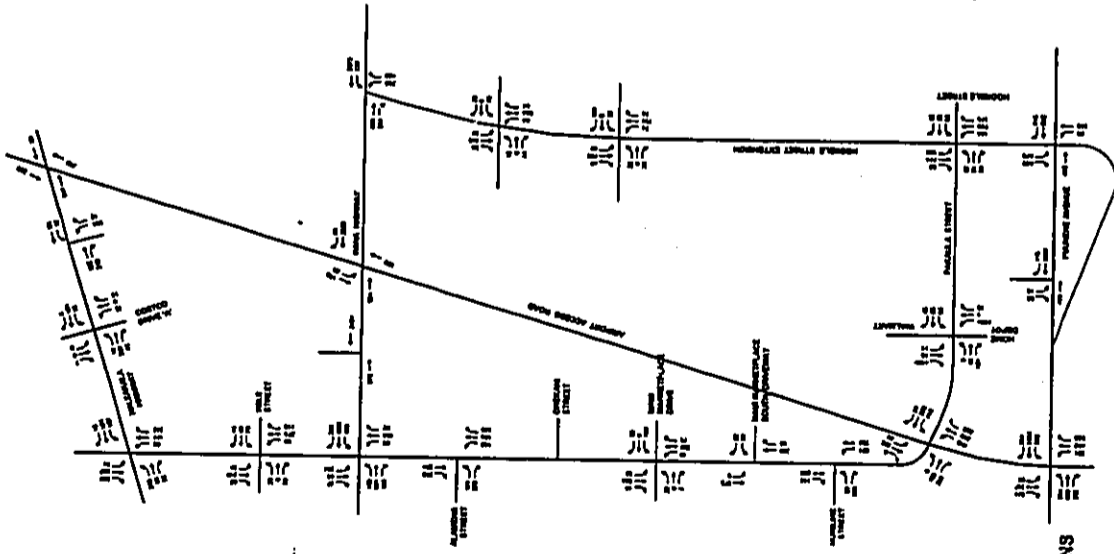
The assumptions used for the level-of-service analysis are:

1. Hookela Street is a four-lane divided roadway. This is consistent with the existing section between Puuene Avenue and Pakaula Street.
2. The intersection of Hana Highway at Hookela Street is signalized and all traffic movements are allowed.
3. The intersection of Haleakala Highway at the entrance to the North Project Area is signalized and has separate left turn lanes into and out of the project.
4. The intersection of Haleakala Highway at the entrance to Costco is signalized. This is a condition for approval of other developments in the area.
5. Hana Highway between Dairy Road and the proposed intersection with Hookela Street has been widened from four to six lanes. This is recommended in the Maui Long Range Land Transportation Plan to accommodate future background traffic growth.
6. The Airport Access Road is completed between Dairy Road and Kahului Airport. Based on the projected traffic volumes, the Airport Access Road is a four-lane, two-way highway. The intersection of the Airport Access Road at Hana Highway is an at-grade, signalized intersection. All traffic movements are allowed. Separate left turn lanes are provided along all four approaches and there is a separate eastbound to southbound right turn lane.

The intersection of Pakaula Street at Dairy Road has been realigned to be a four-legged intersection. The Airport Access Road is the north and south legs. Dairy Road is the west leg and Pakaula Street is the east leg. The intersection is signalized and all traffic movements are allowed. The lane configuration has been determined and used on the level-of-service calculations.

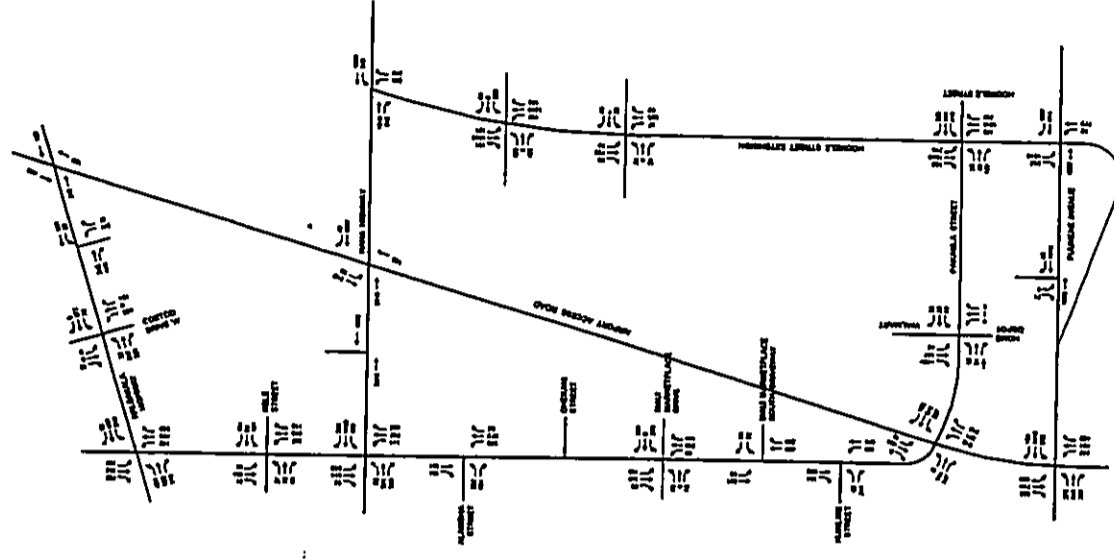
The morning and afternoon peak hour traffic projections for Case 8 are shown in Figures C-11 and C-12, respectively.

The results of the level-of-service analysis of the study intersections are summarized in Table C-6. Shown in the table is the volume-to-capacity ratio, average vehicle delay (in seconds per vehicle) and level-of-service for the overall intersections.



Appendix C
 Figure 11
 2020 BACKGROUND
 PLUS PROJECT
 AM TRAFFIC PROJECTIONS
 CASE 8

Philip Rowell and Associates



Appendix C
 Figure 12
 2020 BACKGROUND
 PLUS PROJECT
 PM PEAK HOUR TRAFFIC
 PROJECTIONS
 CASE 8

Philip Rowell and Associates

Table C-6 Level-of-Service Analysis for 2020 Conditions - Case 8

Intersection	2020 Background				2020 Background Plus Project (Case 8)				Changes		Mitigation Required	
	V/C ^a	Delay ^b	LOS ^c	V/C	Delay	LOS	V/C	Delay	V/C	Delay	Yes	No
Dairy Rd at Puunene Ave	1.44	118.6	F	1.22	97.1	E	-0.22	-61.5	-0.22	-61.5	X	X
Dairy Rd at Hialeka St	0.85	6.7	A	0.50	10.7	F	-0.35	-4.0	-0.35	-4.0	X	X
Dairy Rd at Lunalu	0.44	3.4	A	0.21	3.4	A	-0.23	-7.0	-0.23	-7.0	X	X
Dairy Rd at Maui	0.74	10	B	0.49	8.6	A	-0.25	-3.4	-0.25	-3.4	X	X
Dairy Rd at Haleakala Hwy	0.50	9.9	A	0.81	20.2	C	-0.31	-8.9	-0.31	-8.9	X	X
Dairy Rd at Ala Moana St	0.70	22.9	C	0.55	33.0	C	-0.15	-10.1	-0.15	-10.1	X	X
Dairy Rd at Hahaione Hwy	1.11	65.8	E	0.79	50.1	D	-0.32	-15.7	-0.32	-15.7	X	X
Dairy Rd at Pali St	1.39	375.5	F	0.93	55.7	F	-0.46	-10.1	-0.46	-10.1	X	X
Dairy Rd at Hialeka Hwy	0.69	17.7	B	0.30	11.1	B	-0.39	-4.8	-0.39	-4.8	X	X
Haleakala Hwy at Costco Drive	0.62	40.8	D	0.76	35.1	D	-0.14	-5.7	-0.14	-5.7	X	X
Puunene Ave at Hookele St	0.11	29.3	C	0.33	18.5	B	-0.22	-10.8	-0.22	-10.8	X	X
Hookele St	0.73	15.2	B	0.80	27.1	C	0.07	11.9	0.07	11.9	X	X
	0.82	49.8	F	1.09	52.0	D	0.44	-45.6	0.44	-45.6	X	X
	0.82	49.8	F	1.38	129.8	F	0.56	-308.8	0.56	-308.8	X	X

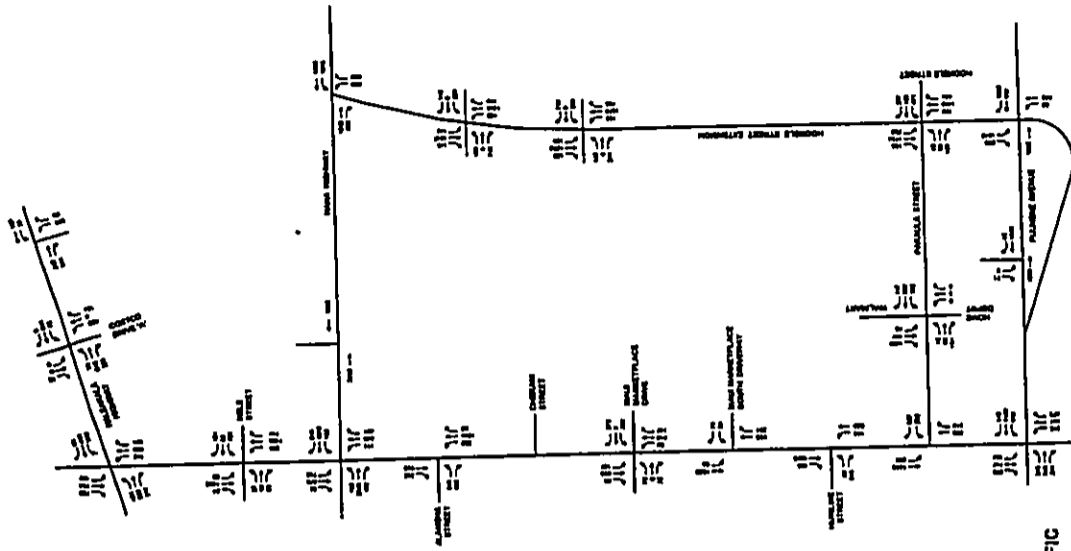
NOTES:
 1. V/C values only of volume to capacity.
 2. Delay values are in seconds per vehicle.
 3. LOS Service Level of subject intersection. LOS is based on delay.

Traffic Impact Analysis for Case 9

The assumptions used for the level-of-service analysis are:

1. Hookele Street is a four-lane divided roadway. This is consistent with the existing section between Puunene Avenue and Pakaula Street. Separate left turn lanes are provided at all intersections.
2. The Intersection of Haleakala Highway at the entrance to the North Project Area is signalized and has separate left turn lanes into and out of the project.
3. The Intersection of Haleakala Highway at the entrance to Costco is signalized. This is a condition for approval for other developments in the area.
4. Haha Highway between Dairy Road and the proposed intersection with Hookele Street has been widened from four to six lanes. This is recommended in the Maui Long Range Land Transportation Plan to accommodate future background traffic growth.

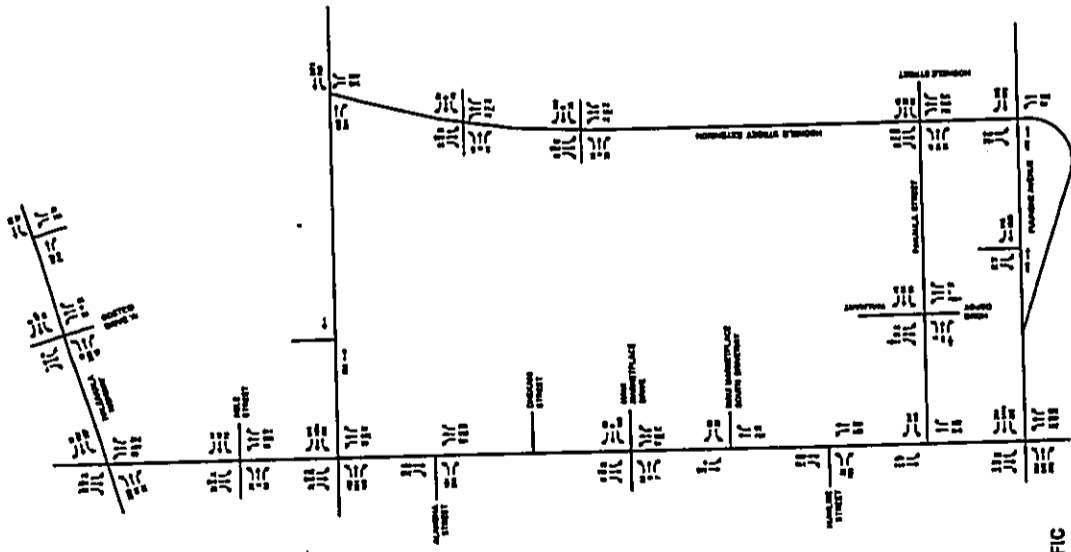
The morning and afternoon traffic projections for Case 8 are shown in Figures C-13 and C-14, respectively. The results of the level-of-service analysis of the study intersections are summarized in Table C-7. Shown in the table is the volume-to-capacity ratio, average vehicle delay (in seconds per vehicle) and level-of-service for the overall intersections. Individual traffic movements could not be assessed because the drastic changes in the traffic volumes resulting from redistribution of traffic from Dairy Road to Hookele Street require the traffic signal timings to be modified.



NOT TO SCALE

Appendix C
 Figure 14
 2020 BACKGROUND
 PLUS PROJECT
 PM PEAK HOUR TRAFFIC
 PROJECTIONS
 CASE 9

Philip Rowell and Associates



NOT TO SCALE

Appendix C
 Figure 13
 2020 BACKGROUND
 PLUS PROJECT
 AM PEAK HOUR TRAFFIC
 PROJECTIONS
 CASE 9

Philip Rowell and Associates

Table C-7 Level-of-Service Analysis for 2020 Conditions - Case 9

Intersection	2020 Background (Case 2)				2020 Background Plus Project (Case 9)				Changes		Mitigation Required	
	V/C ¹	Delay ²	LOS ²	V/C	Delay	LOS	V/C	Delay	V/C	Delay	Yes	No
Dairy Rd at Puunene Ave	AM 1.44	118.0	F	1.15	56.4	E	-0.29	-62.2	-0.29	-62.2	X	X
	PM 1.22	211.8	F	1.38	103.7	F	0.16	-201.5	0.16	-201.5	X	X
Dairy Rd at Pakaula St	AM 0.83	23.2	C	0.70	14.7	B	-0.13	-13.5	-0.13	-13.5	X	X
	PM 1.36	97.2	F	1.18	36.1	D	-0.20	-59.1	-0.20	-59.1	X	X
Dairy Rd at Haleakala St	AM 0.94	19.3	B	0.87	11.1	B	-0.07	4.4	-0.07	4.4	X	X
	PM 0.44	3.4	A	0.27	3.0	A	-0.17	-0.4	-0.17	-0.4	X	X
Dairy Rd at Maui	AM 0.74	10	B	0.59	6.7	A	-0.15	-3.3	-0.15	-3.3	X	X
Markipioa South	AM 0.50	9.8	A	0.33	11.7	B	-0.17	1.9	-0.17	1.9	X	X
Dairy Rd at Hana	AM 0.98	44.8	D	0.87	19.1	B	-0.11	-25.7	-0.11	-25.7	X	X
Maunaloa Drive	AM 0.70	22.9	C	0.59	29.5	C	-0.11	6.6	-0.11	6.6	X	X
Dairy Rd at Alamae St	AM 1.11	63.8	E	0.91	36.2	D	-0.20	-27.6	-0.20	-27.6	X	X
Dairy Road at Hana Hwy	AM 1.20	148.8	F	0.99	56.5	E	-0.21	-92.3	-0.21	-92.3	X	X
	PM 1.39	325.5	F	1.45	193.8	F	0.06	-131.9	0.06	-131.9	X	X
Dairy Rd at Kula St	AM 0.31	11.0	B	0.42	10.2	F	0.11	-0.8	0.11	-0.8	X	X
	PM 0.69	17.7	B	1.13	100.7	F	0.44	83.0	0.44	83.0	X	X
Dairy Rd at Haleakala Hwy	AM 0.82	40.8	D	0.90	42.0	D	0.08	1.2	0.08	1.2	X	X
	PM 1.36	146	F	1.78	269.3	F	0.42	128.5	0.42	128.5	X	X
Haleakala Hwy at Costco Drive	AM 0.11	29.3	C	0.31	18.4	B	0.20	-10.9	0.20	-10.9	X	X
	PM 0.73	15.2	B	0.85	26.4	C	0.12	-11.2	0.12	-11.2	X	X
Puunene Ave at Hookele St	AM 0.65	96.5	F	1.06	44.4	D	0.41	-54.1	0.41	-54.1	X	X
	PM 0.82	498.8	F	2.05	378.8	F	1.23	-169.8	1.23	-169.8	X	X

NOTES
 1. V/C denotes ratio of volume to capacity.
 2. Delay is in seconds per vehicle.
 3. LOS is based on the Highway Capacity Manual (HCM) 1985 based on delay.

Traffic Impact Analysis for Case 10

The assumptions used for the level-of-service analysis are:

1. Hookele Street is a four-lane divided roadway. This is consistent with the existing section between Puunene Avenue and Pakaula Street.
2. The intersection of Hana Highway at Hookele Street is signalized and all traffic movements are allowed.
3. The intersection of Haleakala Highway at the entrance to the North Project Area is signalized and has separate left turn lanes into and out of the project.
4. The intersection of Haleakala Highway at the entrance to Costco is signalized. This is a condition for approval of other developments in the area.
5. Hana Highway between Dairy Road and the proposed intersection with Hookele Street has been widened from four to six lanes. This is recommended in the Maui Long Range Land Transportation Plan to accommodate future background traffic growth.
6. The Airport Access Road is completed between Dairy Road and Hana Highway. Based on the projected traffic volumes, the Airport Access Road is a four-lane, two-way highway. The intersection of the Airport Access Road at Hana Highway is an at-grade, signalized intersection. All traffic movements are allowed. Separate left turn lanes are provided along all four approaches and there is a separate esplanade to southbound right turn lane.

The intersection of Pakaula Street at Dairy Road has been realigned to be a four-legged intersection. The Airport Access Road is the north and south legs, Dairy Road is the west leg and Pakaula Street is the east leg. The intersection is signalized and all traffic movements are allowed. The lane configuration has been determined and used on the level-of-service calculations.

The morning and afternoon traffic projections for Case 10 are shown in Figures C-15 and C-16, respectively. The results of the level-of-service analysis of the study intersections are summarized in Table C-8. Shown in the table is the volume-to-capacity ratio, average vehicle delay (in seconds per vehicle) and level-of-service for the overall intersections.

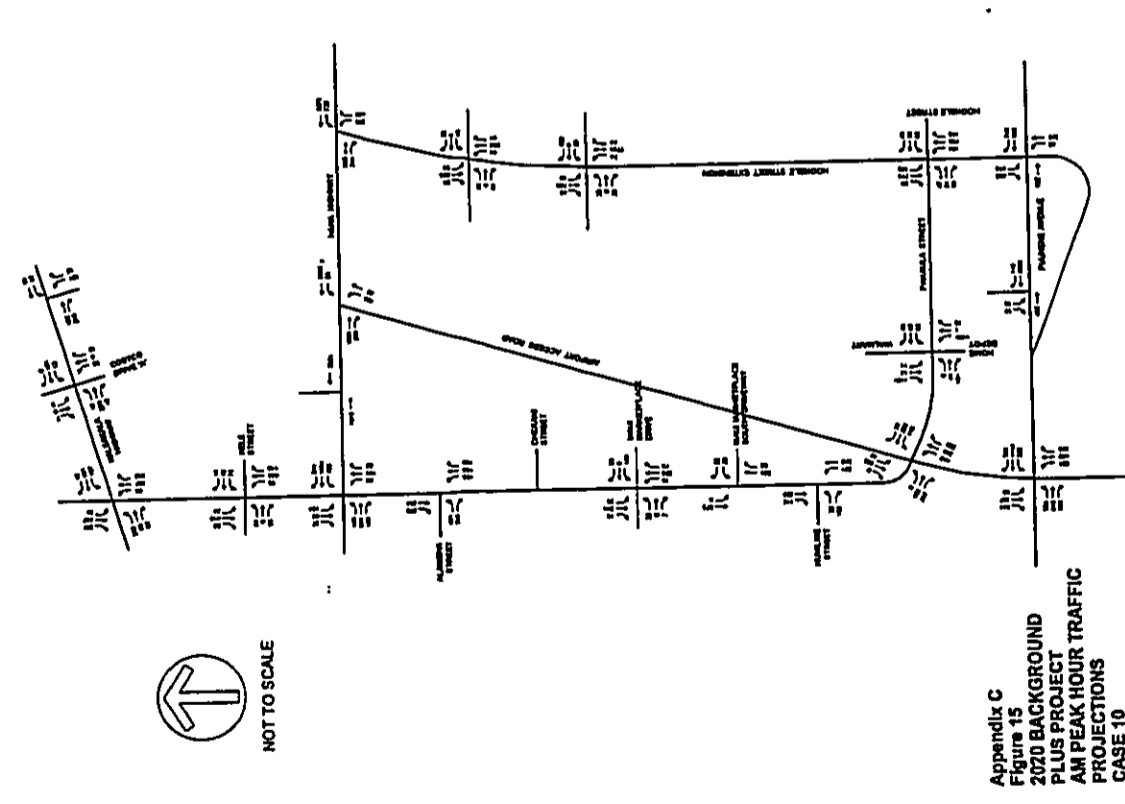
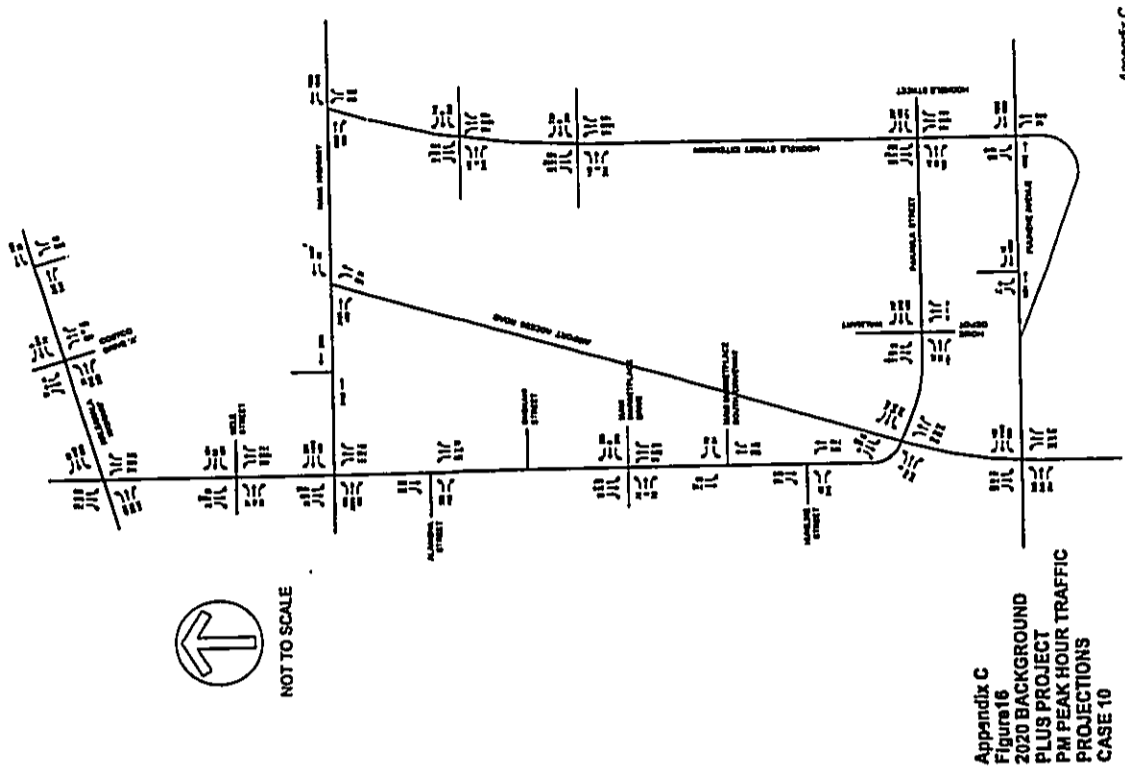


Table C-3 Level-of-Service Analysis for 2020 Conditions - Case 10

Intersection	2020 Background (Case 2)		2020 Background Plus Project (Case 10)		Changes		Mitigation Required	
	V/C ^a	Delay ^b	V/C	Delay	V/C	Delay	Yes	No
Dairy Rd at Puunene Ave	AM 1.44 PM 1.22	118.6 211.8	F 1.22 F 1.60	57.8 178.8	E F	-0.22 -0.38	-61.0 -95.0	X X
Dairy Rd at Haleakala St	AM 0.83 PM 0.94	6.7 19.3	A 0.50 B 0.75	10.7 12.8	B B	-0.33 -0.19	4.0 -4.5	X X
Dairy Rd at Maui Marketplace St	AM 0.44 PM 0.74	3.4 10	A 0.21 B 0.51	3.3 8.7	A A	-0.23 -0.23	-0.1 -3.3	X X
Dairy Rd at Maui Marketplace Drive	AM 0.50 PM 0.96	9.9 44.8	A 0.28 D 0.63	12.5 29.3	B C	-0.22 -0.15	2.6 -24.5	X X
Dairy Rd at Haleakala Hwy	AM 0.70 PM 1.11	22.9 65.8	C 0.55 E 0.81	33.0 51.0	C D	-0.15 -0.30	10.1 -14.8	X X
Dairy Rd at Haleakala Hwy	AM 1.20 PM 1.39	148.8 323.5	F 0.81 F 1.69	51.8 314.0	D F	-0.38 0.30	-97.2 -11.5	X X
Dairy Rd at Haleakala Hwy	AM 0.31 PM 0.89	11.0 17.7	B 0.40 D 1.08	10.3 82.5	B F	0.09 0.39	-0.7 64.8	X X
Dairy Rd at Haleakala Hwy	AM 0.82 PM 1.36	40.8 148	D 0.87 F 3.84	34.0 859.3	D F	0.05 2.45	-2.8 712.3	X X
Haleakala Hwy at Costco Drive	AM 0.11 PM 0.73	29.3 15.2	C 0.34 B 0.99	18.0 64.5	B E	0.23 0.28	-11.3 49.3	X X
Puunene Ave at Hookele St	AM 0.65 PM 0.82	88.5 498.8	F 1.08 F 2.42	51.0 443.7	D F	0.43 1.60	-47.5 -54.9	X X

NOTES:
 1. V/C denotes ratio of volume to capacity.
 2. Delay is in seconds per vehicle.
 3. LOS denotes Level of Service. Operations along the alignment are assumed to be in the same direction. LOS is based on entry.

Traffic Impact Analysis for Case 11

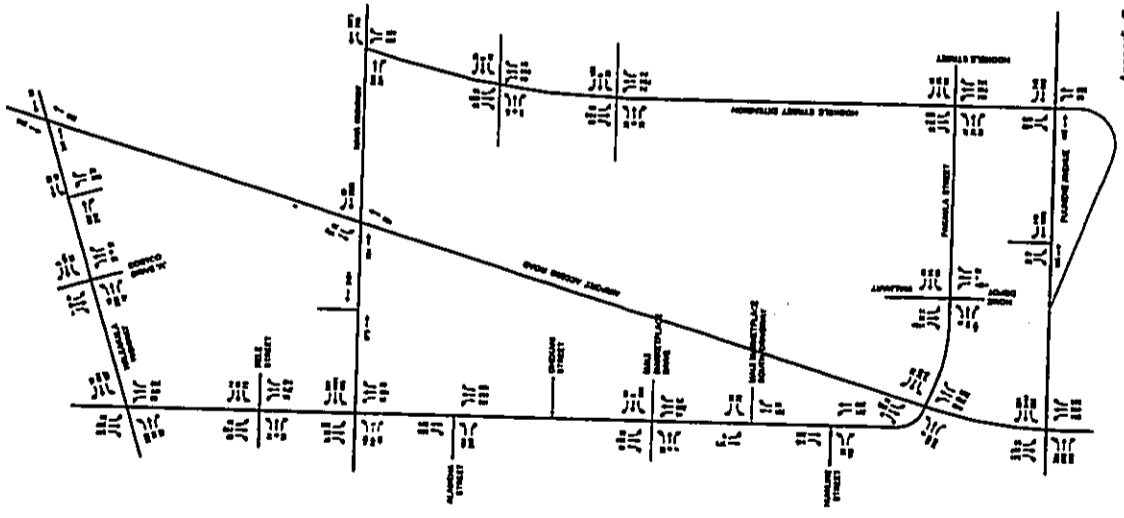
The assumptions used for the level-of-service analysis are:

1. Hookele Street is a four-lane divided roadway. This is consistent with the existing section between Puunene Avenue and Pakaula Street.
2. The intersection of Hana Highway at Hookele Street is signalized and all traffic movements are allowed.
3. The intersection of Haleakala Highway at the entrance to the North Project Area is signalized and has separate left turn lanes into and out of the project.
4. The intersection of Haleakala Highway at the entrance to Costco is signalized. This is a condition for approval of other developments in the area.
5. Hana Highway between Dairy Road and the proposed intersection with Hookele Street has been widened from four to six lanes. This is recommended in the *Maui Long Range Land Transportation Plan* to accommodate future background traffic growth.
6. The Airport Access Road is completed between Dairy Road and Kahului Airport. Based on the projected traffic volumes, the Airport Access Road is a four-lane, two-way highway. The intersection of the Airport Access Road at Hana Highway is an at-grade, signalized intersection. All traffic movements are allowed. Separate left turn lanes are provided along all four approaches and there is a separate eastbound to southbound right turn lane.

The intersection of Pakaula Street at Dairy Road has been realigned to be a four-legged intersection. The Airport Access Road is the north and south legs. Dairy Road is the west leg and Pakaula Street is the east leg. The intersection is signalized and all traffic movements are allowed. The lane configuration has been determined and used on the level-of-service calculations.

The morning and afternoon peak hour traffic projections for Case 11 are shown in Figures C-17 and C-18, respectively.

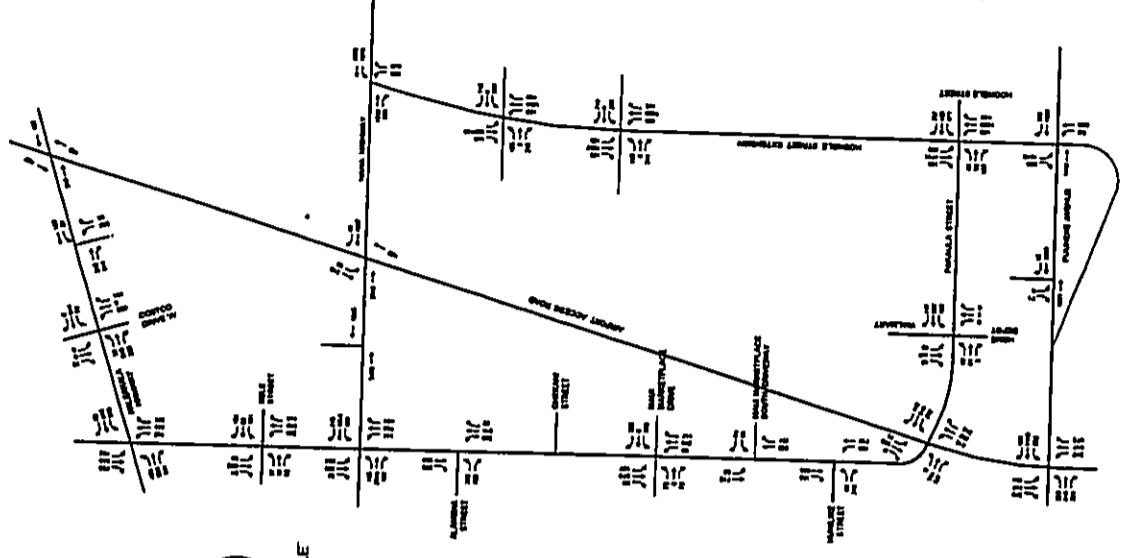
The results of the level-of-service analysis of the study intersections are summarized in Table C-11. Shown in the table is the volume-to-capacity ratio, average vehicle delay (in seconds per vehicle) and level-of-service for the overall intersections.



NOT TO SCALE

Appendix C
 Figure 17
 2020 BACKGROUND
 PLUS PROJECT
 AM PEAK HOUR TRAFFIC
 PROJECTIONS
 CASE 11

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NOT TO SCALE

Appendix C
 Figure 18
 2020 BACKGROUND
 PLUS PROJECT
 PM PEAK HOUR TRAFFIC
 PROJECTIONS
 CASE 11

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Table C-9 Level-of-Service Analysis for 2020 Conditions - Case 11

Intersection	2020 Background (Case 2)				2020 Background Plus Project (Case 3)				Changes				Mitigation Required	
	V/C ¹	Delay ²	LOS ³	LOS ³	V/C	Delay	LOS	LOS	V/C	Delay	V/C	Delay	Yes	No
Dairy Rd at Puunene Ave	AM 1.44	118.6	F	F	1.22	57.8	E	E	-0.22	-61.0	-0.22	-61.0	X	X
	PM 1.22	211.8	F	F	1.60	128.8	F	F	0.38	-85.0	0.38	-85.0	X	X
Dairy Rd at Hialeah St	AM 0.83	6.7	A	A	0.50	10.7	B	B	-0.33	4.0	-0.33	4.0	X	X
	PM 0.94	19.3	B	B	0.75	12.8	B	B	-0.19	-6.5	-0.19	-6.5	X	X
Dairy Rd at Maul	AM 0.44	3.4	A	A	0.21	3.3	A	A	-0.23	-0.1	-0.23	-0.1	X	X
Interchange South	PM 0.74	10	B	B	0.51	8.7	A	A	-0.23	-3.3	-0.23	-3.3	X	X
Dairy Rd at Maul	AM 0.50	9.9	A	A	0.28	12.5	B	B	-0.22	2.6	-0.22	2.6	X	X
Mariposa Drive	PM 0.96	44.8	D	D	0.83	20.3	C	C	-0.35	-24.5	-0.35	-24.5	X	X
Dairy Rd at Alameda St	AM 0.70	22.9	C	C	0.55	33.0	C	C	-0.15	10.1	-0.15	10.1	X	X
	PM 1.11	65.8	E	E	0.81	51.0	D	D	-0.30	-14.8	-0.30	-14.8	X	X
Dairy Road at Hialeah Hwy	AM 1.20	148.8	F	F	0.93	56.1	E	E	-0.27	-92.7	-0.27	-92.7	X	X
	PM 1.39	325.5	F	F	1.48	227.1	F	F	0.09	-98.4	0.09	-98.4	X	X
Dairy Rd at Kale St	AM 0.31	11.0	B	B	0.30	11.2	B	B	-0.01	0.2	-0.01	0.2	X	X
	PM 0.69	17.7	B	B	0.83	29.5	C	C	0.14	11.8	0.14	11.8	X	X
Dairy Rd at Hialeah Hwy	AM 0.82	40.8	D	D	0.75	35.4	D	D	-0.07	-5.4	-0.07	-5.4	X	X
	PM 1.36	148	F	F	3.73	678.0	F	F	2.37	730.0	2.37	730.0	X	X
Hialeah Hwy at Costco Drive	AM 0.11	29.3	C	C	0.31	18.4	B	B	0.20	-10.9	0.20	-10.9	X	X
	PM 0.73	15.2	B	B	0.96	42.9	D	D	0.13	27.7	0.13	27.7	X	X
Puunene Ave at Hialeah St	AM 0.65	98.5	F	F	1.08	51.0	D	D	0.43	-47.5	0.43	-47.5	X	X
	PM 0.82	498.6	F	F	2.32	488.4	F	F	1.50	-102.2	1.50	-102.2	X	X

1. V/C denotes ratio of volume to capacity

2. Delay is in seconds per vehicle

3. LOS denotes Level-of-Service (provisionally used) the approximate method described in Highway Capacity Manual. LOS is based on delay.

H ENVIRONMENTAL NOISE IMPACT ASSESSMENT

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ENVIRONMENTAL NOISE IMPACT ASSESSMENT
 MAUI BUSINESS PARK - PHASE II
 KAHALUI, MAUI, HAWAII

Project No. 02-56

May 2003
 Updated October 2004

Prepared for
 A&B Properties, Inc.
 Honolulu, Hawaii

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DCAA Project No. 02-56

1.0 EXECUTIVE SUMMARY

- 1.1 The proposed Maui Business Park - Phase II will be an expansion of an existing light industrial subdivision. The project is to occupy approximately 179 acres on two noncontiguous project sites near the airport in Kahului, Maui.
- 1.2 The project area and vicinity are currently exposed to daytime ambient noise levels of 50 to 73 dBA, with the dominant noise sources being aircraft from the nearby Kahului Airport and traffic. Other noise sources include wind and birds.
- 1.3 Commercial or manufacturing uses of the project sites are consistent with the State Department of Transportation Airport Division land use compatibility guidelines. However, noise reduction measures will be required for areas above the 65 L_{50} noise contour. At the time of this report, future noise levels based on predicted airport usage have not been calculated by the Department of Transportation, Airports Division.
- 1.4 The dominant noise sources during project construction will probably be earth moving equipment, such as bulldozers and diesel powered trucks, assuming pile driving equipment will not be required. Noise from construction activities will occur on the subject property. Noise from construction activities should be short term and must comply with State Department of Health noise regulations.
- 1.5 Predicted traffic noise level increases due to the project for the year 2020 along local roadways in the vicinity of the completed project were determined to be less than 0.6 dB, which is below the threshold of perceptible change in noise level for most people and not considered significant. Maximum traffic noise levels along Dairy Road and Hana Highway are predicted to decrease with the project due to expected local roadway improvements.

2.0

PROJECT DESCRIPTION

Maui Business Park Phase II—a continuation of A&B Properties, Inc.'s existing Maui Business Park Phase I in Kahului—will provide light industrial space in Maui's central commercial and business district in close proximity to the Kahului Airport and Kahului Harbor.

The Maui Business Park Phase II site is comprised of two noncontiguous properties totaling approximately 179 acres (the "Project").

The South Project Area is approximately 141 acres and is identified by Tax Map Key Number 3-8-06:4 (portion); and Tax Map Key Number 3-8-01:2 (portion). This property is bound to the west by Puunene Avenue; to the north by Maui Business Park Phase IB, a large retention basin area, and the State-owned right-of-way for the proposed Kahului Airport Access Road; to the northeast by Hana Highway; and to the southeast and the south by cane fields.

The North Project Area is approximately 38 acres and is identified by Tax Map Key Number 3-8-79:13. This property is bound to the west by Hana Highway; to the northwest by the parcels owned by K-Mart and Costco, to the north by Haleakala Highway, and to the southeast and southwest by the State-owned right-of-way for the proposed Kahului Airport Access Road.

The primary access to the South Project Area will be via Hookele Street, which currently runs between Puunene Avenue and Pakaula Street and will be extended to Hana Highway. Primary access to the North Project Area will be via Haleakala Highway.

Currently, the South and North Project Areas are predominately sugarcane fields or fallow fields. The topography gently slopes to the north, but is generally level. Elevations from range from 15 to 50 feet above sea level.

Land uses within Maui Business Park Phase II will be consistent with the M-1 Light Industrial district (Chapter 19.24 Maui County Code) and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses. Both project areas will contain a variety of lot sizes to serve the needs of various types of businesses allowed within in the Light Industrial District.

Maui Business Park Phase II will be developed in increments not greater than 70 acres. Onsite and offsite infrastructure improvements are expected to be constructed starting in 2005. The construction and absorption of commercial and industrial buildings is expected to take place over the next 12 to 18 years.

3.0 NOISE STANDARDS

Various local and federal agencies have established guidelines and standards for assessing environmental noise impacts and set noise limits as a function of land use. A brief description of common acoustic terminology used in these guidelines and standards is presented in Appendix A.

3.1 State Department of Transportation (DOT), Airports Division

The State DOT Airports Division local land use compatibility guidelines [Reference 1] are expressed in terms of yearly day-night average sound levels, L_{dn} , due to aircraft operations. Commercial and manufacturing land uses are compatible, without restrictions, with an aircraft generated L_{dn} less than or equal to 65 dBA. Commercial and manufacturing uses are allowed in areas exposed to an L_{dn} as high as 75 dBA when noise mitigation is incorporated into the design and construction of the portions of the buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

3.2 State of Hawaii, Department of Health, Community Noise Control

The State of Hawaii Department of Health Community Noise Control Statute [Reference 2] defines three classes of zoning districts and specifies corresponding maximum permissible sound levels due to stationary noise sources such as air-conditioning units, exhaust systems, generators, compressors, pumps, etc., and equipment related to agricultural, construction, and industrial activities. These levels are enforced by the State Department of Health (DOH) for any location at or beyond the property line and shall not be exceeded for more than 10% of the time during any 20-minute period. The specified noise limits which apply are a function of the zoning and time of day as shown in Figure 2. With respect to mixed zoning districts, the statute specifies that the primary land use designation shall be used to determine the applicable zoning district class and the maximum permissible sound level.

3.3 U.S. Environmental Protection Agency (EPA)

The U.S. EPA has identified a range of yearly day-night equivalent sound levels, L_{dn} , sufficient to protect public health and welfare from the effects of exterior environmental noise [Reference 3]. The EPA has established a goal to reduce further exterior environmental noise to an L_{dn} not exceeding 65 dBA and a future goal to further reduce exterior environmental noise to an L_{dn} not exceeding 55 dBA. Additionally, the EPA states that these goals are not intended as regulations as it has no authority to regulate noise levels, but rather they are intended to be viewed as levels below which the general population will not be at risk from any of the identified effects of noise.

3.4 U.S. Federal Highway Administration (FHWA)

The FHWA defines four land use categories and assigns corresponding maximum hourly equivalent sound levels, L_{eq} , for traffic noise exposure [Reference 4], which are listed in Table 1. For example, Category B, defined as picnic and recreation areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals, has a corresponding maximum exterior L_{eq} of 67 dBA and a maximum interior L_{eq} of 52 dBA. These limits are viewed as design goals, and all projects meeting these limits are deemed in conformance with FHWA noise standards.

3.5 Hawaii Department of Transportation (HDOT)

The HDOT has adopted FHWA's design goals for traffic noise exposure in its noise analysis and abatement policy [Reference 5]. According to the policy, a traffic noise impact occurs when the predicted traffic noise levels "approach" or exceed FHWA's design goals or when the predicted traffic noise levels "substantially exceed the existing noise levels." The policy also states that "approach" means at least 1 dB less than FHWA's design goals and "substantially exceed the existing noise levels" means an increase of at least 15 dB.

4.0 EXISTING ACOUSTICAL ENVIRONMENT

Ambient noise level measurements were conducted on December 12, 2002, at the locations shown on Figure 3, to assess the existing acoustical environment at the project site and surrounding areas. These measurements were taken with a Larson-Davis Laboratories, Model 824, Sound Level Meter. The results, presented in Table 2, expressed in terms of equivalent sound levels, L_{eq} , in units of A-weighted decibels (dBA), were obtained.

Presently, aircraft and traffic are the dominant noise sources at the measurement locations. Other noise sources include wind and birds. Traffic volume and vehicle mix were also recorded during the measurements at Locations 1, 5, and 9.

The project site, due to the proximity to Kahului Airport, is exposed to a significant amount of aircraft noise. The "Kahului Airport Master Plan and Noise Compatibility Program" [Reference 1] indicates that the area is exposed to an average annual day-night aircraft noise level (L_{dn}) between 50 and 75 dBA, as shown on Figure 4.

5.0 POTENTIAL AIRPORT NOISE IMPACT ON THE PROJECT AND NOISE MITIGATION

Commercial or manufacturing uses are consistent with the State DOT Airports Division land use compatibility guidelines [Reference 1] without restrictions for the project sites between the 55 and 65 L_{dn} contours. For structures located on portions of the project sites that lie between the 65 and 75 L_{dn} contours, DOT states:

"Measures to achieve required Noise Level Reduction (NLR) must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low."

The required NLR between the 65 and 70 L_{eq} contour is 30 dB, while the portions between the 70 and 75 L_{eq} contours require a NLR of 35 dB. Measures to mitigate this noise impact, that is achieve the required NLR, are:

- Provide air conditioning for noise sensitive areas within the buildings so windows can be closed or inoperable.
- Avoid using, jalousie windows.
- Double or triple glazing of windows.
- Design walls and roofs with sufficiently high sound transmission loss.
- Provide acoustical gasketing on exterior doors into noise sensitive areas.

At the time of this report, future noise levels based on predicted airport usage have not been calculated by the Department of Transportation, Airports Division. All L_{eq} assessments are based on the most recent published Kahului Airport noise contours [Reference 1].

6.0 POTENTIAL NOISE IMPACT DUE TO THE PROJECT AND NOISE MITIGATION

6.1 Project Construction Noise

Development of project areas will involve excavation, grading, and construction of new buildings and infrastructure. The various construction phases of the project may generate significant amounts of noise. The First Assembly of God Church may be impacted by the project construction noise due to its proximity, as shown on Figure 5. The actual noise levels produced during construction will be a function of the methods employed during each stage of the construction process. Typical ranges of construction equipment noise are shown in Figure 6.

In cases where construction noise exceeds, or is expected to exceed the State's "maximum permissible" property line noise levels [Reference 2], a permit must be obtained from the DOH to allow the operation of vehicles, cranes, construction equipment, power tools, etc., which emit noise levels in excess of the "maximum permissible" levels. In the State of Hawaii, noise permits are required for construction projects. Specific permit restrictions for construction activities are:

"No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels . . . before 7:00 a.m. and after 6:00 p.m. of the same day, Monday through Friday."

"No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels . . . before 9:00 a.m. and after 6:00 p.m. on Saturday."

"No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels on Sundays and on holidays."

The use of pile drivers, hoe rams, jack hammers 25 lbs. or larger, high pressure sprayers, and chain saws may be restricted to 9:00 a.m. to 5:30 p.m., Monday through Friday.

6.2 Project Generated Traffic Noise

Measured traffic noise levels along with traffic volume and vehicle mix counts obtained during the measurements were used to calibrate the FHWA's Traffic Noise Prediction Model [Reference 6]. The noise model, together with the traffic data [Reference 7], was then used to calculate the peak hour traffic noise levels with and without the project. The results are presented in Table 3.

Predicted traffic noise level increases for the year 2020, with and without the project, were calculated and included in Table 3. As can be seen, the predicted maximum traffic noise level increase along the assessed roadways due to the project is 0.6 dB, which is below the threshold of change in noise level that is perceptible to most people with normal hearing. Maximum traffic noise levels along Dairy Road and Hana Highway are predicted to decrease with the project due to expected local roadway improvements. The increase in traffic noise level due to project development is not considered significant and is not expected to adversely impact the project site or surrounding areas.

6.3 On-Site Equipment

Noise from pumps, air handling units, compressors, condensing units, and other on-site equipment must be addressed during the design phase of the project. Noise at the property line from on-site equipment must be at a level of 70 dBA or less during daytime and nighttime hours in order to be within the State's maximum permissible sound limit. If on-site equipment exceeds this limit, mitigation in the form of barriers, enclosures, silencers, etc. should be included in the design.

APPENDIX A

ACOUSTICAL TERMINOLOGY

7.0 REFERENCES:

1. *Kahului Airport Master Plan and Noise Compatibility Program*, State of Hawaii Department of Transportation, June 1993.
2. Chapter 46, *Community Noise Control*, Department of Health, State of Hawaii, Administrative Rules, Title 11, September 23, 1996.
3. *Toward a National Strategy for Noise Control*, U.S. Environmental Protection Agency, April 1977.
4. *Department of Transportation, Federal Highway Administration Procedures for Abatement of Highway Traffic Noise*, Title 23, CFR, Chapter 1, Subchapter J, Part 772, 38 FR 15953, June 19, 1973; Revised at 47 FR 29654, July 8, 1982.
5. *Noise Analysis and Abatement Policy*, Department of Transportation, Highways Division, State of Hawaii, June 1977.
6. *Federal Highway Administration's Traffic Noise Model*, FHWA-RD-77-108; U.S. Department of Transportation, December 1978.
7. *Peak Hour Traffic Data*, Phillip Rowell and Associates, March 17, 2003.

Sound Pressure Level

Sound or noise consists of minute fluctuations in atmospheric pressure capable of evoking the sense of hearing. It is measured in terms of decibels (dB) using precision instruments known as sound level meters. Noise is defined as "unwanted" sound.

Technically, sound pressure level (SPL) is defined as:

$$\text{SPL} = 20 \log (P/P_{\text{ref}}) \text{ dB}$$

where P is the sound pressure fluctuation (above or below atmospheric pressure) and P_{ref} is the reference pressure, 20 micropascals, which is approximately the lowest sound pressure that can be detected by the human ear. For example, if P is 20 micropascals, then $\text{SPL} = 0 \text{ dB}$, or if P is 200 micropascals, then $\text{SPL} = 20 \text{ dB}$. The relation between sound pressure in micropascals and sound pressure level in decibels (dB) is shown in Figure A-1.

The sound pressure level that results from a combination of noise sources is not the arithmetic sum of the individual sound levels, but rather the logarithmic sum. For example, two sound levels of 50 dB produce a combined level of 53 dB, not 100 dB; two sound levels of 40 and 50 dB produce a combined level of 50.4 dB.

Human sensitivity to changes in sound pressure level is highly individualized. Sensitivity to sound depends on frequency content, time of occurrence, duration, and psychological factors such as emotions and expectations. However, in general, a change of 1 or 2 dB in the level of a sound is difficult for most people to detect. A 3 dB change is commonly taken as the smallest perceptible change and a 5 dB change corresponds to a noticeable change in loudness. A 10 dB increase or decrease in sound level corresponds to an approximate doubling or halving of loudness, respectively.

A-Weighted Sound Level

The human ear is more sensitive to sound in the frequency range of 250 Hertz (Hz) and higher, than in frequencies below 250 Hz. Due to this type of frequency response, a frequency weighting system, was developed to emulate the frequency response of the human ear. This system expresses sound levels in units of A-weighted decibels (dBA). A-weighted sound levels de-emphasizes the low frequency portion of the spectrum of a signal. The A-weighted level of a sound is a good measure of the loudness of that sound. Different sounds having the same A-weighted sound level are perceived as being about equally loud. Typical values of the A-weighted sound level of various noise sources are shown in Figure A-1.

Appendix A
Acoustical Terminology (Continued)

Statistical Sound Levels

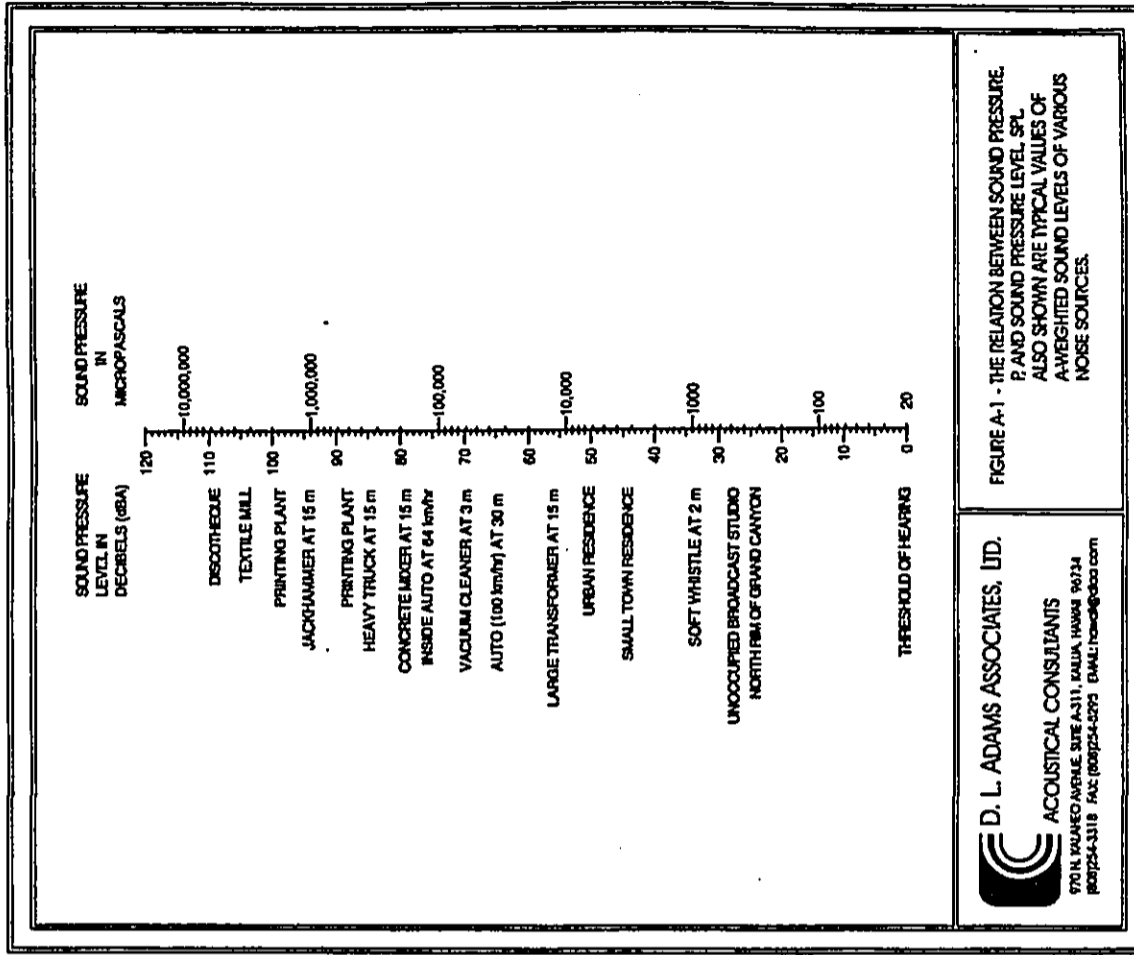
The sound levels of long-term noise producing activities, such as traffic movement, aircraft operations, etc., can vary considerably with time. In order to obtain a single number rating of such a noise source, a statistically-based method of expressing sound or noise levels developed. It is known as the Exceedence Level, L_n . The Exceedence Level, L_n , represents the sound level which is exceeded for $n\%$ of the measurement time period. For example, $L_{10} = 60$ dBA indicates that for the duration at the measurement period, the sound level exceeded 60 dBA 10% of the time. Commonly used Exceedence Levels include L_1 , L_{10} , L_{50} , and L_{90} , which are widely used to assess community and environmental noise. Figure A-2 illustrates the relationship between selected statistical noise levels.

Equivalent Sound Level

The Equivalent Sound Level, L_{eq} , represents a constant level of sound having the same total acoustic energy as that contained in the actual time-varying sound being measured over a specific time period. L_{eq} is commonly used to describe community noise, traffic noise, and hearing damage potential. It has units of dBA and is illustrated in Figure A-2.

Day-Night Equivalent Sound Level

The Day-Night Equivalent Sound Level, L_{dn} , is the Equivalent Sound Level, L_{eq} , measured over a 24-hour period. However, a 10 dB penalty is added to the noise levels recorded between 10 pm and 7 am to account for people's higher sensitivity to noise at night when the background noise level is typically lower. The L_{dn} is a commonly used noise descriptor in assessing land use compatibility, and is widely used by federal and local agencies and standards organizations. Qualitative descriptions, as well as local examples of L_{dn} , are shown in Figure A-3.



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FIGURE A-1 - THE RELATION BETWEEN SOUND PRESSURE P AND SOUND PRESSURE LEVEL, SPL. ALSO SHOWN ARE TYPICAL VALUES OF AWEIGHTED SOUND LEVELS OF VARIOUS NOISE SOURCES.

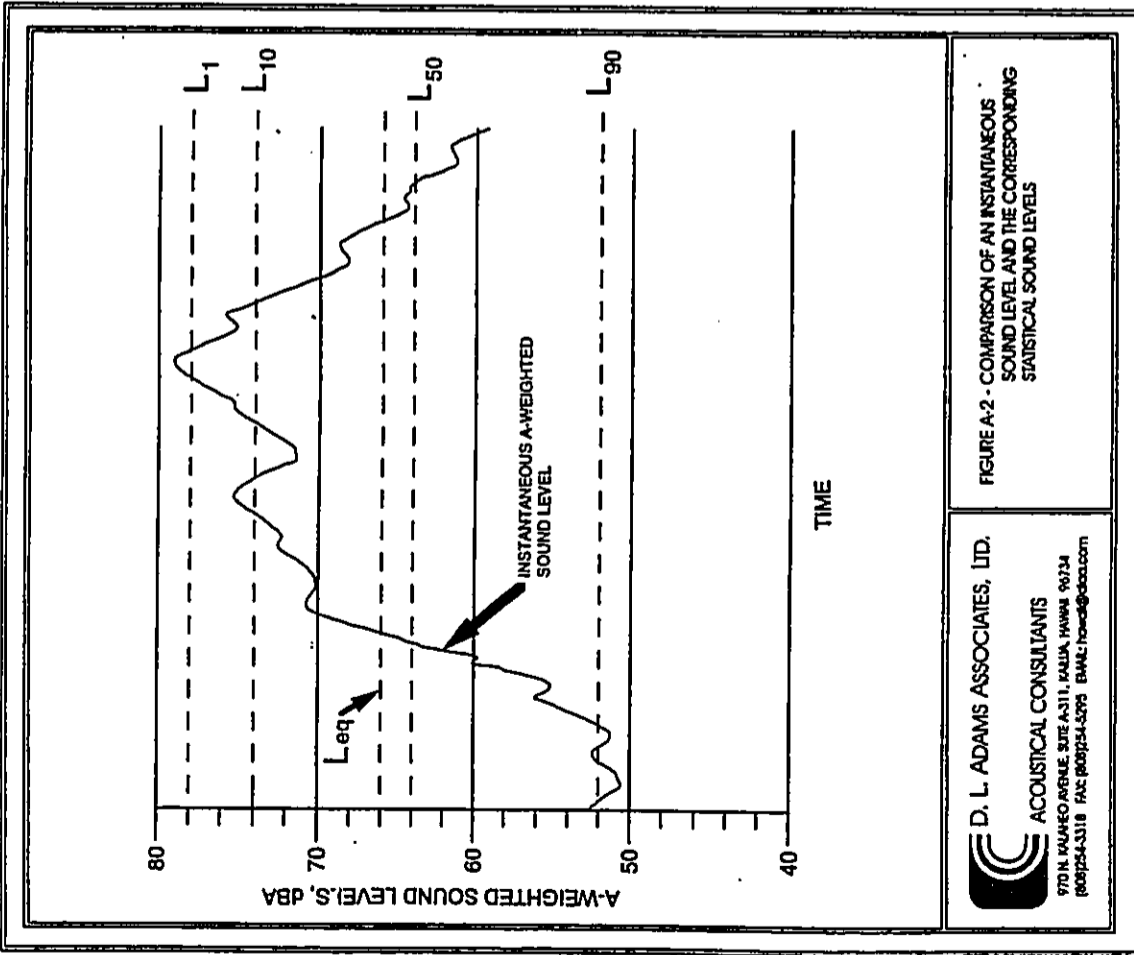


FIGURE A-2 - COMPARISON OF AN INSTANTANEOUS SOUND LEVEL AND THE CORRESPONDING STATISTICAL SOUND LEVELS

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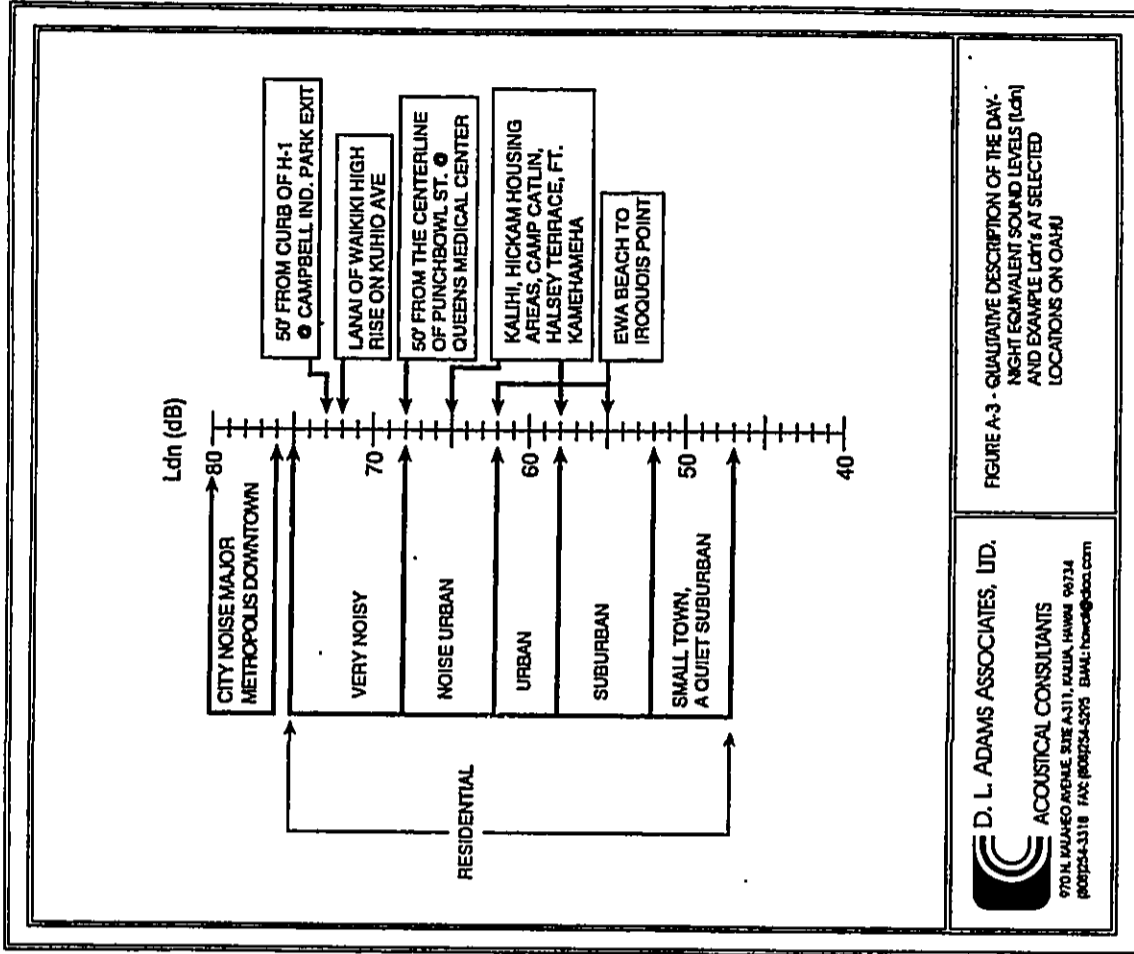


FIGURE A-3 - QUALITATIVE DESCRIPTION OF THE DAY-NIGHT EQUIVALENT SOUND LEVELS (Ldn) AND EXAMPLE LOCATIONS AT SELECTED LOCATIONS ON OAHU

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TABLE 1
Federal Highways Administration Recommended Equivalent Hourly Sound Levels Based
On Land Use [Reference 1]

Activity Category	$L_{eq(0)}$	Noise Reduction Exterior-to-Interior
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	---	Undeveloped Land
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

TABLE 2
Measurement Locations and Equivalent Sound Levels

Measurement Location	Time of Measurement	Duration of Measurement	Equivalent Sound Level (L_{eq} in dBA)
1	11:49 AM	15 Minutes	67.9
2	12:12 PM	5 Minutes	56.3
3	12:40 PM	5 Minutes	58.0
4	12:51 PM	5 Minutes	58.8
5	1:12 PM	15 Minutes	69.9
6	1:36 PM	5 Minutes	56.3
7	1:45 PM	5 Minutes	50.2
8	2:02 PM	5 Minutes	72.9
9	2:18 PM	15 Minutes	69.9

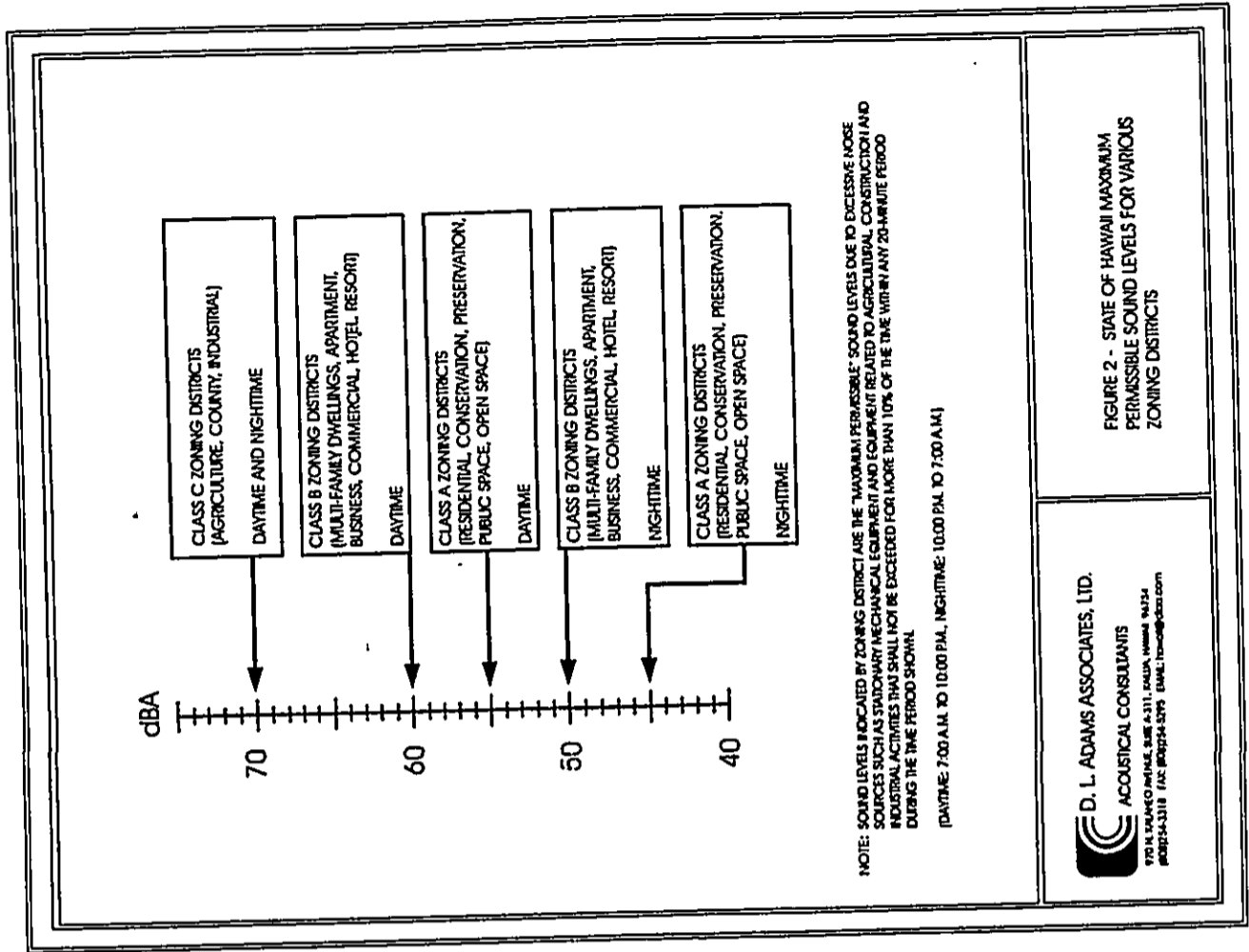
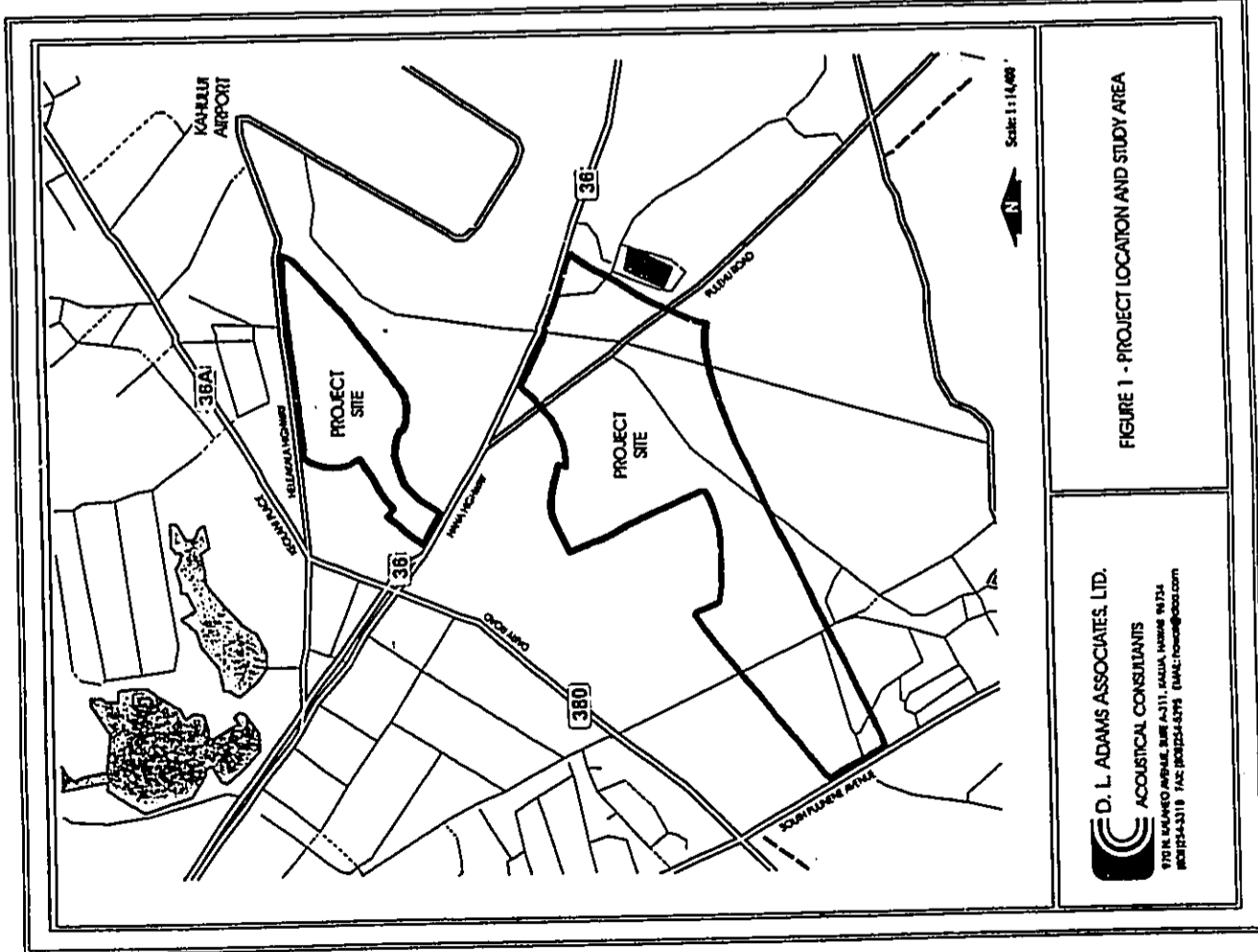
TABLE 3
Peak Hour Traffic Noise Levels and Predicted Noise Level Increases
(L_{eq} in dBA)

MEASUREMENT LOCATION 1 (66 ft from centerline of Hana Highway)	Existing		Predicted Year 2020 Without Proposed Project		Predicted Year 2020 With Proposed Project	
	AM	PM	AM	PM	AM	PM
Peak Traffic Noise Level	70.5	69.1	71.8	70.4	71.7	70.9
Predicted Year 2020 Increase Above Existing	---	---	1.3	1.3	1.2	1.8
Predicted Year 2020 Increase Due to Project	---	---	---	---	-0.1	0.5

TABLE 3 Continued...

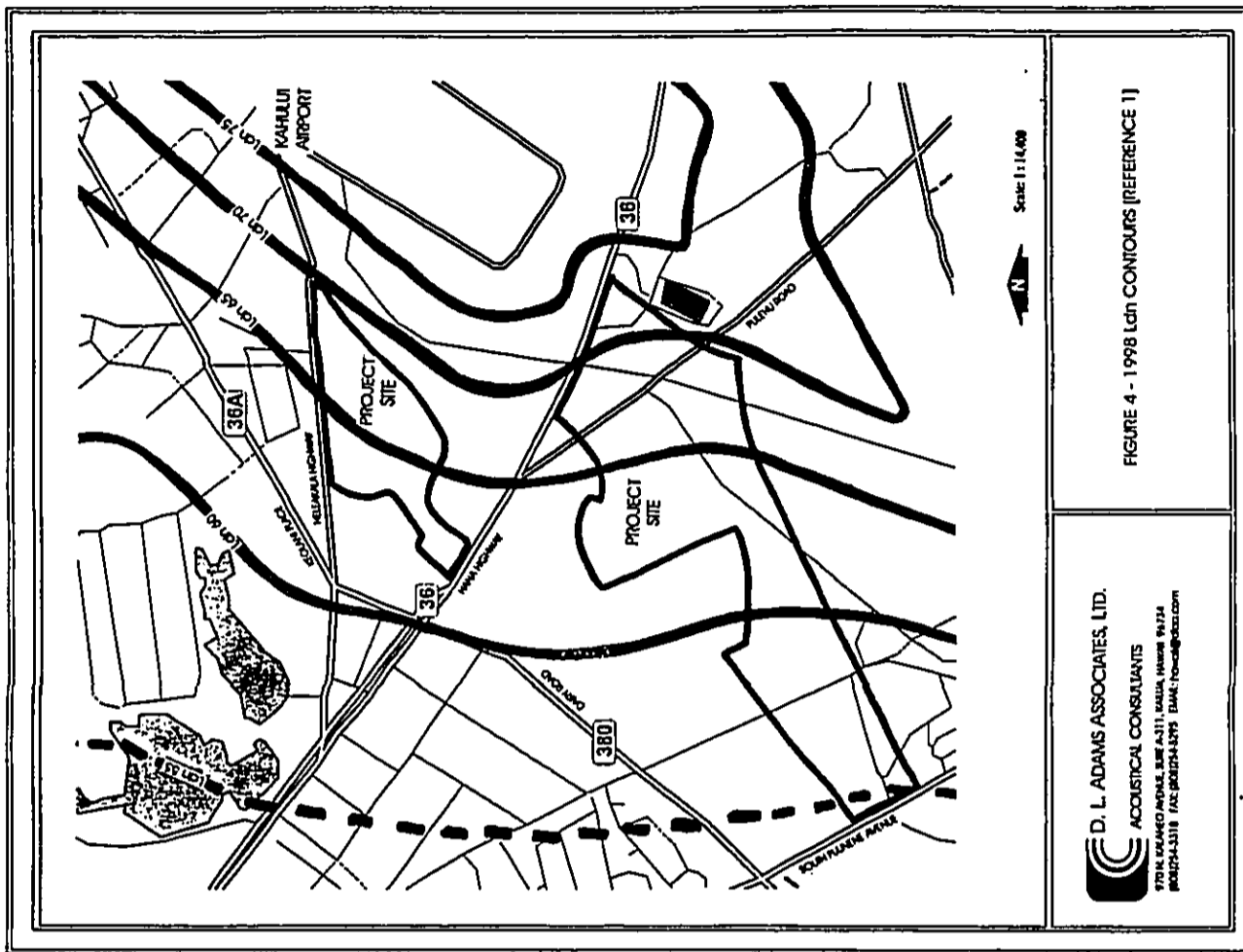
MEASUREMENT LOCATION 9 (52 ft from centerline of Dairy Road)	Existing		Predicted Year 2020 Without Proposed Project		Predicted Year 2020 With Proposed Project	
	AM	PM	AM	PM	AM	PM
Peak Traffic Noise Level	68.6	69.2	70.0	70.6	68.5	69.4
Predicted Year 2020 Increase Above Existing	---	---	1.4	1.4	-0.1	0.2
Predicted Year 2020 Increase Due to Project	---	---	---	---	-1.5	-1.2

MEASUREMENT LOCATION 5 (41 ft from centerline of South Puunene Avenue)	Existing		Predicted Year 2020 Without Proposed Project		Predicted Year 2020 With Proposed Project	
	AM	PM	AM	PM	AM	PM
Peak Traffic Noise Level	69.5	70.7	70.3	72.0	70.6	72.6
Predicted Year 2020 Increase Above Existing	---	---	0.8	1.3	1.1	1.9
Predicted Year 2020 Increase Due to Project	---	---	---	---	0.3	0.6

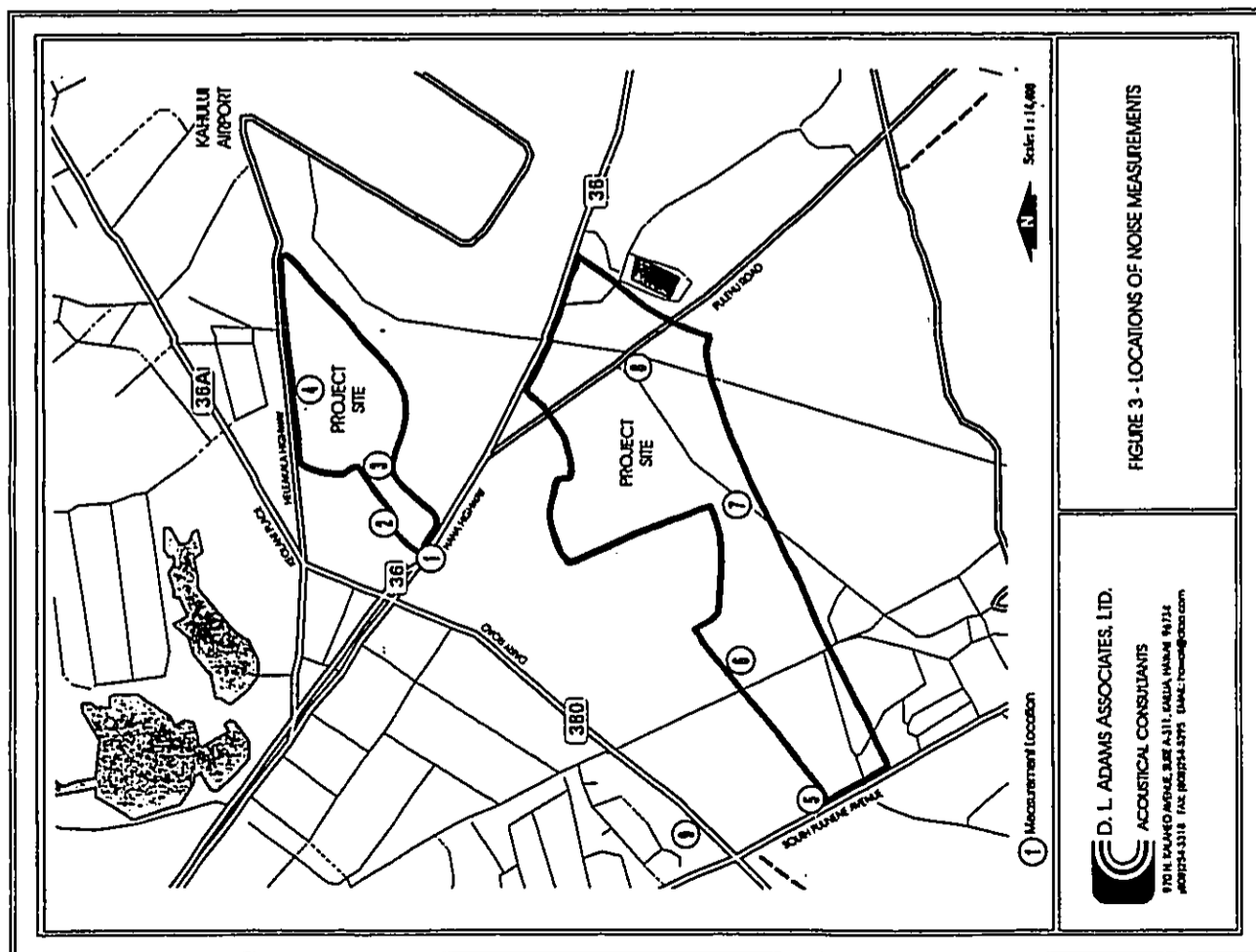


NOTE: SOUND LEVELS INDICATED BY ZONING DISTRICT ARE THE "MAXIMUM PERMISSIBLE" SOUND LEVELS DUE TO EXCESSIVE NOISE SOURCES SUCH AS STATIONARY MECHANICAL EQUIPMENT AND EQUIPMENT RELATED TO AGRICULTURAL, CONSTRUCTION AND INDUSTRIAL ACTIVITIES THAT SHALL NOT BE EXCEEDED FOR MORE THAN 10% OF THE TIME WITHIN ANY 20-MINUTE PERIOD DURING THE TIME PERIOD SHOWN.

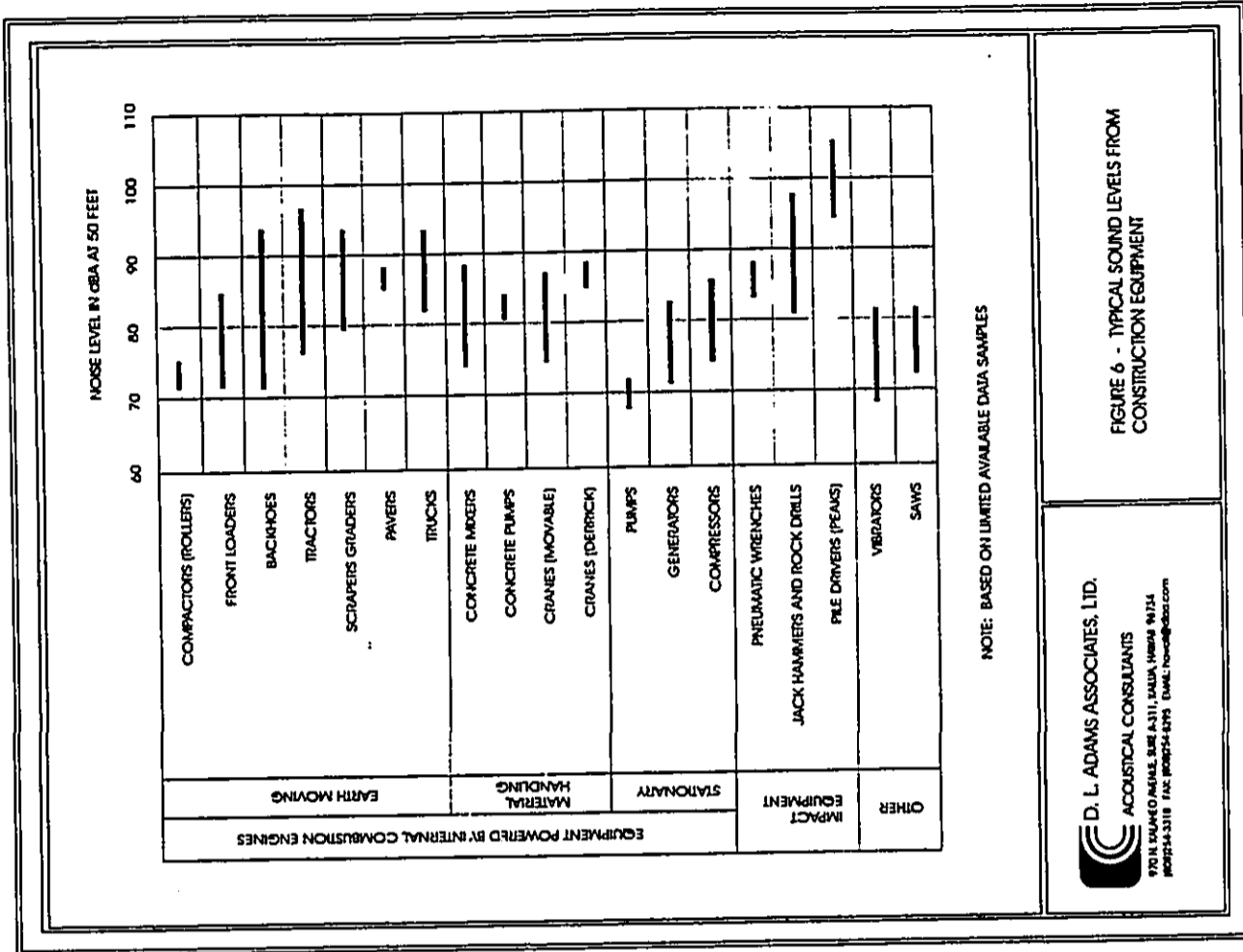
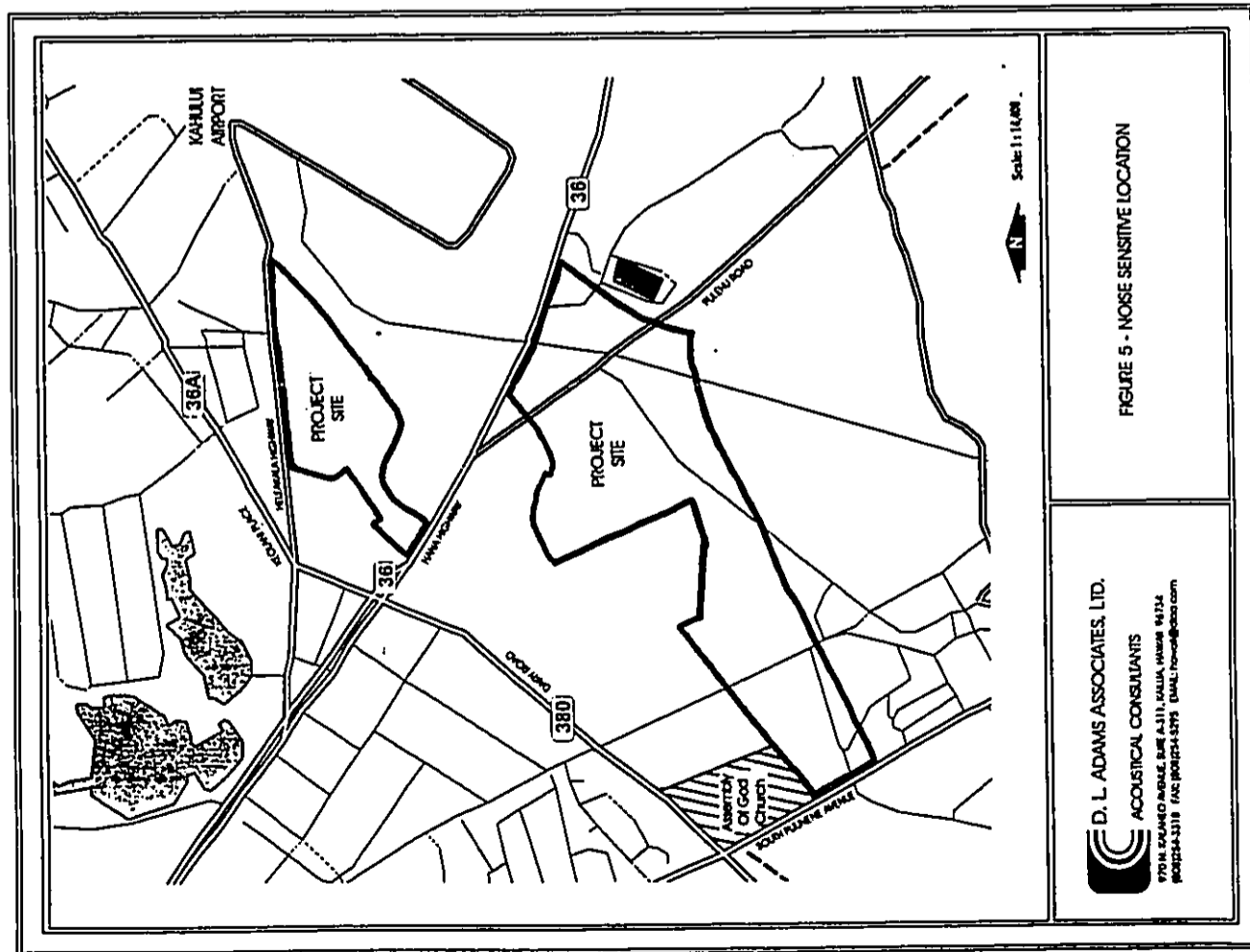
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1 AIR QUALITY STUDY

**AIR QUALITY STUDY
FOR THE PROPOSED
MAUI BUSINESS PARK - PHASE II**

KAHULUI, MAUI, HAWAII

Prepared for:
A&B Properties, Inc.

May 2003



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- 2 Climatological Summary for Kahului Airport
- 3 Air Pollution Emissions Inventory for Island of Maui, 1993

1.0 SUMMARY

A&B Properties, Inc. is proposing to develop the Maui Business Park Phase II at Kahului, Maui. The proposed project will consist of a 179-acre commercial/light industrial area developed on two noncontiguous parcels of land located near the Kahului Airport. This study examines the potential short- and long-term air quality impacts that could occur as a result of construction and use of the proposed facilities and suggests mitigative measures to reduce any potential air quality impacts where possible and appropriate.

Both federal and state standards have been established to maintain ambient air quality. At the present time, seven parameters are regulated including: particulate matter, sulfur dioxide, hydrogen sulfide, nitrogen dioxide, carbon monoxide, ozone and lead. Hawaii air quality standards are more stringent than the comparable national standards except for those pertaining to sulfur dioxide and particulate matter.

Regional and local climate together with the amount and type of human activity generally dictate the air quality of a given location. The climate of the Kahului area is very much affected by its coastal situation between Haleakala and the West Maui Mountains. Winds are predominantly trade winds from the northeast except for occasional periods when kona storms may generate strong winds from the south or when the trade winds are weak and landbreeze-seabreeze circulations may develop. Mean wind speeds typically are above 10 miles per hour providing relatively good ventilation much of the time. Temperatures in the Kahului area are generally very moderate with an average annual temperature of

75.5°F. Average annual rainfall amounts to about 20 inches with summer months being the driest.

Except for periodic impacts from volcanic emissions (vog) and possibly occasional localized impacts from traffic congestion and agricultural smoke and dust, the present air quality of the project area is believed to be relatively good. The limited air quality data that are available for the area from the Department of Health indicate that concentrations are well within state and national air quality standards.

If the proposed project is given the necessary approvals to proceed, it may be inevitable that some short- and/or long-term impacts on air quality will occur either directly or indirectly as a consequence of project construction and use. Short-term impacts from fugitive dust will likely occur during the project construction phase. To a lesser extent, exhaust emissions from stationary and mobile construction equipment, from the disruption of traffic, and from workers' vehicles may also affect air quality during the period of construction.

State air pollution control regulations require that there be no visible fugitive dust emissions at the property line. Hence, an effective dust control plan must be implemented to ensure compliance with state regulations during the period of construction. Fugitive dust emissions can be controlled to a large extent by watering of active work areas, using wind screens, keeping adjacent paved roads clean, and by covering of open-bodied trucks. Other dust control measures could include limiting the area that can be disturbed at any given time and/or mulching or

chemically stabilizing inactive areas that have been worked. Paving and landscaping of project areas early in the construction schedule will also reduce dust emissions. Monitoring dust at the project boundary during the period of construction could be considered as a means to evaluate the effectiveness of the project dust control program. Exhaust emissions can be mitigated by moving construction equipment and workers to and from the project site during off-peak traffic hours.

After construction, motor vehicles coming to and from the proposed development will result in a long-term increase in air pollution emissions in the project area. To assess the impact of emissions from these vehicles, an air quality modeling study was undertaken to estimate current ambient concentrations of carbon monoxide at intersections in the project vicinity and to predict future levels both with and without the proposed project. During worst-case conditions, model results indicated that present 1-hour and 8-hour carbon monoxide concentrations are within the national ambient air quality standards but may exceed the more stringent state standards near some traffic-congested intersections in the project area. In the year 2020 without the project, carbon monoxide concentrations were predicted to decrease at most locations, and concentrations would likely comply within both the national and state standards at all locations studied. With the project in the year 2020, carbon monoxide concentrations were estimated to either remain unchanged or decrease slightly compared to the without-project case; worst-case concentrations should comply with both the national and state standards. Due to the small impact the project is expected to have, implementing mitigation measures for traffic-related air quality impacts is probably unnecessary and unwarranted.

Depending on the demand levels, long-term impacts on air quality are also possible due to indirect emissions associated with a development's electrical power requirements. Quantitative estimates of these potential impacts were not made, but based on the estimated demand levels and emission rates involved, any significant impacts are unlikely. Nevertheless, incorporating energy conservation design features within the proposed development could serve to further reduce any associated impacts and conserve the island's resources.

At this time, the specific tenants of the commercial/industrial area associated with the project have not been identified, but the types of facilities that are expected to locate there are not significant sources of air pollution. Before any air pollution sources can be built anywhere in the state, an application must be submitted to the Department of Health for a permit to construct the facility, and detailed information concerning any air pollution emissions will need to be provided in the application.

2.0 INTRODUCTION

The purpose of this study is to examine the potential short- and long-term air quality impacts that could occur as a result of construction and use of the proposed Maui Business Park Phase II and to suggest mitigative measures to reduce potential air quality impacts where possible and appropriate.

Maui Business Park Phase II is a continuation of A&B Properties, Inc.'s existing Maui Business Park Phase I in Kahului. It will

provide light industrial space in Maui's central commercial and business district in close proximity to the Kahului Airport and Kahului Harbor. The project site is comprised of two noncontiguous properties totaling approximately 179 acres (the "Project").

The South Project Area is approximately 141 acres and is identified by Tax Map Key 3-8-06:4 (portion); and Tax Map Key Number 3-8-01:2 (portion). This property is bound to the west by Puunene Avenue; to the north by Maui Business Park Phase IB, a large retention basin area, and the State-owned right-of-way for the proposed Kahului Airport Access Road; to the northeast by Hana Highway; and to the southeast and the south by cane fields.

The North Project Area is approximately 38 acres and is identified by Tax Map Key Number 3-8-79:13. This property is bound to the west by Hana Highway; to the northwest by the parcels owned by K-Mart and Costco, to the north by Haleakala Highway; and to the southeast and southwest by the State-owned right-of-way for the proposed Kahului Airport Access Road.

The primary access to the South Project Area will be via Hookele Street, which currently runs between Puunene Avenue and Pakaula Street and will be extended to Hana Highway. Primary access to the North Project Area will be via Haleakala Highway.

Currently, the South and North Project Areas are predominately sugarcane fields or fallow fields. The topography gently slopes

to the north, but is generally level. Elevations range from 15 to 50 feet above sea level.

Land uses within Maui Business Park Phase II will be consistent with the M-1 Light Industrial district (Chapter 19.24 Maui County Code) and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses. Both project areas will contain a variety of lot sizes to serve the needs of various types of businesses allowed within in the Light Industrial District.

Maui Business Park Phase II will be developed in increments not greater than 70 acres. Onsite and offsite infrastructure improvements are expected to be constructed starting in 2005. The expected absorption and construction of commercial and industrial buildings is expected to take place over the next 12 to 18 years.

3.0 AMBIENT AIR QUALITY STANDARDS

Ambient concentrations of air pollution are regulated by both national and state ambient air quality standards (AAQS). National AAQS are specified in Section 40, Part 50 of the Code of Federal Regulations (CFR), while State of Hawaii AAQS are defined in Chapter 11-59 of the Hawaii Administrative Rules. Table 1 summarizes both the national and the state AAQS that are specified in the cited documents. As indicated in the table, national and state AAQS have been established for particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone and lead. The state has also set a standard for hydrogen sulfide.

ozone is more than two times as stringent as the national 1-hour standard. The U.S. Environmental Protection Agency (EPA) is currently working on a plan to phase out the national 1-hour ozone standard in favor of the new (and more stringent) 8-hour standard.

The Hawaii AAQS for sulfur dioxide were relaxed in 1986 to make the state standards essentially the same as the national limits. In 1993, the state also revised its particulate standards to follow those set by the federal government. During 1997, the federal government again revised its standards for particulate, but the new standards were challenged in federal court. A Supreme Court ruling was issued during February 2001, and at this time, it is expected that the new standards for particulate will be implemented by 2005. To date, the Hawaii Department of Health has not updated the state particulate standards.

4.0 REGIONAL AND LOCAL CLIMATOLOGY

Regional and local climatology significantly affect the air quality of a given location. Wind, temperature, atmospheric turbulence, mixing height and rainfall all influence air quality. Although the climate of Hawaii is relatively moderate throughout most of the State, significant differences in these parameters may occur from one location to another. Most differences in regional and local climates within the State are caused by the mountainous topography.

Climatic normals, means and extremes for the nearby Kahului Airport based on long-term data collected by the National Weather

National AAQS are stated in terms of both primary and secondary standards for most of the regulated air pollutants. National primary standards are designed to protect the public health with an "adequate margin of safety". National secondary standards, on the other hand, define levels of air quality necessary to protect the public welfare from "any known or anticipated adverse effects of a pollutant". Secondary public welfare impacts may include such effects as decreased visibility, diminished comfort levels, or other potential injury to the natural or man-made environment, e.g., soiling of materials, damage to vegetation or other economic damage. In contrast to the national AAQS, Hawaii State AAQS are given in terms of a single standard that is designed "to protect public health and welfare and to prevent the significant deterioration of air quality".

Each of the regulated air pollutants has the potential to create or exacerbate some form of adverse health effect or to produce environmental degradation when present in sufficiently high concentration for prolonged periods of time. The AAQS specify a maximum allowable concentration for a given air pollutant for one or more averaging times to prevent harmful effects. Averaging times vary from one hour to one year depending on the pollutant and type of exposure necessary to cause adverse effects. In the case of the short-term (i.e., 1- to 24-hour) AAQS, both national and state standards allow a specified number of exceedances each year.

The Hawaii AAQS are in some cases considerably more stringent than the comparable national AAQS. In particular, the Hawaii 1-hour AAQS for carbon monoxide is four times more stringent than the comparable national limit, and the state 1-hour limit for

Service are summarized in Table 2. The outstanding features of the climate of the Kahului area are the equable temperature regime, the marked seasonal variation in rainfall, the persistent surface winds from the northeast quadrant, and the rarity of severe storms. The extremely equable temperatures at Kahului are illustrated by the relatively small range in normal temperature between the warmest month, August, at 79.2 degrees F and the coldest month, January, at 71.5 degrees F. Annual average temperature is 75.5 degrees F. Rainfall is normally relatively light and occurs mostly during the wet season which extends from November through April. Annual rainfall normally amounts to about 20 inches. Humidity at Kahului is usually moderate to high throughout the year.

The large Pacific semi-permanent high pressure cell, which is usually centered north of the Hawaiian Islands, is responsible for the persistent northeasterly trade winds which dominant the wind pattern at Kahului and gives the area a well-ventilated characteristic. The tradewind flow is most prevalent during the dry season. Winds are more variable during the wet season although, on the average, the trades still blow more than 50 percent of the time during this period. The normal trade winds, accentuated by the funneling effect between Haleakala and the West Maui Mountains, as well as by the daytime thermally induced low pressure in the valley, often attain speeds of 40 to 45 mph at the airport. Occasional strong winds from the south (Kona winds) occur with the passage of storms during the winter months.

Small scale, random motions in the atmosphere (turbulence) cause air pollutants to be dispersed as a function of distance or time from the point of emission. Turbulence is caused by both mechan-

ical and thermal forces in the atmosphere. It is oftentimes measured and described in terms of Pasquill-Gifford stability class. Stability class 1 is the most turbulent and class 6 the least. Thus, air pollution dissipates the best during stability class 1 conditions and the worst when stability class 6 prevails. In the Kahului area, stability class 5 or 6 is generally the highest stability class that occurs, developing during clear, calm nighttime or early morning hours when temperature inversions form due to radiational cooling or when drainage winds from the mountains force warmer air aloft. Stability classes 1 through 4 occur during the daytime, depending mainly on the amount of cloud cover and incoming solar radiation and the onset and extent of sea breeze conditions.

Mixing height is defined as the height above the surface through which relatively vigorous vertical mixing occurs. Low mixing heights can result in high ground-level air pollution concentrations because contaminants emitted from or near the surface can become trapped within the mixing layer. In Hawaii, minimum mixing heights tend to be high because of the temperature moderating effect of the surrounding ocean. Low mixing heights may sometimes occur, however, at inland locations and even at times along coastal areas early in the morning following a clear, cool, windless night. Coastal areas also may experience low mixing levels during sea breeze conditions when cooler ocean air rushes in over warmer land. Mixing heights in Hawaii typically are above 3000 feet (1000 meters).

5.0 PRESENT AIR QUALITY

Present air quality in the project area is mostly affected by air pollutants from vehicular, industrial, natural and/or agricultural sources. Table 3 presents an air pollutant emission summary for the island of Maui for calendar year 1993. The emission rates shown in the table pertain to manmade emissions only, i.e., emissions from natural sources are not included. As suggested in the table, most of the manmade particulate and sulfur oxides emissions on Maui originate from point sources, such as power plants and other fuel-burning industries. Nitrogen oxides emissions are roughly equally divided between point sources and area sources (mostly motor vehicle traffic). The majority of carbon monoxide emissions occur from area sources (motor vehicle traffic and sugar cane burning), while hydrocarbons are emitted mainly from point sources.

Sources of industrial air pollution in the project area include the Puunene Mill, located about one-half mile to the south, and the Kahului Power Plant, situated 2 miles to the north. The nearby Kahului Airport is also a source of air pollution. These sources emit large amounts of sulfur dioxide, nitrogen oxides, particulate matter, carbon monoxide and other air pollutants. Prevailing winds from the east or northeast will carry these emissions away from the site most of the time.

Agricultural operations and automobile traffic using nearby roadways also contribute to local air pollution levels. Emissions from these sources consist primarily of particulate, carbon monoxide and nitrogen oxides.

The State Department of Health operates a network of air quality monitoring stations at various locations around the state, but only very limited data are available for Maui Island. The only data available are for particulate collected at Kihei and at Paia, which are probably only semi-representative of the project area. Table 4 summarizes the data from these locations. At Kihei, annual second-highest 24-hour particulate concentrations (which are most relevant to the air quality standards) ranged from 77 to 128 $\mu\text{g}/\text{m}^3$ between 1997 and 2001. Average annual concentrations ranged from 22 to 33 $\mu\text{g}/\text{m}^3$. Concentrations at Paia tended to be slightly lower. All values reported were within the state and national AAQS.

Given the limited air pollution sources in the area, it is likely that air pollution concentrations are near natural background levels, except possibly for locations adjacent to agricultural operations or near traffic-congested intersections. Present concentrations of carbon monoxide in the project area are estimated later in this study based on computer modeling of motor vehicle emissions.

6.0 SHORT-TERM IMPACTS OF PROJECT

Short-term direct and indirect impacts on air quality could potentially occur due to project construction. For a project of this nature, there are two potential types of air pollution emissions that could directly result in short-term air quality impacts during project construction: (1) fugitive dust from vehicle movement and soil excavation; and (2) exhaust emissions from on-site construction equipment. Indirectly, there also

could be short-term impacts from slow-moving construction equipment traveling to and from the project sites, from a temporary increase in local traffic caused by commuting construction workers, and from the disruption of normal traffic flow caused by lane closures of adjacent roadways.

Fugitive dust emissions may arise from the grading and dirt-moving activities associated with site clearing and preparation work. The emission rate for fugitive dust emissions from construction activities is difficult to estimate accurately. This is because of its elusive nature of emission and because the potential for its generation varies greatly depending upon the type of soil at the construction site, the amount and type of dirt-disturbing activity taking place, the moisture content of exposed soil in work areas, and the wind speed. The EPA [1] has provided a rough estimate for uncontrolled fugitive dust emissions from construction activity of 1.2 tons per acre per month under conditions of "medium" activity, moderate soil silt content (30%), and precipitation/evaporation (P/E) index of 50. Uncontrolled fugitive dust emissions at the two project sites would likely be somewhere near that level, depending on the amount of rainfall that occurs. In any case, State of Hawaii Air Pollution Control Regulations [2] prohibit visible emissions of fugitive dust from construction activities at the property line. Thus, an effective dust control plan for the project construction phase is essential.

given time, applying chemical soil stabilizers, mulching and/or using wind screens may be necessary. Control regulations further stipulate that open-bodied trucks be covered at all times when in motion if they are transporting materials that could be blown away. Haul trucks tracking dirt onto paved streets from unpaved areas is often a significant source of dust in construction areas. Some means to alleviate this problem, such as road cleaning or tire washing, may be appropriate. Paving of parking areas and/or establishment of landscaping as early in the construction schedule as possible can also lower the potential for fugitive dust emissions. Monitoring dust at the project property line could be considered to quantify and document the effectiveness of dust control measures.

On-site mobile and stationary construction equipment also will emit air pollutants from engine exhausts. The largest of this equipment is usually diesel-powered. Nitrogen oxides emissions from diesel engines can be relatively high compared to gasoline-powered equipment, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are low and should be relatively insignificant compared to vehicular emissions on nearby roadways.

Project construction activities will also likely obstruct the normal flow of traffic at times to such an extent that overall vehicular emissions in the project area will temporarily increase. The only means to alleviate this problem will be to attempt to keep roadways open during peak traffic hours and to move heavy construction equipment and workers to and from construction areas

during periods of low traffic volume. Thus, most potential short-term air quality impacts from project construction can be mitigated.

7.0 LONG-TERM IMPACTS OF PROJECT

7.1 Roadway Traffic

After construction is completed, use of the proposed facilities will result in increased motor vehicle traffic in the project area, potentially causing long-term impacts on ambient air quality. Motor vehicles with gasoline-powered engines are significant sources of carbon monoxide. They also emit nitrogen oxides and other contaminants.

Federal air pollution control regulations require that new motor vehicles be equipped with emission control devices that reduce emissions significantly compared to a few years ago. In 1990, the President signed into law the Clean Air Act Amendments. This legislation requires further emission reductions, which have been phased in since 1994. More recently, additional restrictions were signed into law during the Clinton administration, which will begin to take effect during the next decade. The added restrictions on emissions from new motor vehicles will lower average emissions each year as more and more older vehicles leave the state's roadways. It is estimated that carbon monoxide emissions, for example, will go down by an average of about 30 to 40 percent per vehicle during the next 10 years due to the replacement of older vehicles with newer models.

To evaluate the potential long-term indirect ambient air quality impact of increased roadway traffic associated with a project such as this, computerized emission and atmospheric dispersion models can be used to estimate ambient carbon monoxide concentrations along roadways leading to and from the project. Carbon monoxide is selected for modeling because it is both the most stable and the most abundant of the pollutants generated by motor vehicles. Furthermore, carbon monoxide air pollution is generally considered to be a microscale problem that can be addressed locally to some extent, whereas nitrogen oxides air pollution most often is a regional issue that cannot be addressed by a single new development.

For this project, three scenarios were selected for the carbon monoxide modeling study: (1) year 2003 with present conditions, (2) year 2020 without the project, and (3) year 2020 with the project. To begin the modeling study of the three scenarios, critical receptor areas in the vicinity of the project were identified for analysis. Generally speaking, roadway intersections are the primary concern because of traffic congestion and because of the increase in vehicular emissions associated with traffic queuing. For this study, four of the intersections identified in the traffic study were also selected for air quality analysis. These included the following intersections:

- Dairy Road at Haleakala Highway;
- Dairy Road at Hana Highway;
- Dairy Road at Puunene Avenue;
- Puunene Avenue at Hookele Street.

These are considered to be either representative of the project area or are locations where traffic is most congested or where the project will likely have the most impact. The traffic impact assessment report for the project [3] describes the projected future traffic conditions and lane configurations of these intersections in detail.

The main objective of the modeling study was to estimate maximum 1-hour average carbon monoxide concentrations for each of the three scenarios studied. To evaluate the significance of the estimated concentrations, a comparison of the predicted values for each scenario can be made. Comparison of the estimated values to the national and state AAQS was also used to provide another measure of significance.

Maximum carbon monoxide concentrations typically coincide with peak traffic periods. The traffic impact assessment report evaluated morning and afternoon peak traffic periods. These same periods were evaluated in the air quality impact assessment.

The EPA computer model MOBILE6 [4] was used to calculate vehicular carbon monoxide emissions for each year studied. One of the key inputs to MOBILE6 is vehicle mix. Unless very detailed information is available, national average values are typically assumed, which is what was used for the present study. Based on national average vehicle mix figures, the present vehicle mix in the project area was estimated to be 46.4% light-duty gasoline-powered automobiles, 40.9% light-duty gasoline-powered trucks and vans, 3.6% heavy-duty gasoline-powered vehicles, 0.2% light-duty diesel-powered vehicles, 8.3% heavy-duty diesel-powered trucks and

buses, and 0.6% motorcycles. For the future scenarios studied, the vehicle mix was estimated to change slightly with fewer light-duty gasoline-powered automobiles and more light-duty gasoline-powered trucks and vans.

Ambient temperatures of 59 and 68 degrees F were used for morning and afternoon peak-hour emission computations, respectively. These are conservative assumptions since morning/afternoon ambient temperatures will generally be warmer than this, and emission estimates given by MOBILE6 generally have an inverse relationship to the ambient temperature.

After computing vehicular carbon monoxide emissions through the use of MOBILE6, these data were then input to an atmospheric dispersion model. EPA air quality modeling guidelines [5] currently recommend that the computer model CAL3QHC [6] be used to assess carbon monoxide concentrations at roadway intersections, or in areas where its use has previously been established, CALINE4 [7] may be used. Until a few years ago, CALINE4 was used extensively in Hawaii to assess air quality impacts at roadway intersections. In December 1997, the California Department of Transportation recommended that the intersection mode of CALINE4 no longer be used because it was thought the model has become outdated. Studies have shown that CALINE4 may tend to over-predict maximum concentrations in some situations. Therefore, CAL3QHC was used for the subject analysis.

CAL3QHC was developed for the U.S. EPA to simulate vehicular movement, vehicle queuing and atmospheric dispersion of vehicular

emissions near roadway intersections. It is designed to predict 1-hour average pollutant concentrations near roadway intersections based on input traffic and emission data, roadway/receptor geometry and meteorological conditions.

Although CAL3QHC is intended primarily for use in assessing atmospheric dispersion near signalized roadway intersections, it can also be used to evaluate unsignalized intersections. This is accomplished by manually estimating queue lengths and then applying the same techniques used by the model for signalized intersections. Currently, only one of the study intersections (Punene Avenue at Hookele Street) is unsignalized. In the future, in accordance with the traffic report, all four study intersections were assumed to be signalized.

Input peak-hour traffic data were obtained from the traffic study cited previously. This included vehicle approach volumes, saturation capacity estimates, intersection laneage and signal timings (where applicable). All emission factors that were input to CAL3QHC for free-flow traffic on roadways were obtained from MOBILE6 based on assumed free-flow vehicle speeds corresponding to the posted speed limits.

Model roadways were set up to reflect roadway geometry, physical dimensions and operating characteristics. Concentrations predicted by air quality models generally are not considered valid within the roadway-mixing zone. The roadway-mixing zone is usually taken to include 3 meters on either side of the traveled portion of the roadway and the turbulent area within 10 meters of a cross street. Model receptor sites were thus located at the

edges of the mixing zones near all intersections that were studied for all three scenarios. This implies that pedestrian sidewalks either already exist or are assumed to exist in the future. All receptor heights were placed at 1.5 meters above ground to simulate levels within the normal human breathing zone.

Input meteorological conditions for this study were defined to provide "worst-case" results. One of the key meteorological inputs is atmospheric stability category. For these analyses, atmospheric stability category 6 was assumed for the morning cases, while atmospheric stability category 4 was assumed for the afternoon cases. These are the most conservative stability categories that are generally used for estimating worst-case pollutant dispersion within suburban areas for these periods. A surface roughness length of 100 cm and a mixing height of 1000 meters were used in all cases. Worst-case wind conditions were defined as a wind speed of 1 meter per second with a wind direction resulting in the highest predicted concentration. Concentration estimates were calculated at wind directions of every 5 degrees.

Existing background concentrations of carbon monoxide in the project vicinity are believed to be at low levels. Thus, background contributions of carbon monoxide from sources or roadways not directly considered in the analysis were accounted for by adding a background concentration of 0.5 ppm to all predicted concentrations for 2003. Although increased traffic is expected to occur within the project area within the next several years with or without the project, background carbon monoxide concentrations may not change significantly since individual emissions from motor vehicles are forecast to decrease with time.

Hence, a background value of 0.5 ppm was assumed to persist for the future scenarios studied.

Predicted Worst-Case 1-Hour Concentrations

Table 5 summarizes the final results of the modeling study in the form of the estimated worst-case 1-hour morning and afternoon ambient carbon monoxide concentrations. These results can be compared directly to the state and the national AAQS. Estimated worst-case carbon monoxide concentrations are presented in the table for three scenarios: year 2003 with existing traffic, year 2020 without the project and year 2020 with the project. The locations of these estimated worst-case 1-hour concentrations all occurred at or very near the indicated intersections.

As indicated in the table, the highest estimated 1-hour concentration within the project vicinity for the present (2003) case was 11.7 mg/m³. This was projected to occur during the morning peak traffic hour near the intersection of Dairy Road and Hana Highway. Concentrations at other locations and times studied ranged downward from 10.1 to 3.2 mg/m³. All predicted worst-case 1-hour concentrations for the 2003 scenario were well within the national AAQS of 40 mg/m³, but two locations (Dairy Road at Hana Highway and Dairy Road at Puunene Avenue) were predicted to potentially exceed the state standard of 10 mg/m³ by a small margin.

In the year 2020 without the proposed project, the highest worst-case 1-hour concentration (9.8 mg/m³) was again predicted to occur during the morning at the intersection of Dairy Road and Hana Highway. Peak-hour worst-case values at the other locations and

times studied for the 2010 without project scenario ranged between about 3 and 7 mg/m³. Concentrations at all of the locations studied decreased compared to the existing case except at the intersection of Puunene Avenue and Hookele Street. The increase in concentrations at this location can be attributed to the assumed installation a traffic signal. All projected worst-case concentrations for this scenario were within both the state and national standards.

Predicted 1-hour worst-case concentrations for the 2020 with project scenario were essentially either unchanged or slightly lower compared to the 2020 without project scenario. Rerouting of traffic by new project roadways and project traffic mitigation measures serve to reduce concentrations or maintain the status quo even though traffic volumes may increase at some locations. All predicted worst-case 1-hour concentrations for the 2020 with project scenario were within both the national and the state AAQS.

Predicted Worst-Case 8-Hour Concentrations

Worst-case 8-hour carbon monoxide concentrations were estimated by multiplying the worst-case 1-hour values by a persistence factor of 0.5. This accounts for two factors: (1) traffic volumes averaged over eight hours are lower than peak 1-hour values, and (2) meteorological conditions are more variable (and hence more favorable for dispersion) over an 8-hour period than they are for a single hour. Based on monitoring data, 1-hour to 8-hour persistence factors for most locations generally vary from 0.4 to 0.8 with 0.6 being the most typical. One study based on modeling [8] concluded that 1-hour to 8-hour persistence factors could typically be expected to range from 0.4 to 0.5. EPA guidelines

predicted 8-hour concentrations for this scenario were within both the national and the state AAQS.

Conservativeness of Estimates

The results of this study reflect several assumptions that were made concerning both traffic movement and worst-case meteorological conditions. One such assumption concerning worst-case meteorological conditions is that a wind speed of 1 meter per second with a steady direction for 1 hour will occur. A steady wind of 1 meter per second blowing from a single direction for an hour is extremely unlikely and may occur only once a year or less. With wind speeds of 2 meters per second, for example, computed carbon monoxide concentrations would be only about half the values given above. The 8-hour estimates are also conservative in that it is unlikely that anyone would occupy the assumed receptor sites (within 3 m of the roadways) for a period of 8 hours.

7.2 Electrical Demand

The proposed project also will cause indirect air pollution emissions from power generating facilities as a consequence of electrical power usage. The peak electrical demand of the project when fully developed is expected to reach about 2 MW [11]. Assuming the average demand is approximately one-half the peak demand, the annual electrical demand of the project will reach approximately 9 million kilowatt-hours. Electrical power for the project will most probably be provided mainly by oil-fired generating facilities, but some of the project power may also be derived from geothermal energy, wind power or other sources. In order to meet the electrical power needs of the

[9] recommend using a value of 0.7 unless a locally derived persistence factor is available. Recent monitoring data for locations on Oahu reported by the Department of Health [10] suggest that this factor may range between about 0.2 and 0.6 depending on location and traffic variability. Considering the location of the project and the traffic pattern for the area, a 1-hour to 8-hour persistence factor of 0.5 will likely yield reasonable estimates of worst-case 8-hour concentrations.

The resulting estimated worst-case 8-hour concentrations are indicated in Table 6. For the 2003 scenario, the estimated worst-case 8-hour carbon monoxide concentrations for the four locations studied ranged from 2.4 mg/m³ at the Punene Avenue at Hookele Street intersection to 5.8 mg/m³ at the Dairy Road at Hana Highway intersection. The estimated worst-case concentrations were within the national limit of 10 mg/m³, but the intersections of Dairy Road at Hana Highway and Dairy Road at Punene were predicted to potentially equal or exceed the state standard of 5 mg/m³ and.

For the year 2020 without project scenario, worst-case concentrations ranged between 1.7 and 4.9 mg/m³, with the highest concentration at Dairy Road and Hana Highway decreasing somewhat compared to the existing case. All predicted concentrations were within the standards, although compliance with the state standard at Dairy Road and Hana Highway was achieved by only a small margin.

For the 2020 with project scenario, worst-case concentrations remained nearly unchanged or decreased slightly compared to the without project case, indicating minimal project impact. All

proposed project, power generating facilities will likely be required to burn more fuel and hence more air pollution will be emitted at these facilities. Given in Table 6 are estimates of the indirect air pollution emissions that would result from the project electrical demand assuming all power is provided by burning more fuel oil at local power plants. These values can be compared to the island-wide emission estimates for 1993 given in Table 2. The estimated indirect emissions from project electrical demand amount to less than 1 percent of the present air pollution emissions occurring on Maui even if all power is assumed to be derived from oil.

7.3 Commercial/Industrial Emissions

Air pollution emissions from industrial sources locating within the proposed project could potentially result in direct impacts on air quality. While the specific industrial residents of the proposed project have not yet been identified, it is expected these will not have the potential to emit significant amounts of air pollution. Land uses within Maui Business Park Phase II will be consistent with the M-1 Light Industrial district (Chapter 19.24 of the Maui County Code) and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses.

Without specific information concerning stack heights and stack gas temperatures, exit velocities and emission rates, air quality impacts from the potential light industrial facilities locating within the proposed industrial park cannot be quantitatively estimated. At the present time, such detailed information is not available. However, Hawaii air pollution control rules [2]

require that any activity that causes air pollution must obtain written approval from the director of the Hawaii Department of Health. This written approval generally involves applying for both a permit to construct and a permit to operate. At the time of application, detailed information must be provided by the applicant concerning the type and nature of any air pollution emissions and the emission control technology that would be utilized. Depending on the magnitudes of the project emissions and other factors, air quality impact analyses and/or air quality monitoring may be required before the application to construct/operate is approved. Thus, even though an assessment of potential direct impacts from project air pollution emissions cannot be done at this time, state rules may require that such analyses be performed at a later date when specific businesses apply to locate at the proposed industrial park.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The major potential short-term air quality impact of the project will occur from the emission of fugitive dust during construction. Uncontrolled fugitive dust emissions from construction activities are estimated to amount to about 1.2 tons per acre per month, depending on rainfall. To control dust, active work areas and any temporary unpaved work roads should be watered at least twice daily on days without rainfall. Use of wind screens and/or limiting the area that is disturbed at any given time will also help to contain fugitive dust emissions. Wind erosion of inactive areas of the site that have been disturbed could be controlled by mulching or by the use of chemical soil stabilizers. Dirt-hauling trucks should be covered when traveling on roadways to prevent windage. A routine road cleaning and/or tire washing program will also help to reduce fugitive dust emissions that may occur as a

result of trucks tracking dirt onto paved roadways in the project area. Paving of parking areas and establishment of landscaping early in the construction schedule will also help to control dust. Monitoring dust at the project boundary during the period of construction could be considered as a means to evaluate the effectiveness of the project dust control program and to adjust the program if necessary.

During construction phases, emissions from engine exhausts (primarily consisting of carbon monoxide and nitrogen oxides) will also occur both from on-site construction equipment and from vehicles used by construction workers and from trucks traveling to and from the project. Increased vehicular emissions due to disruption of traffic by construction equipment and/or commuting construction workers can be alleviated by moving equipment and personnel to the site during off-peak traffic hours.

After the proposed project is completed, any long-term impacts on air quality in the project area due to emissions from project-related motor vehicle traffic should be small. Worst-case concentrations of carbon monoxide should remain within both the state and the national ambient air quality standards. Implementing any air quality mitigation measures for long-term traffic-related impacts is probably unnecessary and unwarranted.

Any long-term impacts on air quality due to indirect emissions from supplying the project with electricity will likely be insignificant based on the relatively small magnitudes of these emissions. Nevertheless, indirect emissions from project electrical demand could likely be reduced somewhat by incorporating

energy-saving features into project design requirements. This might include the use of solar water heaters; designing building space so that window positions maximize indoor light without unduly increasing indoor heat; using landscaping where feasible to provide afternoon shade to cut down on the use of air conditioning; installation of insulation and double-glazed doors to reduce the effects of the sun and heat; providing movable, controlled openings for ventilation at opportune times; and possibly installing automated room occupancy sensors.

At this time, sufficient detail is not available describing the facilities that may be located within the commercial/industrial area included in the project to perform any quantitative impact assessments. However, the types of facilities currently being considered do not emit significant amounts of air pollution. In any case, before any air pollution sources can be built anywhere in the state, an application must be submitted to the Department of Health for a permit to construct the facility, and detailed information concerning any air pollution emissions will need to be provided in the application. If deemed necessary, the Department of Health may require the applicant to assess the air quality impact of the proposed emissions.

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8. "Persistence Factors for Mobile Source (Roadway) Carbon Monoxide Modeling", C. David Cooper, Journal of the Air & Waste Management Association, Volume 39, Number 5, May 1989.
9. Guideline for Modeling Carbon Monoxide from Roadway Intersections, U.S. Environmental Protection Agency, EPA-454/R-92-005, November 1992.
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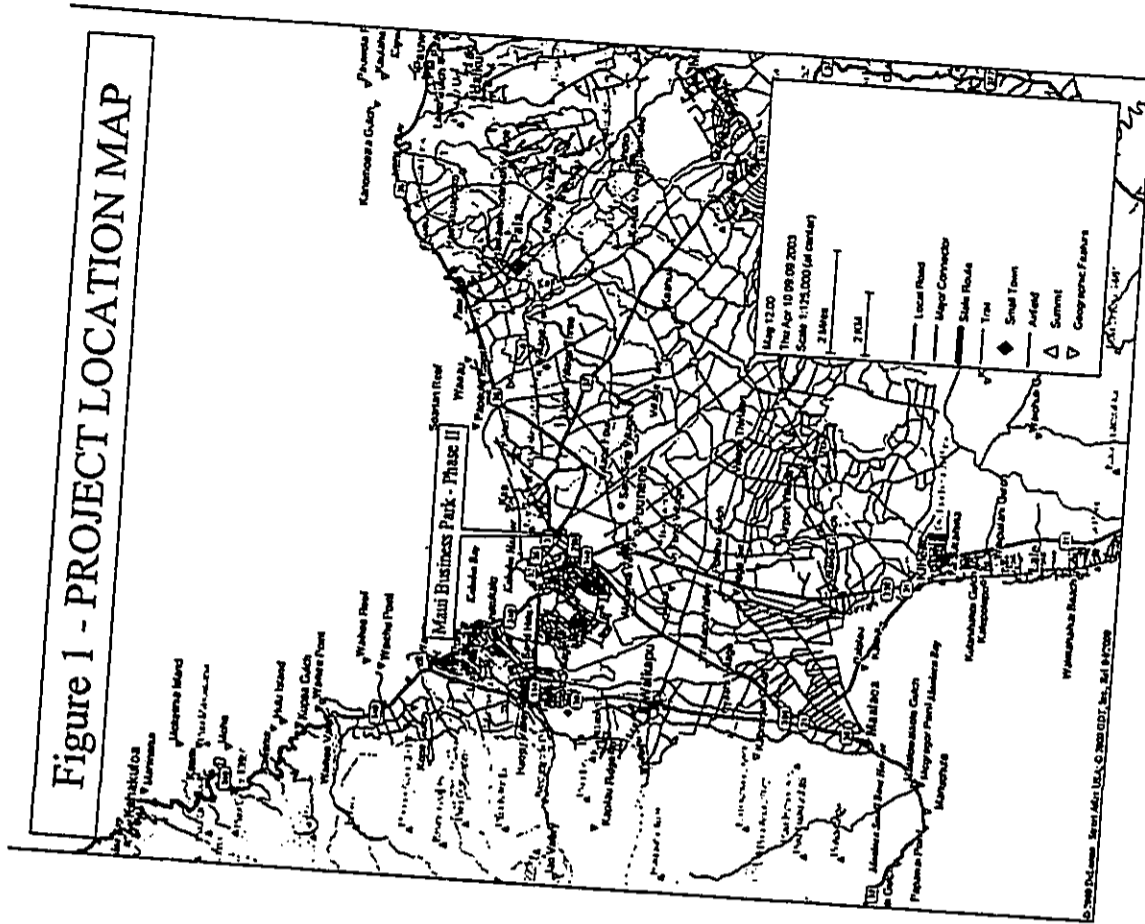


Table 2

CLIMATOLOGICAL SUMMARY FOR KAHULUI AIRPORT

	Record (years)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temperature (Deg F)														
Normals														
-Daily Max		79.5	79.7	81.1	82.2	84.5	85.9	86.5	87.4	87.6	86.4	83.5	81.0	83.8
-Daily Min		61.4	61.4	64.8	66.2	67.0	68.7	70.4	70.9	69.8	69.1	67.5	65.3	67.2
-Monthly		71.5	71.6	73.0	74.2	75.8	77.3	78.5	79.2	78.7	77.8	75.5	73.1	75.5
Extremes														
-Record Highest	28	89	88	90	91	92	93	94	96	95	96	93	90	96
-Year		1981	1981	1984	1981	1992	1981	1984	1981	1992	1973	1990	1992	Aug 83
-Record Lowest	28	46	50	55	54	57	58	58	61	60	58	55	52	48
-Year		1969	1987	1990	1985	1985	1985	1965	1976	1975	1964	1985	1983	Jan 69
% of Possible Sunshine	30	64	65	64	62	68	72	71	71	72	67	63	63	67
Mean Sky Cover (tenths)	34	4.8	4.9	5.4	6.0	5.4	4.9	4.7	4.7	4.7	5.2	5.2	5.0	5.1
Mean Number of Days:														
-Sunrise - Sunset														
-Clear	34	12.9	11.5	10.7	7.6	9.3	10.6	11.1	12.1	11.7	10.7	10.9	11.9	131.3
-Partly Cloudy	34	9.9	9.5	11.2	11.6	13.6	13.3	14.7	13.2	12.6	12.4	10.5	11.0	143.1
-Cloudy	34	8.2	7.3	9.1	10.8	8.1	6.1	5.1	5.5	5.7	7.9	8.6	8.1	90.5
-Precipitation 0.01 inch or more	34	10.6	9.9	10.8	10.3	6.2	5.1	6.4	6.0	5.6	7.3	10.2	11.1	99.6
-Thunderstorms	34	0.9	0.6	0.5	0.5	0.2	0.0	0.1	0.1	0.1	0.4	0.4	0.5	4.3
-Temperature														
-Maximum > 90 F	28	0.0	0.0	0.1	0.1	1.2	2.0	3.4	5.8	7.1	4.4	1.2	0.1	25.3
-Minimum < 32 F	28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Avg. Station Pressure (mb)	11	1012.4	1013.6	1014.9	1014.9	1014.7	1014.2	1013.6	1013.2	1013.4	1012.8	1012.9	1013.2	1013.6
Relative Humidity (%)														
-Hour 02 (LOCAL Time)	10	85	83	81	81	82	80	80	79	80	80	81	82	81
-Hour 08	28	82	83	77	75	71	70	71	71	71	73	76	80	75
-Hour 14	28	82	84	81	81	81	81	81	81	81	81	81	81	81
-Hour 20	28	77	75	74	73	72	71	71	71	71	71	71	71	73
Precipitation (inches):														
-Normal		4.21	3.27	3.00	1.18	0.66	0.28	0.41	0.50	0.36	0.87	2.26	2.85	39.85
-Maximum Monthly	38	14.46	8.31	10.90	14.29	4.16	2.50	2.65	2.54	2.41	5.66	9.27	10.59	14.46
-Year		1980	1972	1967	1989	1987	1987	1989	1982	1987	1985	1965	1988	Jan 80
-Minimum Monthly	38	0.12	0.07	0.09	0.06	0.00	0.00	0.02	0.02	0.02	0.00	0.14	0.01	0.00
-Year		1977	1983	1957	1990	1972	1957	1973	1973	1972	1984	1980	1975	Jun 57
Wind:														
-Mean Speed (mph)	23	10.8	11.1	12.3	13.3	13.2	14.7	15.6	14.8	12.9	12.0	11.8	11.1	12.8
-Prevailing Direction	23	SSW	S	NE	NE	NE	ENE	NE	NE	NE	NE	NE	NE	NE
-Peak Gust														
-Direction	9	S	NE	E	NE	NE	NE	E	NE	SW	NE	S	E	S
-Speed (mph)	9	54	46	49	45	43	44	46	45	44	46	51	54	54
-Date		1991	1990	1985	1987	1991	1990	1989	1991	1992	1985	1988	1988	Jan 91

source: local climatological data, 1992 Annual Summary with Comparative Data, Kahului, Hawaii, National Oceanic and Atmospheric Administration

Table 1
SUMMARY OF STATE OF HAWAII AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Units	Averaging Time	Maximum Allowable Concentration		
			National Primary	National Secondary	State of Hawaii
Particulate Matter (<10 microns)	µg/m³	Annual 24 Hours	50 ^a	50 ^a	50
			150 ^b	150 ^b	150 ^c
Particulate Matter (<2.5 microns)	µg/m³	Annual 24 Hours	15 ^a	15 ^a	-
			65 ^d	65 ^d	-
Sulfur Dioxide	µg/m³	Annual 24 Hours	80	-	80
			365 ^e	-	365 ^e
Nitrogen Dioxide	µg/m³	3 Hours	-	1300 ^f	1300 ^f
			100	100	70
Carbon Monoxide	mg/m³	8 Hours 1 Hour	10 ^g	-	5 ^g
			40 ^g	-	10 ^g
Ozone	µg/m³	8 Hours 1 Hour	157 ^h	157 ^h	-
			235 ^h	235 ^h	100 ^h
Lead	µg/m³	Calendar Quarter	1.5	1.5	1.5
			-	-	-
Hydrogen Sulfide	µg/m³	1 Hour	-	-	35 ⁱ

^a Three-year average of annual arithmetic mean.
^b 99th percentile value averaged over three years.
^c Not to be exceeded more than once per year.
^d 99th percentile value averaged over three years.
^e Three-year average of fourth-highest daily 8-hour maximum.
^f Standard is attained when the expected number of exceedances is less than or equal to 1.
^g Note: Standards for particulate matter (<2.5 microns) and for 8-hour ozone have not yet been implemented.
^h Standard is attained when the expected number of exceedances is less than or equal to 1.
ⁱ Note: Standards for particulate matter (<2.5 microns) and for 8-hour ozone have not yet been implemented.

Table 3
AIR POLLUTION EMISSIONS INVENTORY FOR
ISLAND OF MAUI, 1993

Air Pollutant	Point Sources (tons/year)	Area Sources (tons/year)	Total (tons/year)
Particulate	63,275	7,030	70,305
Sulfur Oxides	6,419	nil	6,419
Nitrogen Oxides	7,312	8,618	15,930
Carbon Monoxide	4,612	20,050	24,662
Hydrocarbons	1,991	234	2,225

Source: Final Report, "Review, Revise and Update of the Hawaii Emissions Inventory Systems for the State of Hawaii", prepared for Hawaii Department of Health by J.L. Shoemaker & Associates, Inc., 1996

Table 4
ANNUAL SUMMARIES OF AIR QUALITY MEASUREMENTS FOR
MONITORING STATIONS NEAREST MAUI BUSINESS PARK

Parameter / Location	1997	1998	1999	2000	2001
Particulate (PM-10) / Kihua					
24-Hour Averaging Period:					
No. of Samples	279	340	300	355	341
Highest Concentration (µg/m ³)	105	131	100	83	93
2 nd Highest Concentration (µg/m ³)	97	128	93	72	93
No. of State MAQS Exceedances	0	0	0	0	0
Annual Average Concentration (µg/m ³)	22	33	24	25	23
Particulate (PM-10) / Falls					
24-Hour Averaging Period:					
No. of Samples	353	354	359	350	237
Highest Concentration (µg/m ³)	59	67	131	48	83
2 nd Highest Concentration (µg/m ³)	54	50	98	45	80
No. of State MAQS Exceedances	0	0	0	0	0
Annual Average Concentration (µg/m ³)	20	17	18	18	20

Source: State of Hawaii Department of Health, "Annual Summaries, Hawaii Air Quality Data, 1997 - 2001"

Table 5

ESTIMATED WORST-CASE 1-HOUR CARBON MONOXIDE CONCENTRATIONS
ALONG ROADWAYS NEAR
MAUI BUSINESS PARK PHASE II
(milligrams per cubic meter)

Roadway Intersection	Year/Scenario					
	2003/Present		2020/Without Project		2020/With Project	
	AM	PM	AM	PM	AM	PM
Dairy Road at Haleakala Highway	5.6	5.2	3.4	3.4	3.6	3.4
Dairy Road at Hana Highway	11.7	8.9	9.8	5.8	8.7	5.6
Dairy Road at Puunene Avenue	10.1	7.6	7.2	5.3	6.3	4.6
Puunene Avenue at Hookele Street	4.9	3.2	6.1	3.6	6.2	5.1

Hawaii State AAQS: 10
National AAQS: 40

Table 6

ESTIMATED WORST-CASE 8-HOUR CARBON MONOXIDE CONCENTRATIONS
ALONG ROADWAYS NEAR
MAUI BUSINESS PARK PHASE II
(milligrams per cubic meter)

Roadway Intersection	Year/Scenario		
	2003/Present	2020/Without Project	2020/With Project
Dairy Road at Haleakala Highway	2.8	1.7	1.7
Dairy Road at Hana Highway	5.8	4.9	4.4
Dairy Road at Puunene Avenue	5.0	3.6	3.2
Puunene Avenue at Hookele Street	2.4	3.0	3.1

Hawaii State AAQS: 5
National AAQS: 10

Table 7
 ESTIMATED INDIRECT AIR POLLUTION EMISSIONS FROM
 MAUI BUSINESS PARK PHASE II ELECTRICAL DEMAND*

Air Pollutant	Emission Rate (tons/year)
Particulate	3
Sulfur Dioxide	22
Carbon Monoxide	2
Volatile Organics	<1
Nitrogen Oxides	10

*Based on U.S. EPA emission factors for utility boilers (1).
 Assumes electrical demand of 9 million kw-hrs per year and
 low-sulfur oil used to generate power.

J VISUAL ANALYSIS STUDY



Maui Business Park Phase II

Visual Analysis Study

prepared for:

AIB A&B PROPERTIES, INC.
A SUBSIDIARY OF ALAMANDA & BARRON, INC.

prepared by:



**DRAFT MAUI BUSINESS PARK,
PHASE II VISUAL ANALYSIS STUDY**

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From the North Project Area	1	View towards Haleakala from near the intersection of Hana Highway	1
From the Proposed Airport Access Road	2	View towards Haleakala across retention basins near Walmart boundary	2
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**DRAFT MAUI BUSINESS PARK,
PHASE II VISUAL ANALYSIS STUDY**

Maui Business Park Phase II, the logical extension of Maui Business Park Phase I, will provide light industrial space in Maui's central commercial and business district in close proximity to the Kahului Airport and Kahului Harbor.

The Maui Business Park Phase II site is comprised of two noncontiguous properties (the South Project Area and the North Project Area) totaling approximately 179 acres.

As part of the project, Hookele Street, will be extended through the South Project Area to connect Pu'unēnē Avenue with Hana Highway. The main access to and from Kahului International Airport will be the proposed Airport Access Road and not the proposed Hookele Street Extension.

This study provides a visual analysis of the view toward Haleakala from the proposed Airport Access Road, the extended Hookele street, and other project areas.

Existing Views Without Maui Business Park Phase II

From the South Project Area

Presently, the only accessible views toward Haleakala through the South Project Area are from the existing Hookele Street, Pakaula Street (heading toward Haleakala) and a portion of Hana Highway (also heading toward Haleakala).

Views from the existing Hookele Street toward Haleakala are of sugar cane in various stages of growth. Depending the direction of travel on Hookele Street and the stage of growth

the sugar cane, views of Haleakala may be obscured along the existing Hookele Street.

On Pakaula Street, which is mostly at a higher elevation than the existing Hookele Street, drivers traveling toward Haleakala have clear views over sugar cane and wide views toward Haleakala (although this vista also includes views of two existing overhead high power electrical lines on metal poles extending towards Puunene Mill from lines in Kahului). Refer to Photo 1.

Haleakala can also be viewed through a portion of the South Project Area from Hana Highway, but the alignment of Hana Highway curves away from Haleakala. This view also includes views of overhead powerlines along both Hana Highway and Pulehu Road. The triangle formed by Hana Highway and Pulehu Road roughly forms the view corridor toward Haleakala from Hana Highway. Refer to Photo2.

Due to the land set aside for a major interchange at the intersection of Hana Highway and the Proposed Airport Access Road, the South Project Area does not start for about 500 to 600 feet mauka of the Hana Highway and Pulehu Road intersection.

From the North Project Area

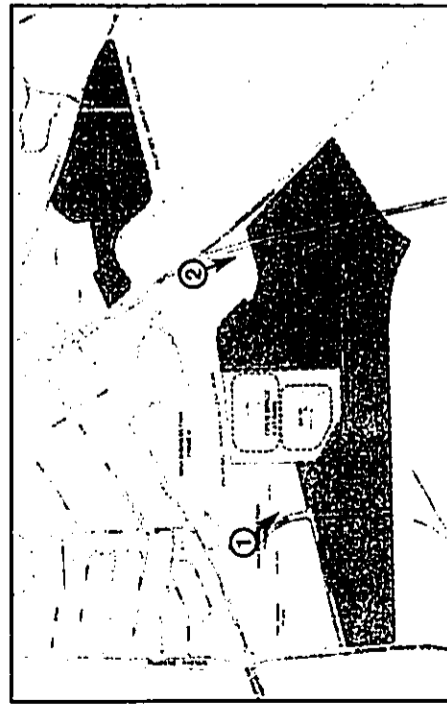
Views of Haleakala from Haleakala Highway (which delineates the makai boundary of the North Project Area) are limited because Haleakala Highway primarily is located at a lower elevation than the North Project Area.



Photo 1. View towards Haleakalā from Pakaula Street.



Photo 2. View towards Haleakalā from near the intersection of Hāna Highway.



Key Map

Site Photos

Maui Business Park Phase II



April 2004

**DRAFT MAUI BUSINESS PARK,
PHASE II VISUAL ANALYSIS STUDY**

From the Proposed Airport Access Road

While not a view currently accessible to the public, the Proposed Airport Access Road will afford travelers (to and from the Kahului Airport) views towards Haleakala. Views of Haleakala from the Airport Access Road will not be impacted by the North Project Area, as the Airport Access Road will run along the south edge North Project Area (between the North Project Area and Haleakala). With Haleakala to the south, in this section of the proposed Airport Access Road, there will be open vistas of Haleakala.

In the area of the South Project Area, the alignment of the proposed Airport Access Road lies between Maui Business Park Phase I and the proposed Maui Business Park Phase II. However, it should be noted that less than a third of A&B's lands mauka of the Proposed Airport Access Road will actually "touch" the Proposed Airport Access Road. The reason for this is that there will be in effect two large open space view corridors that will provide largely unobstructed views of Haleakala. These view corridors are created by: 1) two existing retention basins totaling 33 acres (refer to Photo 3), and 2) land set aside for a major interchange at the intersection of Hana Highway and the Proposed Airport Access Road.

Future Views With the Project

South Project Area

Views of Haleakala will be limited along Hookele Street (existing and proposed), and along the portion of the South Project Area touching the Proposed Airport Access Road. The

appearance of industrial facilities mauka of the proposed Hookele Street Extension, will be softened through the provision of landscaped berms utilizing trees and shrubs. Presently, A&B is planning the Hookele Street Extension to consist of an 86-foot wide right-of-way which will include the following (refer to Figure 1, Hookele Street Extension Road Section):

- a 10-foot median with canopy trees;
- 26-foot wide travel lanes on either side of the median;
- and 6-foot wide sidewalks and 6-foot wide planting strips opposite the median.

In addition, A&B is planning to require lot owners along the Hookele Street Extension to include a 10-foot front yard landscape easement to allow A&B to plant and maintain landscaped berms. Utilizing these design features are shown on Figure 2.

Views of that portion of the South Project Area touching the Proposed Airport Access Road will be similar to those of the existing Walmart and Maui Marketplace (from the proposed alignment depending on the final finished grade). Despite Walmart's relatively higher elevation (than the existing alignment of the Proposed Airport Access Road), its appearance is softened by a well-maintained hedge and other landscaping. However, as previously noted, there will be two large open space view corridors (provided by the existing 33 acre retention basin and the land set aside for the Hana Highway/Proposed Airport Access Road interchange) which will provide unobstructed views of Haleakala. One such view across the existing retention basin is shown on Figure 3.

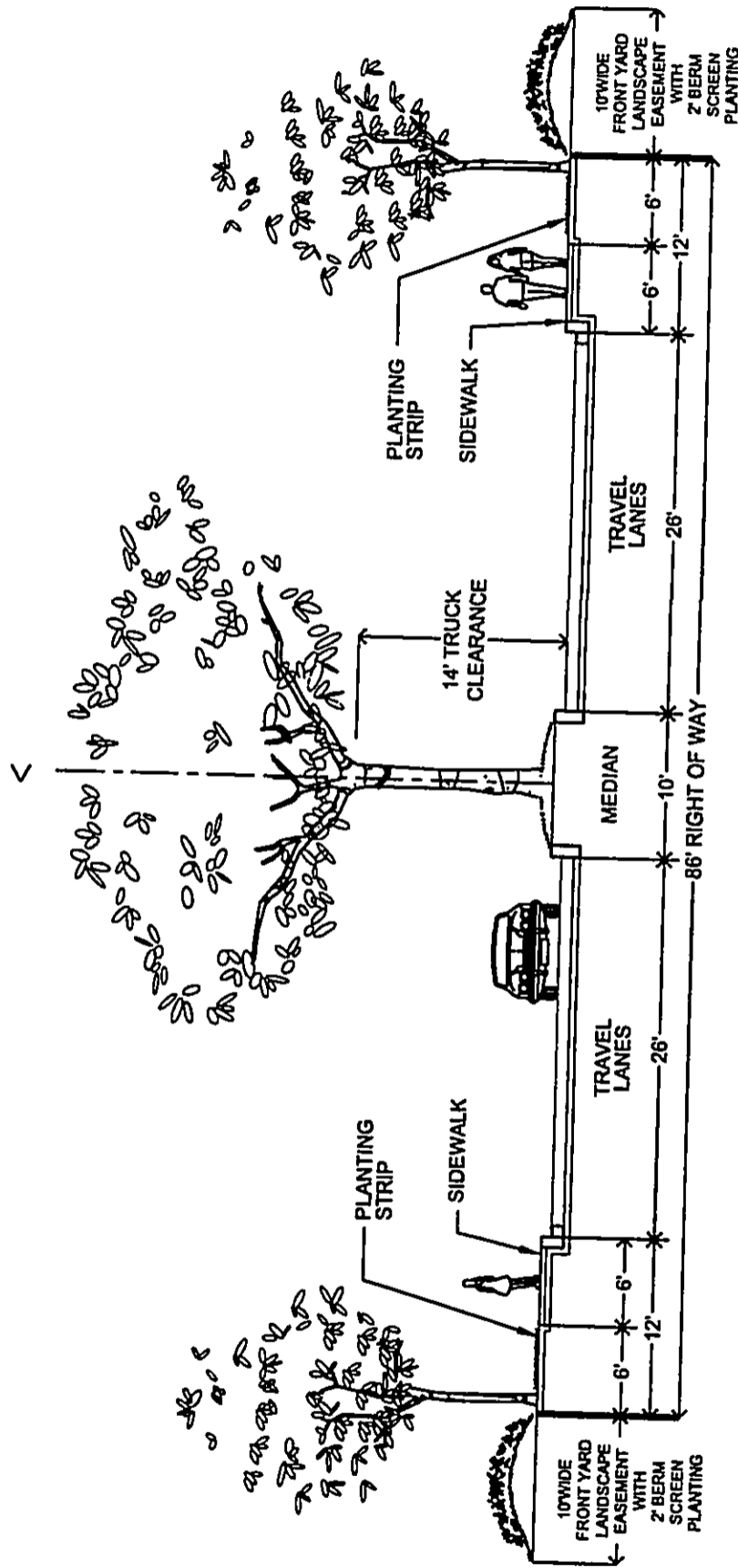


FIGURE 1
 Ho'okele Street Extension Road Section
Maui Business Park Phase II



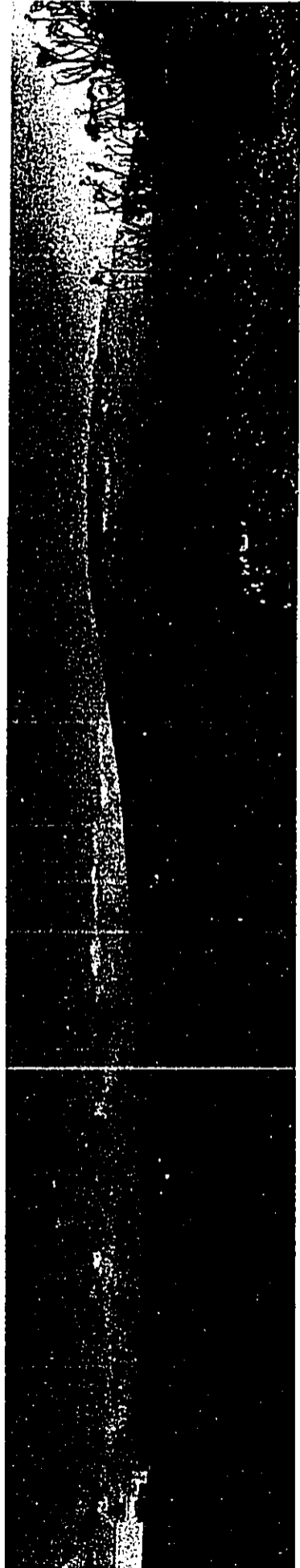
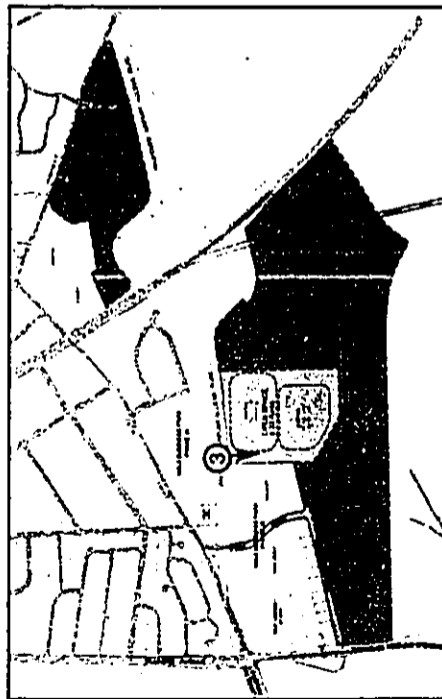


Photo 3. View towards Haleakala across retention basins near Walmart boundary.



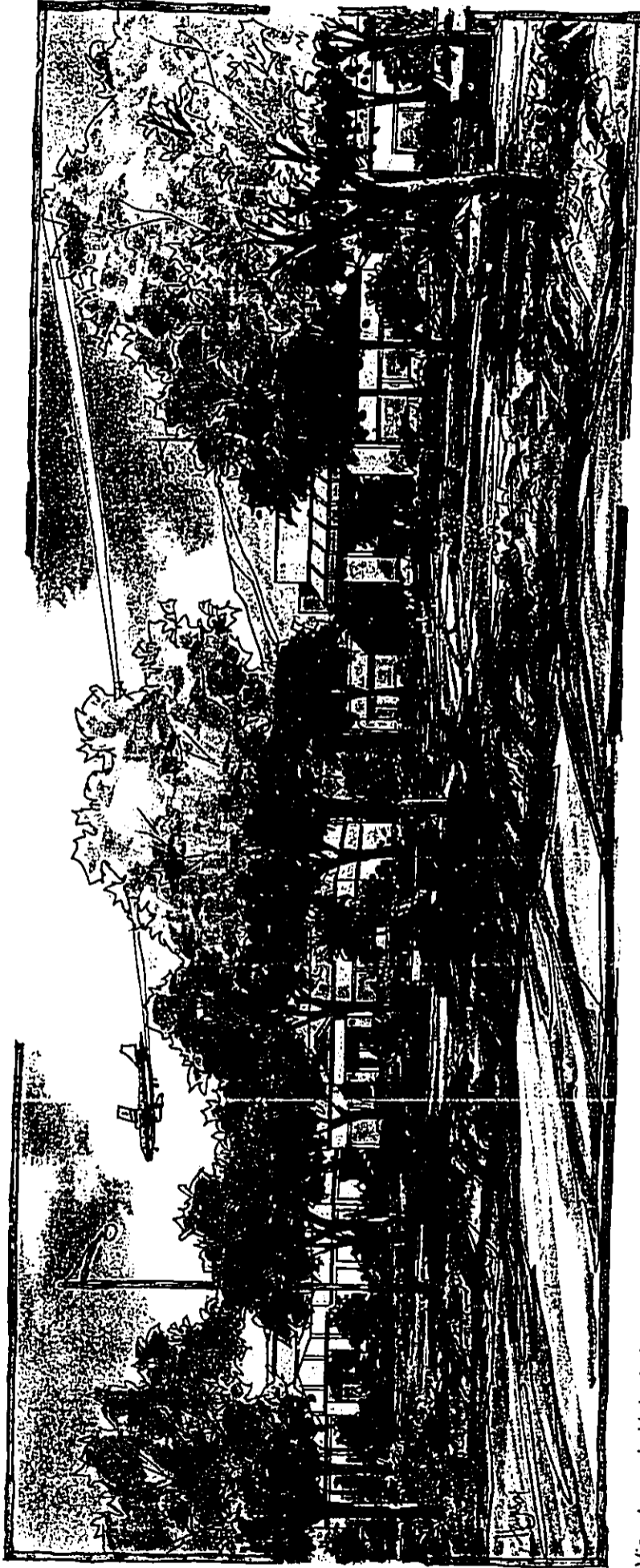
Key Map

Site Photos

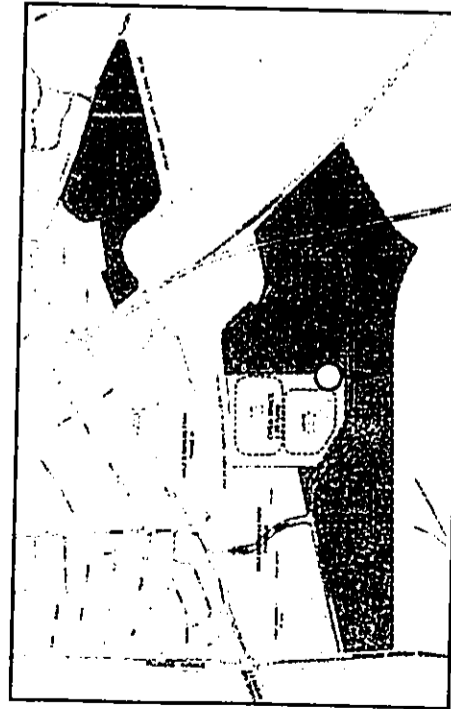
Maui Business Park Phase II



April 2004



View towards Haleakalā across the proposed Ho'okele Street Extension with the Proposed Maui Business Park Phase II.



Key Map

FIGURE 2
Site Renderings

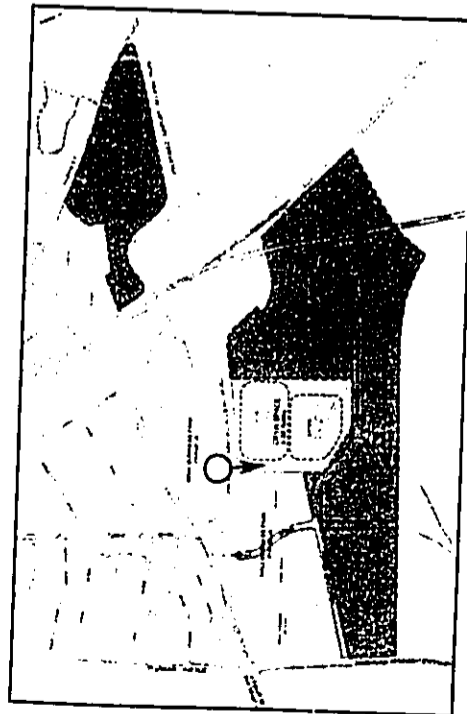
Maui Business Park Phase II



April 2004



View towards Hataekalā across retention basins near the Walmart boundary with the proposed Maui Business Park Phase II.



Key Map

FIGURE 3
Site Renderings

Maui Business Park Phase II

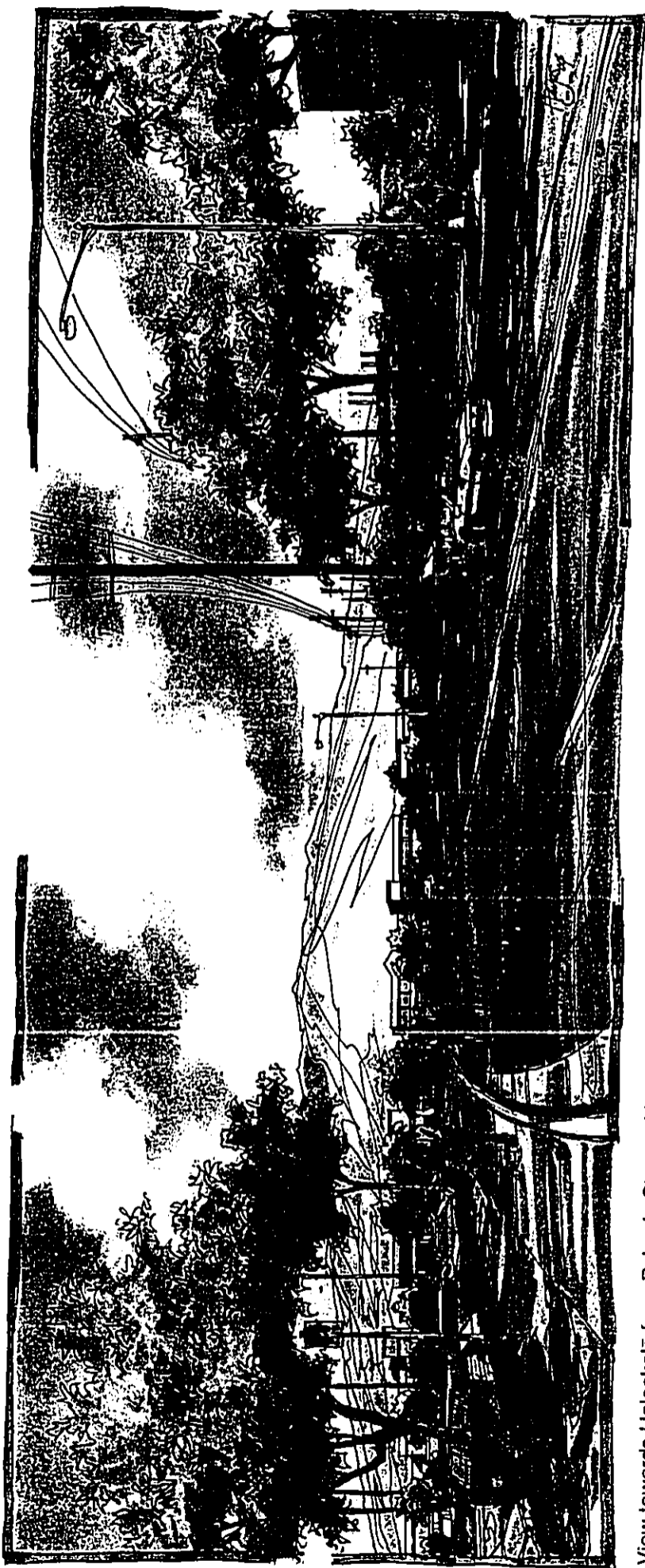


April 2004

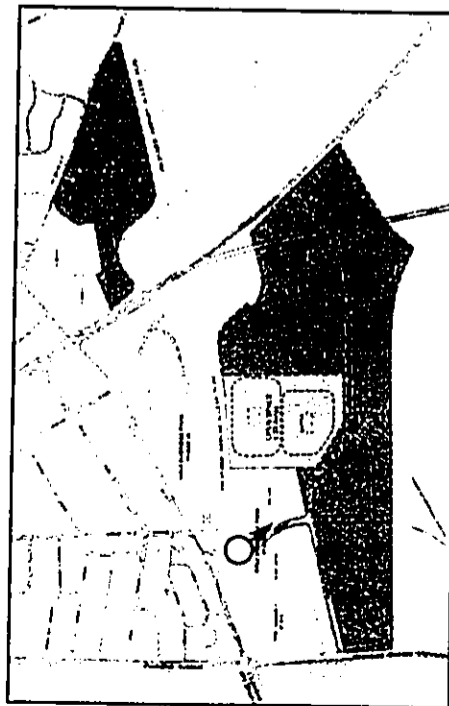
**DRAFT MAUI BUSINESS PARK,
PHASE II VISUAL ANALYSIS STUDY**

The proposed project should have little impact on views of Haleakala from most portions of Pakaula Street (because Pakaula Street is at a higher elevation than Hookele Street) and from Hana Highway (because the project is set back approximately 500 to 600 feet from the best vantage point of Haleakala and the project site). The anticipated view of Haleakala from Pakaula Street after development is shown on Figure 4.

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View towards Haleakala from Pakaula Street with the Proposed Maui Business Park Phase II.



Key Map

FIGURE 4
Site Renderings

Maui Business Park Phase II



April 2004

K MARKET STUDY



April 16, 2004

Mr. Daniel Yasui
Project Manager
A&B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

**Market Study, Economic Impact Analysis,
and Public Cost/Benefit Assessment of the
Proposed Maui Business Park, Phase II
Kahului, Maui, Hawaii**

Dear Mr. Yasui:

In response to your inquiry as to whether market movement over the past year has created an imminent need to revise our conclusions from the above-referenced report (dated April 23, 2003), the answer is no.

There have been no substantive changes in the competitive sector which would meaningfully alter our prior findings. Maui real estate and the Central Maui light industrial/commercial component have remained generally strong and the long-term outlook continues to be highly favorable for the subject project given prevailing and forecast demand trends and the limited availability of alternative supply.

We hope this brief response adequately addresses your needs at this time. Please contact us if further detail or updating is required.

Respectfully submitted,

Thomas W. Holliday

Thomas W. Holliday
Senior Marketing Analyst

TWH:sh

c: Tom Schnell, PBR Hawaii

ARBITRATION
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**Market Study, Economic Impact
Analysis, and Public Cost/Benefit
Assessment of the Proposed**

MAUI BUSINESS PARK, PHASE II

Kahului, Maui, Hawaii

10 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



April 23, 2003

Mr. Richard B. Stack, Jr.
Project Manager
A&B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Market Study, Economic Impact Analysis,
and Public Cost/Benefit Assessment of the
Proposed Maui Business Park, Phase II
Kahului, Maui, Hawaii

Dear Mr. Stack:

At your request, we have completed a series of studies addressing the probable market demand for, the economic impacts resulting from, and public costs/benefits associated with, the proposed Maui Business Park, Phase II, a 179-acre "Light Industrial" project to be located along the mauka and makai frontages of Hana Highway, one block south of its intersection with Dairy Road, within the industrial and commercial neighborhood adjacent to the airport in Kahului, Maui, Hawaii. The subject undertaking will be the final increments of a 255-acre development that is well-located within the primary business, port and transportation districts of Maui in an urbanizing area of the community. It will provide subdivided and serviced parcels to help meet the mid- to long-term real estate needs for a variety of Maui light industrial, retail, service commercial and business users.

The subject is an irregularly shaped holding comprised of two non-contiguous properties, described as the "North" and "South" project areas, which are identified on State of Hawaii tax maps as: South Project Area, Second Division Tax Map Key 3-8-06, Parcel 4 (portion) and 3-8-01, Parcel 2 (portion); and North Project Area TMK 3-8-79, Parcel 13. Both project areas are generally level to slightly sloping, and at street grade. The South component has approximately 141 gross acres and is located directly south of the Maui Marketplace (separated by a proposed airport access road right-of-way) with approximately 600 linear feet of frontage along Hana Highway and 450 feet along Puuone Avenue. The North component has about 38 gross acres, is adjacent to the existing K-Mart and Costco sites, and has frontages of 200 and 1,000 feet along Hana Highway and Haleakala Highway, respectively.

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Mr. Richard B. Stack, Jr.
April 23, 2003
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The properties are adjacent to the primary industrial and commercial areas of Maui, at the hub of the islandwide transportation system, within a desirable and competitive location for serving Maui land use requirements without further contributing to the central Kahului/Waiuku traffic burden. It is a natural urban expansion area from a market perspective.

The proposed development will contain a series of finished, subdivided building lots ranging upwards from one-half acre in the North project area and from one acre in the South project area. The project will be built in increments of up to about 70 acres each. Probable uses in the South subdivision will be specialized and destination retailing, warehousing, manufacturing, service commercial, offices and a wide variety of other businesses similar to nearby improvements. The North project is additionally well-suited for airport-related uses including base yard, cargo and flight support facilities. The subject development will contribute to the on-going evolution and growth of the primary industrial/commercial district on the island.

The focus of our assignment was fundamentally three-fold:

1. **Market Study.** To ascertain whether there will exist sufficient demand in the Central Maui "light industrial/commercial" real estate sector to successfully absorb the finished subject inventory in a timely manner given its characteristics and those of competing in-place and proposed regional development.
2. **Economic Impact Analysis.** To estimate the general and specific effects on the local economy which will result from the development of the second phase of the Maui Business Park, including construction and operating employment, wages and income, contractor/supplier profits, end-user expenditures, and other regional monetary and employment effects.
3. **Public Cost/Benefit Assessment.** To quantify the impact on the public purse arising from the subject project in regards to tax/fee revenues which will be received by the State of Hawaii and Maui County due to the project's actualization, versus the implied cost of providing needed governmental services to the development.

The pertinent results from our study are presented in the following report. The document contains brief narrative analysis, tabular presentations of our findings, supporting descriptions and background materials.

As part of our investigation program, we have inspected the subject property and its environs, researched the islandwide and Central Maui light industrial and commercial real property market sectors, interviewed knowledgeable parties, reviewed government statistics, policies and publications, accessed on-line databases, and compiled materials from published and private sources.

All conclusions presented herein are subject to the identified limiting conditions, assumptions and certifications of The Hallstrom Group, Inc., in addition to any others set forth in the text or tables. All work has been completed in conformance with the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute, and the Uniform Standards of Professional Appraisal Practice (USPAP).

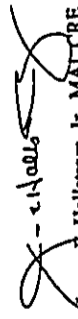


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We appreciate the opportunity to be of service in regards to this holding. Please contact us if further detail or discussion in the matter covered herein is required.

Respectfully submitted,

THE HALLSTROM GROUP, INC


James H. Hallstrom, Jr., MAI, CRE
/s/

Market Study, Economic Impact Analysis,
and Public Cost/Benefit Assessment
of the Proposed

MAUI BUSINESS PARK, PHASE II

located at
Kahului, Maui, Hawaii

prepared for
Mr. Richard B. Stack, Jr.
Project Manager
A&B Properties, Inc.

April 2003

ADMINISTRATIVE
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Introduction

The proposed Maui Business Park, Phase II, encompasses approximately 179 mauka acres at the southerly gateway of the Kahului/Wailuku urban area, is a master plan designed to incorporate a diverse spectrum of industrial, retail and mixed-use businesses into a centrally located working community. The development will serve the consistently growing urban-support needs of the island and Central Maui region during the coming decades by providing a competitive siting for a variety of new and existing uses in the area.

The holding represents an excellent opportunity for needed expansion within the existing prime industrial/commercial neighborhood that serves the Maui resident and economic community. It is well-located, fronting several major highways/arterials, is adjacent to successful light industrial and commercial developments, and is proximate to the largest concentration of consumers on the island.

The envisioned project will capitalize on a superior site having favorable access to main thoroughfares; nearby to harbor and airport facilities, other businesses and consumers; and at the entrance to the area of the island designated for industrial/commercial uses. It will contribute to the regional industrial/commercial land base, enhance the island's economy through construction and operation, and strengthen the state and county tax base.

The development will transform a prominently situated holding from sugar cane fields and feral lands, having limited, meaningful economic use apart from excess cane cultivation, into a dynamic mixed-use project meeting expressed real property market demands; producing employment, wages and tax receipts that will benefit the island's public and private financial foundation.

Maui's on-going transformation from an agrarian to urban economy has created strong demand for a variety of land uses over the past three decades, a trend anticipated to continue (albeit at a slower pace) during the next twenty years. In order to support this growth, an expanding "commercial" land base is required, including industrial, retail, business, service, office and similar uses. Market-driven development to date has been focused in historic industrial/commercial districts and near major crossroads, typically with a wide-range of use types in close

proximity. The next generation of development should result in greater definition and concentration of related use types in specific areas, reflecting the most efficient development patterns within a sustainable regional design.

The purpose of our assignment has been to analyze the proposed subject business park in light of competitive, regional, prevailing and forecast economic/market conditions in order to answer four primary study questions:

1. Is there sufficient market demand to absorb the various components of the Maui Business Park, Phase II during a reasonable exposure period given competing developments and statewide/regional economic trends?
2. From a market perspective, will the subject be an appropriate use of the underlying site relative to governmental land planning objectives, accepted master plan design characteristics, and the area environs?
3. What will be the general/specific and direct/indirect economic impacts on Maui resulting from the undertaking of the subject development through employment, wages, business operations, profits and construction/economic activity?
4. What will be the impact on the state and county "public purse" from the project in regards to costs of services required versus increased tax/fee receipts?

These issues were addressed through a comprehensive research and inquiry process utilizing data from market investigation, governmental agencies, various Hawaii-based media, industry spokespersons/sources, on-line databases, and published public and private documents.

The pertinent results of our study are highlighted in the following report, containing supporting narrative, tabular data and other materials contributing to our conclusions. The synopsis presentation is divided into seven sections:

1. Primary Study Conclusions
2. The Subject Property and Proposed Project

- 3. Overview of the Central Maui Region
- 4. The Central Maui "Light Industrial" Market Sector
- 5. Appropriateness of the Subject for the Planned Use and Absorption Estimates
- 6. Economic Impact Analysis of the Proposed Development
- 7. Assessment of the Public Costs/Benefits Associated With the Project

The primary source information regarding the subject used in our study were: maps, phasing schedules, cost estimates and project descriptions, details and planning objectives and timing guidelines provided by PBR Hawaii and A&B Properties, Inc.

The proposed Maui Business Park, Phase II site and environs were inspected on several occasions for this assignment during the fourth quarter of 2002 and the first quarter of 2003.

Primary Study Conclusions

Based on our analysis of the subject property, its environs, and envisioned development, we have reached the following conclusions regarding the probable market standing of the proposed Maui Business Park, Phase II:

- The demand for light industrial designated lands throughout Maui and in the Wailuku-Kahului study area is strong and indicative of a continuing modest sector up-cycle. This is a product of the expanding islandwide economy, recovering real estate market, population/consumer growth, emerging entrepreneurship, low interest rates, the continued evolution from agrarian to urban land uses on Maui, and the wide spectrum of allowable uses permitted on light industrial sites. Over the next two decades, we forecast there will be demand for some 290 gross acres of additional light industrial lands beyond current levels (mid-point figure).
- Beyond a few scarce, scattered lots in existing subdivisions, there is a limited supply of existing and proposed industrial land inventory, with fewer than 20 acres of available inventory.

much being of lesser desirability in older subdivisions. The limited availability is of concern given that "industrial" land is also highly valued for retail/commercial uses, particularly along major road frontages. Much of the future supply will also be heavily oriented towards retail, including the only other major project presently announced, and further development is limited by the lack of alternative sites and concentrated land ownerships. The approximately 95 total acres of available existing and proposed supply (apart from the subject) will be significantly insufficient to meet community needs.

The subject properties are perhaps the best located holdings in Central Maui available to meet industrial/commercial sector demand. They are abutting similar existing development, close by vital port facilities, at the hub of the islandwide highway system, proximate to the largest population center on Maui, and with superior frontage, access and exposure characteristics. They have the necessary characteristics to be competitive in the market and to serve as the primary southerly gateway to the Kahului/Wailuku urban core. Even with the additional product provided by the subject, the regional sector will be undersupplied by upwards of 30 acres (10 percent of demand) over the next two decades.

The proposed Maui Business Park, Phase II will embody sufficient favorable traits within an expanding market framework to achieve reasonable absorption. It will be consistent with recent successful developments in the area and coincides with evolving market trends. We forecast the project will achieve a moderate to strong market share, with full absorption of the subdivided inventory within 12 to 18 years of completion of the infrastructure.

The construction of the Maui Business Park, Phase II (subdivision and finished buildings) and operating businesses located therein will bring some \$422 million in capital investment and create some 57,494 "worker years" of direct employment on Maui, generating \$1.57 billion in total wages over the 15-year building and initial operation modeling period used in our forecast. The end-user businesses and building maintenance will create or contribute to an additional 7,801 permanent jobs in the regional economy and \$202.9 million in annual wages on a stabilized basis. The businesses and

employees will, in turn, infuse more than \$1 billion per year in expenditures into Maui businesses and suppliers.

- The State of Hawaii will receive nearly \$391 million in taxes and fees from the project during the 15-year development and sell-out model used in our analysis, with an additional \$51.6 million annually in receipts thereafter. The County of Maui will get some \$33.9 million in taxes during the construction time-frame, and \$3.8 million per year following. In no year during the projection or stabilized operating period does either the state or county suffer a revenue shortfall (costs exceeding receipts) due to the project.

The Subject Property and Proposed Project

The Subject Property

The purpose of this section is to assist in the assessment of the desirability of the subject holding and proposed development from a market perspective; as it will effect the potential competitiveness, acceptance and long-term success of the project in the community.

PBR Hawaii describes the holding and its proposed development as follows:

Maui Business Park Phase II -- a continuation of A&B Properties, Inc.'s existing Maui Business Park Phase I in Kahului--will provide light industrial space in Maui's central commercial and business district in close proximity to the Kahului Airport and Kahului Harbor.

The Maui Business Park Phase II site is comprised of two noncontiguous properties totaling approximately 179 acres (the "Project").

The South Project Area is approximately 141 acres and is identified by Tax Map Key 3-8-06:4 (portion), and Tax Map Key Number 3-8-01:2 (portion). This property is bound to the west by Puunene Avenue; to the north by Maui Business Park Phase IB, a large retention basin area, and the State-owned right-of-way for the proposed Kahului Airport Access Road; to the northeast by Hana Highway; and to the southeast and the south by cane fields.

The North Project Area is approximately 38 acres and is identified by Tax Map Key Number 3-8-79:13. This property is bound to the west by Hana Highway; to the northwest by the parcels owned by K-Mart and Costco,

to the north by Haleakala Highway, and to the southeast and southwest by the State-owned right-of-way for the proposed Kahului Airport Access Road.

The primary access to the South Project Area will be via Hookele Street, which currently runs between Puunene Avenue and Pakaula Street and will be extended to Hana Highway. Primary access to the North Project Area will be via Haleakala Highway.

Currently, the South and North Project Areas are predominantly sugarcane fields or fallow fields. The topography gently slopes to the north, but is generally level. Elevations from range from 15 to 50 feet above sea level.

Land uses within Maui Business Park Phase II will be consistent with the M-1 Light Industrial district (Chapter 19.24 Maui County Code) and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses. Both project areas will contain a variety of lot sizes to serve the needs of various types of businesses allowed within in the Light Industrial District.

Maui Business Park Phase II will be developed in increments not greater than 70 acres. Onsite and offsite infrastructure improvements are expected to be constructed starting in 2005. The expected absorption and construction of commercial and industrial buildings is expected to take place over the next 12 to 18 years.

For purposes of our analysis, we have prepared a supplementary description focusing on market/economic issues and perspectives, as presented in the following paragraphs.

The proposed Maui Business Park, Phase II, site is comprised of two non-contiguous, irregularly-shaped parcels totaling approximately 179 gross acres located along Hana Highway, adjacent to the existing Kahului industrial/commercial area, just inland from the airport, at the southwesterly gateway to Kahului town.

The "South Project Area" is the larger of the two properties, containing 141 acres, and stretches some 2,700 feet from Hana Highway to Puunene Avenue, "behind" (south of) the Home Depot and Wal-Mart projects; across the proposed airport access roadway from the Maui Marketplace. The width of the holding varies from circa 400 to 1,100

feet, with approximately 600 lineal feet of frontage on the mauka side of Hana Highway and 400 feet along the makai side of Puunene Avenue. This portion of the subject property, identified on State of Hawaii Tax maps as Second Division, Tax Map Key 3-8-6, Parcel 4 (portion) and 3-8-01, Parcel 2 (portion), is generally at street grade, varying in elevation from about 25 to 50 feet above sea level, with a slight east to west slope.

The "North Project Area" contains 38 acres, extends about 1,000 feet (on average) between the makai frontage of Hana Highway and the mauka side of Haleakala Highway, adjacent to the K-Mart and Costco projects, along the proposed airport access roadway where it will extend makai of Hana Highway. The width of the site varies from 150 to 600 feet, and it has about 150 feet of frontage on Hana Highway with about 1,000 feet along both Haleakala Highway and the proposed airport access road. This portion of the subject property is generally level, at street grade, with elevations of about 15 to 25 feet above sea level, and is identified on tax maps as Second Division, 3-8-79, Parcel 13.

Superior access and frontage/exposure are available to both of the subject parcels along several major existing and proposed thoroughfares; at the very hub of the islandwide highway system. At completion of the airport access roadway (an extension of Kuiehiani Highway bypassing Dairy Road), the subject properties will have frontage on all of the major arterials extending out from central Kahului to the rest of Maui; including Hana Highway, Puunene Avenue, Haleakala Highway, and Kuiehiani Highway/Airport Access Roadway.⁽¹⁾ This places the holding in a highly superior location in regards to intercept, destination, recognition, traffic count, servicing and other economic factors.

The primary industrial/commercial neighborhood for Maui (the "Kahului Industrial Area") stretches north from the subject site, a series of industrial subdivisions comprising some 197 acres. The area has been the focal point for major commercial development on the island over the past decade, with several million square feet of competitive-quality floor space added to the inventory, much in "power center" retailers that has resulted in the emergence of the neighborhood as a super-regional shopping destination.

(1) There will be no direct access from the subject project areas onto the proposed airport access road. The lots will have frontage/exposure only.

This is a reasonable outcome given the growing resident population in Waiuku/Kahului, the proximity to the harbor and airport shipping facilities, the convergence of the highway system, the number of daily wage earners in the area, the scarcity of competitive sites elsewhere on Maui, and its central location. The cumulative attraction (or "critical mass") that has emerged for destination/specialty retailing, service and light industrial businesses, drawing patrons from islandwide, makes the location more desirable for similar future development.

Lands south of the subject properties are used for cane cultivation and agricultural support, or are feral/undeveloped. The subject holdings comprise the current southwesterly gateway into the Waiuku/Kahului urban core.

Panoramas from the property are of the upper slopes of Haleakala and the West Maui Mountains. The generally level terrain limits makai view potentials.

The Proposed Project

Maui Business Park, Phase II, will consist of the subdivision of the two subject project areas into a series of fully-serviced, build-ready lots ranging upwards in size from about one-half acre. The master plan allows for the lots to be configured according to evolving market demand, with the ability to efficiently combine several to create a competitive sized site suitable for a specific user's purpose.

The project will be consistent in quality, orientation and use as found at the newer abutting A&B Properties developments (such as Maui Business Park, Phase D), with wide streets, curbs, storm drains, street lighting, and comprehensive underground utility systems. Landscaping will be used to "soften" the visual impact of the buildings, which must adhere to established project design standards, and efforts will be made to maintain view corridors.

The South Project Area, containing 141 gross acres, will be developed in two increments of about 70 acres each. The minimum lot size will be approximately one-half acre, with most ranging up to one acre.

The finished lots will be primarily accessed via an extended Hookele Street, which will stretch between signalized intersections on Hana Highway and Puunene Avenue, and serve the secondary purpose of relieving congestion on Dairy Road. Most of the lots will have frontages on Hookele Street and/or Hana Highway, Puunene Avenue,

or the future airport access roadway, although direct access to some of the arterials will be limited or unavailable.

Probable purchasers/users in this portion of the Park include:

- Destination and specialized retailing attracting patrons from Central Maui and throughout the island. These would include large volume outlets, specialty stores (such as electronics, furniture, lighting, books), and major or other regional-type users.
- Secondary retailers drawn by the level of proximate economic activities, such as food providers, automobile services, franchise operations, and similar type businesses.
- Light industrial users seeking proximity to the ports, highway system, the Central Maui population, and existing businesses. These would include warehousing and distribution; assembly, packaging and light manufacturing; food processing and supply services; base yards; wholesale and contractor materials; automotive-oriented shops; showrooms; and a wide range of other uses.
- Business/office users attracted by the central location, easy access, scarcity of alternative sites, and proximity to government agencies/facilities and other businesses. Typical tenants will include service businesses (travel, insurance, realty, financial); medical/dental providers; offices for contractors, suppliers, tourist-related and other non-retail concerns; government and private service agencies; and, engineering, research and "emerging" businesses.

The North Project Area, containing 38 gross acres, is planned for a single phase development into subdivided lots ranging from one to two acres in size. Primary access will be via two intersections along Haleakala Highway leading into the bulk of the property. A third accessway, a "right in, right out" only egress, will be provided from Hana Highway into the narrow neck of the holding. Several of the lots will have frontage on the highways.

To some degree, the probable users in this area of the park will be similar to the mauka lots; but, the foundational retail potentials are not quite as strong as at the South Project Area. However, given the

proximity to the airport and ease of access to this vital facility, additional likely tenants include:

- Car rental base yards and offices.
- Tour company base yards and hub.
- Airline service providers (flight kitchen, cleaning/maintenance, storage).
- Freight and package shipping and forwarding.
- Cargo storage and processing.

The site would also be a superior location for establishing a free-trade zone.

In recognition of the limited expertise many small business owners (the most probable lot purchasers) have in the construction field, the developer has preliminarily considered methods to aid the buyers in forming design and construction teams.

From a market perspective, the site is well-suited for the proposed Maui Business Park Phase II project and represents a natural expansion of the existing uses in the neighborhood. The master plan will provide competitive, quality inventory. By developing the two project areas simultaneously, a needed diversity of product types and characteristics will be available for meeting the mid- to long-term demands of the industrial and commercial economic sectors.

Overview of the Central Maui Region

The primary study area is commonly referred to as Central Maui, the central feature of which are the abutting communities of Wailuku and Kahului, which contain the civic, business and transportation centers for the entire island. The region stretches from the open northerly coastline to the central valley agricultural lands, basically comprising the easterly and southerly (windward) flanks of the West Maui Mountains. It is identified within the County general plan as the Wailuku/Kahului Community Plan area.

Prior to the advent of tourism development, Central Maui was home to upwards of 90 percent of all non-agricultural economic and

development activity on Maui. The sea port and airport were the vital links with the outside world through which all imports and exports passed, the major highways for the island spoked outward from the central hub, the County government and major private companies were located in the area, and it housed the greatest concentration of residents.

Businesses thrive in close proximity to one another and to major transportation infrastructure, and the central location allows a business to service virtually the entire island. While the growth of West Maui, Kihei and Upcountry have served to disperse some of the population and industrial/commercial focus away from Central Maui during the past three decades, it will continue to dominate the local economy into the foreseeable future.

According to state and county data sources, there are at present some 43,500 residents in the Waihuku/Kahului area, up more than 30 percent from the 1990 census figure of 32,816, and representing about 35 percent of the island total. Estimates prepared for the county project a resident population of 55,424 by 2020, an increase of 27 percent from current levels, and a stable proportion of island totals.

Central Maui supported an estimated 34,500 jobs as of year-end 2002, about 44 percent of the island total, and 30 percent above the 1990 level of 24,195 positions. Economic expansion to 47,506 jobs by 2020 is forecast, a 38 percent gain.

The long-entrenched nature of the business community coupled with the anticipated levels of population and economic expansion in Central Maui provides a favorable foundation for the proposed subject development from a general market perspective.

The Central Maui Light Industrial Market

The success of the Maui Business Park, Phase II will be dependant upon the demand and supply characteristics of the industrial real estate sector of Central Maui, the effective market region. The project will follow in historic trends for such developments having a mix of light industrial, retail and business uses serving the regional and islandwide

communities, as permitted under the land use designations being pursued.

The subject project will be in competition with other similarly-zoned or comparably developable sites in Waihuku/Kahului for buyers of subdivided light industrial lots, finished improvements and tenants. The goal of our study is to quantify the probable level of demand in the effective sector during the next two decades (through 2020) and compare it with the level of proposed supply in order to determine if there is a reasonable "need" for the subject development in the near to mid-term.

Demand is a function of both long and short term perspectives; the former using consumer and business requirements as a basis for determining light industrial real property needs, the latter based on absorption levels currently being achieved in study area subdivisions and prospects for further business expansion over the next several years.

The level of "in-place" existing and proposed/announced industrial acreage was analyzed with regard to the availability of vacant lots and floor space, timing of planned inventory, purchaser and use trends, and competitiveness.

Central Maui has been the focal point of industrial and commercial development on the island for more than a century, a result of proximity to sea and air ports, being the hub of the county highway system, and having the largest resident population base. While several new and proposed light industrial projects in outlying communities (Kihei, Lahaina and Pukalani) will lead to some dispersal of the inventory, the study area will continue to be the dominant industrial area for Maui into the foreseeable future. Thus, appropriate forecasting of future demand for light industrial land uses in Central Maui requires an islandwide analysis of demand, development and capture rates.

Further complicating the analysis is that a variety of non-industrial use types regularly employ "light industrial"-zoned sites. Retail, restaurants, offices and other commercial businesses utilize upwards of one-third of the existing industrial land base and currently comprise about half the of total sector demand; a trend which is anticipated to continue. The broad-spectrum of allowable uses on light industrial classified properties makes the designation favored by developers and

purchasers. Many industrial-designated parcels have also been absorbed by specific or atypical users (such as port-related), in support of agricultural production, have non-market restrictions (Maui Technology Park), or have been converted to other uses (as at Iao Parkside).

In order to generate accurate estimates of future land use needs it was necessary to broaden the investigation beyond standard light industrial demand projections, and adopt an islandwide model incorporating all of the demand typical for this designation and the various potentials for competitive supply. While the primary study area remains Central Maui, our investigation and analysis extended throughout the island. The indicators were then applied to the primary region.

The market analysis is a four-step process:

- The light industrial land use needs for Central Maui through 2020 are projected given population and economic growth and emerging land use trends;
- The existing and proposed supply of light industrial lands available to meet the quantified demand levels are identified and analyzed;
- The demand and supply conclusions are compared; and,
- The current market status of the sector and in-sale projects are reviewed to identify near-term absorption, use, demographic and other factors.

To the extent long-term forecast supply exceeds projected demand, and near-term market trends are favorable, there is support for additional light industrial land in Central Maui. The competitiveness of the subject and its ability to capture a reasonable share of market demand, are addressed in a subsequent section. We have also analyzed the level of industrial/commercial space which will be associated with the 2002 projections made by SMS for the County of Maui as part of the ongoing Community Plan update process.

At present, Central Maui has approximately 506 acres and 4.98 million square feet of light industrial and retail/commercial floor space, equating to about 80 percent of the islandwide total. Significant regional population and economic growth is expected over the next

two decades, existing finished space inventory has high occupancy, and absorption and price levels are strong at the newer projects. These foundationally positive factors comprise the general context of our analysis.

Quantification of Demand

Fundamentally, demand for industrial and commercial development is a direct function of consumer demand for the finished product or service. As population levels increase, the need for additional services is proportionately created. We have therefore quantified the level of projected spatial needs for the study region using a per capita spatial demand trends analysis.

By ascertaining appropriate "per square foot of industrial and commercial development per person" allowances, and applying this ratio against forecast Maui population levels, the islandwide demand for additional resident-oriented industrial/business and retail/service commercial uses can be projected. Based on dispersal and regional capture rates, the resulting Central Maui demand for industrial and commercial space over time can be estimated.

Consumer Population Levels -- Demand for Central Maui industrial and commercial space is fundamentally a function of local commercial residents and their consumer needs.

The resident population of Maui through 2020 has been projected by SMS for the community plan update program as follows:

Year	Estimated Population	Average Annual Growth
2003 *	123,000	
2005	127,950	1.91%
2010	138,665	1.55%
2015	149,477	1.45%
2020	160,090	1.33%

* Extrapolated figure.

We have tested population growth scenarios bracketing these forecasts.

Per Capita Spatial Demand Trends -- The best indicators of appropriate industrial and commercial demand requirements for an urban island economy can best be drawn from the experience of Oahu, which

though historically under-supplied, provides useful insight into the probable growth trends of the neighbor islands. The total estimated developed industrial space on the island was 34,810,000 square feet at year-end 2002, this equates to a per resident ratio of 39.30 square feet as of the end of last year, as shown on Table 1.

This compares with nationwide estimates by the Urban Land Institute and others which indicate a range of 25 to 40-plus square feet per person is appropriate for an urban economy. The overall national range represents the lower end of the spectrum for Hawaii. Unlike the mainland, when shared service between communities is possible for some businesses, in the islands a more comprehensive range is required, and hence, more space.

A summary of Oahu retail/service space per capita development is shown on Table 2. At year-end 2002, there was 17,820,000 square feet of finished competitive floor space, equating to 20.12 square feet per resident of the island. This is at the middle to upper end of the standard range of 15 to 22 square feet per person for a modern market of over 100,000 people.

A summary of estimated light industrial and retail/service commercial development and per capita rates for selected neighbor island locales is shown on Table 3. The industrial per capita figures range from 16.64 square feet per person in the undersupplied Lahaina market to 41.01 square feet in the oversupplied Hilo sector, bracketing the Oahu indicator. All of the communities have higher per capita retail/service development levels than Oahu ranging from 20.39 to 32.55 per square foot per capita. The combined light industrial and retail/service commercial development ranges from 46.26 square feet per capita on Kauai to 66.56 square feet in Kona, with Oahu at 59.42 square feet per resident.

At present, Maui has approximately 6,396,000 square feet of conforming, market-based, light industrial and retail/service commercial floor space, or about 52.0 square feet per resident. This is moderately below standard market levels for a freestanding economic community of this size, and reflects the historic concentration of businesses and services in a single region (Wailuku/Kahului). A gradual move upwards to 60-plus square feet per person is likely.

We have concluded an appropriate full-service objective in per capita light industrial and retail/service commercial finished spatial

TABLE 1

**SUMMARY OF INDUSTRIAL SPACE DEVELOPMENT
ON OAHU 1977 TO 2002**
Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment
of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii

Year	Industrial Floor Space Area (Leasable Sq. Ft.)	Resident Population of Island	Ratio of Industrial Space Per Person (Sq. Ft.)
1977	22,819,000	737,000	30.96
1978	23,412,000	747,600	31.53
1979	23,976,000	756,000	31.71
1980	24,780,000	764,600	32.41
1981	25,645,000	767,573	33.41
1982	---	776,075	---
1983	---	789,097	---
1984	---	797,791	---
1985	28,929,999	804,294	35.97
1986	28,159,000	810,444	34.75
1987	28,644,000	818,447	35.00
1988	29,714,000	824,072	36.06
1989	30,582,000	831,337	36.79
1990	31,261,000	838,107	37.30
1991	32,444,000	846,568	38.32
1992	33,280,000	858,543	38.76
1993	33,600,000	864,366	38.87
1994	33,820,000	871,362	38.81
1995	33,960,000	873,027	38.90
1996	34,120,000	873,131	39.08
1997	34,270,000	874,449	39.19
1998	34,400,000	872,478	39.43
1999	34,580,000	874,321	39.55
2000	34,675,000	876,156	39.58
2001	34,730,000	881,295	39.41
2002	34,810,000	885,700	39.30

Compounded Annual Growth Rate for 1977 through 2002	1.74%	0.74%	0.97%
Average Annual Addition for 1977 through 2002	479,640	5,948	0.33

Note: Complete data not available for all study years.

Source: DBEDT, CB Commercial, Hawaii Real Estate, and The Hallstrom Group, Inc.

TABLE 2

SUMMARY OF RETAIL, SHOPPING CENTER AND SERVICE SPACE ON OAHU 1977 TO 2002
Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii

Year	Retail, Restaurant and Center (1)	Service (2)	Total	Resident Population of Island	Ratio of Gross Retail/Service Spaces Per Person (Sq. Ft.)
1977	7,422,000	2,911,000	10,333,000	737,000	14.02
1978	7,492,000	2,944,000	10,436,000	742,600	14.05
1979	7,806,000	3,002,000	10,808,000	756,000	14.30
1980	7,953,000	3,021,000	10,974,000	764,600	14.35
1981	8,537,000	3,052,000	11,589,000	767,573	15.10
1982	--	--	--	776,075	--
1983	--	--	--	789,097	--
1984	--	--	--	797,791	--
1985	9,014,000	3,242,000	12,256,000	804,294	15.24
1986	9,180,000	3,308,000	12,488,000	810,444	15.41
1987	9,280,000	3,384,000	12,664,000	818,447	15.47
1988	9,460,000	3,488,000	12,948,000	824,072	15.71
1989	9,612,000	3,621,000	13,233,000	831,337	15.92
1990	9,850,500	3,720,000	13,570,500	838,107	16.19
1991	10,000,000	3,800,000	13,800,000	846,568	16.30
1992	10,206,000	3,830,000	14,036,000	858,543	16.35
1993	11,636,000	3,950,000	15,586,000	864,366	18.03
1994	11,975,000	4,080,000	16,055,000	871,362	18.43
1995	12,198,600	4,120,000	16,318,600	873,027	18.69
1996	12,267,600	4,167,500	16,435,100	873,131	18.82
1997	12,470,000	4,200,000	16,670,000	874,449	19.06
1998	12,769,000	4,243,000	17,012,000	874,321	19.50
1999	13,140,000	4,295,000	17,435,000	874,321	19.94
2000	13,280,000	4,325,000	17,605,000	876,156	20.09
2001	13,372,000	4,348,000	17,720,000	881,295	20.11
2002	13,445,000	4,375,000	17,820,000	885,700	20.12
Compounded Annual Growth Rate for 1977 through 2002			2.20%	0.74%	1.46%
Average Annual Addition for 1977 through 2002			299,480	5,948	0.24

Note: Complete data not available for all study years.
(1) Includes all significant neighborhood, strip, specialty, community, regional and super-regional malls and centers. Excludes hotels.
(2) Includes all significant business and health services. Excludes hotels.

Source: DBEDT, CB Commercial, Hawaii Real Estate, and The Hallstrom Group, Inc.

TABLE 3

ESTIMATED FINISHED LIGHT INDUSTRIAL AND RETAIL/SERVICE COMMERCIAL FLOOR SPACE IN SELECTED NEIGHBOR ISLAND LOCATIONS
Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii
As of Year-End 2002

Region	Big Island		Maui		Kauai
	Kona	Hilo	Lahaina	Kihei	
Estimated Resident Population	59,012	48,298	18,200	25,200	59,950
Light Industrial Development					
Gross Leaseable Sq. Ft. of Industrial Space (1)	2,250,000	1,980,690	302,800	534,600	1,475,000
Sq. Ft. Per Capita Ratio	38.13	41.01	16.64	21.21	24.60
Market Status	Stable	Oversupplied	Strongly Undersupplied	Undersupplied	Stable to Undersupplied
Retail/Service Commercial Development					
Gross Leaseable Sq. Ft. of Commercial Space (1)	1,678,000	984,800	592,500	749,300	1,298,300
Sq. Ft. Per Capita Ratio	28.43	20.39	32.55	29.73	21.66
Market Status	Mildly Oversupplied	Stable	Stable	Mildly Oversupplied	Stable
Combined Development					
Gross Leaseable Sq. Ft. of Industrial/Commercial Space (1)	3,928,000	2,965,490	895,300	1,283,900	2,773,300
Sq. Ft. Per Capita Ratio	66.56	61.40	49.19	50.95	46.26

Source: Hawaii Business and The Hallstrom Group, Inc.

allowance for Maui would be circa 59 to 64 per square foot per person in the resident population. Based on the market data, we anticipate spatial demand to increase from the current level (52.0 square feet) to the stabilized supply level at a rate of 0.75 percent ("conservative" growth) to 1.23 percent ("optimistic" growth) compounded annually during the 18-year projection period from 2003 through 2020.

Regional Demand Factors -- Historically the Wailuku/Kahului region has "captured" a significant portion of industrial and commercial demand generated throughout Maui. While development has become more dispersed in recent years, with major additions having been developed and/or proposed in Kihui, Lahaina and Pukalani, the "big box" projects (which serve the entire island) that have been built in the airport/Kahului area over the past decade have insured the dominance of the study area in the islandwide market.

Currently, the study area captures about 80 percent of demand (down from about 85 percent in the 1980s), with 5.17 million of the 6.39 million square feet of conforming industrial and commercial floor space on the island. We anticipate the proportion will remain stable to slightly decreasing over the projection period.

Application of the Model -- By multiplying the population forecasts by the per capita spatial trends, we can estimate the probable demand for finished industrial and commercial space in Central Maui. This figure can be translated into underlying acreage requirements through use of an appropriate Floor Area Ratio (FAR).

We have tested three demand scenarios using the following assumptions:

Growth Scenario	Per Capita Space in 2020 (Sq. Ft./Person)		Combined Annual Growth Rate from Present	
	Conservative	Optimistic	Conservative	Optimistic
	59.0	64.0	1.75%	2.93%
	61.0	64.0	2.31%	2.93%

The application of the formula for the three scenarios is displayed on Table 4. The results from the analysis are correlated on Table 5. The indicated mid-point demand conclusion for additional floor space and

TABLE 4
QUANTIFICATION OF INDUSTRIAL/COMMERCIAL FLOORSPACE DEMAND
IN THE PRIMARY STUDY AREA FROM 2003 TO 2020
Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment
of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii

Scenario One: Conservative Population Estimates and Growth Rate						
Year	Resident Population		Per Capita Demand in Square Feet	Total Resident Demand in Square Feet	Regional Capture Rate (%)	Net Regional Demand in Square Feet
	Annual Growth Rate	Forecast Total				
	2003					
2005	1.38%	124,500	53.00	6,704,500	79.5%	5,330,078
2010	1.26%	135,000	55.00	7,425,000	79.0%	5,865,750
2015	1.18%	143,500	57.00	8,179,500	78.5%	6,420,908
2020	1.12%	152,000	59.00	8,968,000	78.0%	6,995,040

Scenario Two: SMS/Moderate Population Estimates & Growth Rate						
Year	Resident Population		Per Capita Demand in Square Feet	Total Resident Demand in Square Feet	Regional Capture Rate (%)	Net Regional Demand in Square Feet
	Annual Growth Rate	Forecast Total				
	2003					
2005	1.93%	127,950	53.50	6,845,325	79.8%	5,459,147
2010	1.55%	138,665	56.00	7,765,240	79.5%	6,173,366
2015	1.45%	149,477	58.50	8,744,405	79.3%	6,929,941
2020	1.33%	160,090	61.00	9,765,490	79.0%	7,714,737

Scenario Three: Optimistic Population Growth & Growth Rate						
Year	Resident Population		Per Capita Demand in Square Feet	Total Resident Demand in Square Feet	Regional Capture Rate (%)	Net Regional Demand in Square Feet
	Annual Growth Rate	Forecast Total				
	2003					
2005	2.14%	128,500	54.00	6,939,000	80.0%	5,551,200
2010	1.90%	142,000	57.00	8,094,000	80.0%	6,475,200
2015	1.74%	155,500	60.00	9,330,000	80.0%	7,464,000
2020	1.49%	168,000	64.00	10,752,000	80.0%	8,601,600

Source: The Hillstrom Group, Inc.

TABLE 6

CURRENTLY IN-SALE MAUI LIGHT INDUSTRIAL PROJECTS
 Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment
 of the Proposed Maui Business Park Phase II
 Kahului, Maui, Hawaii

PROJECT:	Maui Business Park		Lahaina Business Park	Kihei Business Park
	Phase 1A Maui Marketplace	Phase 1B		
	Commercial Properties of Maui			
Broker			Commercial Properties of Maui	Beppu Realty
Tax Map Key	(2) 3-8-80	(2) 3-8-84	(2) 4-5-10	(2) 3-9-51
Total Lots	33	12	27	47
Lots Available	6	6	5	6
Lot Size Range	16,525 to 37,197 Square Feet	18,557 to 43,869 Square Feet	17,178 to 34,926 Square Feet	10,001 to 36,346 Square Feet
Price Range Per Lot (Since January 1, 2002)	\$400,000 to \$626,802 (six sales)	\$501,039 to \$505,737 (two sales)	\$775,000 (one sale)	\$260,000 to \$335,000 (three sales)
Price Per Square Foot	\$20.78 to \$25.00	\$27.00 to \$27.71	\$22.36	\$24.10 to \$27.41
Buyer Type	100% End Users No Investors	100% End Users No Investors	95% End Users One Investor - Lot is still vacant and on market again.	90% End Users One Investor - Brought in Goodyear as a tenant.
User Type	50% Commercial 50% Light Industrial	50% Commercial 50% Light Industrial	50% Commercial 50% Light Industrial	50% Commercial 50% Light Industrial

The Hallstrom Group, Inc.

Maui Business Park Phase II

gross land area necessary to meet market needs are shown at the bottom of the table. The existing competitive industrial and commercial floor space and site acreage is taken from tax map, assessor and project data sources.

Based on our study, we estimate the total increase in demand for finished industrial space in Central Maui between the report date and the year 2020 will be some 2.79 million square feet.⁽⁷⁾ This equates to a demand for industrial and commercial lands of approximately 290 gross acres during the study period with an overall probable range of 211 to 376 acres.

Our conclusions correspond well with the indicators that can be drawn from the SMS forecasts of employment levels for the Wailuku/Kahului community plan area as part of the ongoing update process. SMS projects the civilian job count in the study area will increase by about 12,500 between 2003 and 2020. Using standard industrial/commercial job creation, floor space per worker, and floor area allowance ratios, the amount of gross site area needed to service the real property needs of the new workers will be some 310 acres, at the middle of our projected range and just above the mid-point conclusions.

The calculations providing this conclusion are shown on Table 6.

Identification of Supply

Based on investigation and compilation of tax map and assessment data, interviews with developers and brokers, review of public and private publications, and other sources, we have identified the existing and proposed supply of lands available to meet the future real property needs of the Central Maui business community.

There are currently six major existing fully absorbed light industrial developments/areas on Maui, five of which are "general" market developments. An overview of the gross acreage in the projects and their use mix are summarized on Table 7.

These developments are virtually built-out, with just a few remaining vacant lots in competitive locations. While there are some redevelopment opportunities in the older subdivisions, the existing subdivisions do not have the capacity to provide meaningful additional supply.

(7) Includes 2,653,659 square feet between 2003 and 2020, and 136,800 square feet of latent demand at year-end 2002.

TABLE 7

SUMMARY OF MAJOR LIGHT INDUSTRIAL DEVELOPMENTS ON MAUI
Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment
of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii

Project Name	Location	Project Area In Acres	Primary Tenants
<i>Existing (Absorbed)</i>			
Kahului Industrial Area	Near Airport/Pond	197	Light Industrial & Mixed-Use (I)
Wailuku Industrial Park	Central Wailuku	55	Light Industrial & Mixed-Commercial
Millyard Business Park	Central Wailuku	30	Business & Light Industrial
Kihel Commercial Center	Mauka Kihel	15	Mixed-Commercial & Light Industrial
Maui Research & Technology Park	Mauka Kihel	330	High Technology & Business
Wili Ko Industrial Subdivision	Central Lahaina	37	Mixed-Commercial & Light Industrial
<i>Existing (In-Site)</i>			
Maui Business Park Phase IB	Mauka Kahului	32	Retail, Business & Light Industrial
Maui Business Park Phase IA (Maui Marketplace)	Mauka Kahului	46	Retail, Business & Light Industrial
Lahaina Business Park (Phase I)	North Lahaina	16	Mixed-Commercial & Light Industrial
Kihel Business Park	Central Kihel	18	Mixed-Commercial & Light Industrial
<i>Proposed</i>			
Maui Business Park (Phase II)	Mauka Kahului	179	Retail, Business & Light Industrial
Maui Lani Business Park	Mauka Wailuku	57	Business, Limited Commercial & L I
Lahaina Business Park (Phases II & III)	North Lahaina	25	Mixed-Commercial & Light Industrial
Upcountry Town Center	Fukalani	17	Business & Light Industrial

(1) Includes Dairy Road Industrial Subdivision, Hana Highway Industrial Subdivision, Maui Industrial Park Phases I, II and III, and the Airport Triangle.

Source: Maui Economic Development Board, Project Sponsors, Hawaii Information Service, and The Hallstrom Group, I

Cumulatively, the three projects which comprise the historic Central Maui light industrial sector, contain some 282 gross acres of land. Industrial-type and business uses comprise about 60 percent of the inventory, with the remaining 40 percent oriented towards retail and service commercial uses; but recent absorption has been more heavily weighted towards the commercial side.

There are an additional 224 acres of commercial and secondary industrial lands in Wailuku/Kahului (not shown on the table), much in retail/service use in Wailuku or in scattered pockets throughout the region.

However, portions of this inventory are also lacking competitiveness due to the age of the improvements and parking/access difficulties; particularly in the interior Wailuku business neighborhoods.

We estimate there are about 506 acres of land area and 5.12 million square feet of improvement floor space among light industrial and commercial properties comprising the market sector in which the proposed subject project would compete.

As shown at the center of the table, there are four projects currently offering lots in new light industrial projects on Maui, two in the primary study area. The Central Maui developments, although having large vacant areas, have only eight gross acres of sites left for sale, the other lots having been successfully absorbed, predominately by end-user purchasers who plan near-term construction of improvements. Both have strong commercial components comprising about half of the user demand.

There are 284 acres of additional light industrial projects that have been proposed or announced for Maui in recent years, including the subject, with 242 acres planned for Central Maui. The developments are identified at the bottom of the table.

The projects demonstrate the wholesale integration of the industrial, retail/service and business uses on Maui from a land use perspective. Although all have a "light industrial" type zoning, all anticipate extensive commercial uses. This is particularly true in the retail sector, as both the proposed Maui Lani Industrial Park and the second phase of the Maui Business Park anticipate having major commercial components.

Apart from spot re-classification efforts and two sites within the Maui Lani project, there are not a great deal of new commercial sites being considered at this time in Central Maui, estimated at 20 total acres, although several redevelopment projects are being considered. The superior flexibility of the light industrial zoning classifications, allowing a full range of industrial and commercial uses, means few major developments will pursue a commercial-oriented classification.

Comparison of Demand and Supply Indicators

The light industrial real property sector of the Central Maui market is in a currently healthy and generally stable position, with latent demand at about 18 acres, and available supply at similar levels, resulting in a relative near-term balance. However, the expansion of the island's population and economic base, coupled with a strengthening real estate market, will create significant additional demand which will far outstrip the limited available supply.

Over the next 18 years (2003 through 2020), the market will need to provide some 290 acres of subdivided building sites and 2.79 million square feet of finished floor space in Central Maui, mid-point estimate, to meet reasonable market needs. Average annual demand will range from 11.0 to 23.4 acres during the projection period. A healthy sector would provide another three to five percent of product above median demand levels in order to allow for vacancies, business movement and atypical market surges.

There are fewer than ten acres of undeveloped lots in existing light industrial subdivisions; an estimated 20 acres of available (or proposed) competitive commercial sites; and the recent industrial projects still in original sales have fewer than eight gross acres of lots remaining to be sold. Cumulatively, this available product represents only one to three years of inventory.

About 57 acres of further light industrial development is proposed in the study area at this time, apart from the subject. However, even with this addition to supply, the acreage made available will be meaningfully insufficient to meet anticipated demand trends. Without further new industrial/commercial subdivision (such as the subject), the Central Maui business community will become significantly impaired before 2010.

Based on our analysis, we forecast a shortfall in the supply of light industrial acreage relative to demand levels will begin appearing in the near-term (one to two years), and that without the subject project the

shortfall will be some 195 acres of lands by the year 2020. The general market conditions support the development of the Maui Business Park, Phase II.

Current Market Conditions

A summary of the current marketing status of the four in-sale light industrial parks on Maui is contained on Table 8. All brokers reported interest, absorption and pricing levels were solid, and that while the upcycle is not as strong as that being experienced for residential properties, they are generally pleased with the vitality of the sector and the acceptance of their projects.

Among the relevant insights provided:

- **Purchaser/Users** -- Virtually all of the purchasers were business owners who would be the developer and end-user of all or most of the finished improvements. The lack of investor buyers means that once a lot is purchased, it has been effectively removed from the available inventory and is not likely to be available to meet future expanding demand.
- **Commercial vs. Industrial Pricing Issues** -- Because of the mixed use potentials associated with industrial zoned land, the prices reflect the ability of the highest (or best) use to pay, in this case, retail/service commercial. Prices of \$25-plus per square foot can be absorbed by retail but are very high for industrial. There are many industrial users seeking larger parcels who cannot support this price.
- **Construction Difficulties** -- The purchaser/user often plans to construct custom improvements, but typically lacks the expertise. The project developers are exploring avenues to overcome this dilemma by offering development team assistance and construction options.

Our survey of the competitive floor space sector indicates that demand and occupancy levels are presently as follows:

- **Industrial/Business** -- Ground floor vacancies are currently at about six to eight percent, with mezzanine and second floor space at ten to twelve percent. Demand is fairly good, but much space has been made available on a sub-lease basis during the past year as some existing businesses reacted to post-September 11th economic uncertainties by revising space

TABLE 8

ANALYSIS OF COMMERCIAL/INDUSTRIAL LAND USE DEMAND
 BASED ON SMS RESEARCH PROJECTIONS
 Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment
 of the Proposed Maui Business Park Phase II
 Kahului, Maui, Hawaii

Year	2003	2005	2010	2015	2020
Waikuku/Kahului Civilian Job Count	34,500	35,914	39,507	43,457	47,056
Periodic Growth		1,414	3,593	3,950	3,599
Cumulative Growth		1,414	5,007	8,957	12,556
Commercial/Industrial Business Percentage		90%	90%	90%	90%
Total New Commercial & Industrial Jobs	1,273	4,506	8,061	11,300	11,300
Average Floor Space per New Job (Sq. Ft.)	275	275	275	275	275
Total Floor Area Required	349,965	1,239,233	2,216,838	3,107,610	3,107,610
Divided by Effective FAR Allowance	0.23	0.23	0.23	0.23	0.23
Total Additional Gross Site Area Required	1,521,587	5,387,967	9,638,511	13,511,348	13,511,348
Gross Acres Required	34.93	123.69	221.27	310.18	310.18

Source: SMS Research "Maui County Community Plan Update Forecast", and The Hallstrom Group, Inc.

needs. Business formation had been slow, but is now meaningfully picking up as the Maui economy continues its strong recovery and interest rates remain low.

- **Retail/Services** - Ground floor vacancies are presently at about four to six percent, with second floor space at circa 12 percent. Demand remains somewhat mixed, as retailers and restaurateurs are more sensitive to short-term recessionary issues and often influenced by mainland chains still suffering from a slow national economy. Business formation in this sector is also accelerating after an unstable period in early 2002.

Current market conditions support the planning and development of additional light industrial inventory in Central Maui. The industrial, business, retail and service sectors are all showing signs of the continuance of an upcycle that was briefly interrupted by the terrorist attacks. The market is actively seeking new product, prices are firm, absorption is solid, and vacancy rates are favorable.

Appropriateness of the Subject for the Planned Use and Absorption Estimates

The proposed Maui Business Park, Phase II is an appropriate use of the subject property from a market perspective. Given the expressed need for additional "light industrial" lands in Central Maui over the coming decades, the site has a variety of favorable traits in support of mixed-use industrial and commercial/service development, most notably:

- *It has superior access directly onto the major arterials of the regional highway system. The subject properties enjoy a desirable location on the island in regard to accessing the Maui highway system, with frontages on Haue and Haleakala Highways, Puunene Avenue (the main route to Kihui/Maialaea), and an easy route onto Kuiuclani Highway. These are the primary thoroughfares on Maui and they carry a high share of the regional traffic volume. This creates significant destination potential, with easy recognition and access, and a synergy of patronage and commerce energy.*
- *It is proximate to the sea and air ports of Maui. These vital facilities bring the cargo and visitors which drive the Maui economy. Being close to these ports lessens shipping/storage expenses and insures a high level of activity.*

- *It is a gateway to Kahului (and Maui via the airport). The project will have an "intercept" location at the southwesterly entry into urban Kahului. This is a favorable position for capturing traffic from Kihei, Upcountry and Hana side, and allows patrons to avoid the escalating traffic at the center of the Kahului/Wailuku urban area.*

- *It is adjacent to existing development containing similar/supporting uses. Light industrial and retail/service commercial businesses typically rely on proximity to supporting services, suppliers, and storage facilities, and often find their primary customers to be other industrial and commercial-related firms and their employees. Proximity lessens travel times, allows easy and frequent face-to-face contact among businesses, and provides outside customers with relatively "one-stop" convenience for a variety of services and goods. Commercial businesses thrive being close-by one another by providing a wide range of consumer options, speedier deliveries due to the concentration effect, and the benefits of cumulative attraction (or "critical mass") in the marketplace. Businesses comprising a meaningful portion of the non-tourism sectors of the Maui economy are in the immediate neighborhood of the subject, including much of the most recent industrial/commercial developments on the island, and there are more than 30,000 residents located within five miles of the site.*

- *It is a natural urban expansion area for Kahului. There are limited opportunities for additional competitive urban development of industrial and commercial uses to meet emerging economic real estate needs in Kahului/Wailuku over the next two decades apart from the subject lands, and most of those that are available have significant access and/or parking issues. Given the restrictions to further development in Kahului to makai created by the airport and seaport (north and east), and the residential orientation of the community to the west, the southerly location of the subject represents a favorable alternative.*

- *It has the ability to provide competitive space for users which otherwise might not locate in Maui. Destination and specialty retailers require direct access from and exposure on major thoroughfares (with easy egress), an intercept location, and*

close-by to port/supplier facilities. Other than the subject lands there are no available competitive sites in Central Maui which could meet these basic needs of the evolving island retailing sector.

- *Apart from the proposed use, the development alternatives and their benefits to the community are limited. The subject properties have average to poor agricultural potentials and do not provide a unique opportunity that cannot be met using other lands in the vast Central Maui sugar cane holdings of A&B Inc. There are substantial lands nearby for residential development (Maui Lani and Kebabani), they are not suitable for a resort, and do not possess any meaningful scenic beauty or archaeological sites that would support public/park use. The subject holdings are prime product for the development of a use-type for which there is well-established demand in the immediate vicinity and few alternative locations.*

Based on the attributes of the subject property, the light industrial sector demand/supply indicators, and the historic experience of other projects in the regional marketplace, we have estimated the probable absorption velocity for the subdivided subject lots using three methodologies:

Basic Demand/Supply Comparison - This straight-forward technique assumes that if there is insufficient existing and planned supply to meet projected market gross demand levels during the projection period, the proposed subject lots will be absorbed in a reasonable manner, regardless of competitive qualities, as there are no other alternatives available. As previously noted, such a condition will likely transpire in Central Maui during the study period, with more than 290 acres of demand and only some 280 acres of available existing and potential supply (including the subject). The undersupply condition will be sufficient to absorb the project well within the 18-year projection timeframe, with substantial absorption within the first decade.

The Residual Method - In this technique, all of the major proposed industrial commercial projects are placed on a time-line depicting the sales absorption either anticipated by the developers (as reported in the media or through interviews) or assuming a reasonable market share. To the extent these

TABLE 9

**QUANTIFICATION OF SUBJECT DEMAND USING THE RESIDUAL METHOD BASED ON
TOTAL DEMAND FOR LIGHT INDUSTRIAL USES IN THE WAILUKU/KAHULUI STUDY AREA**
Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment
of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii
Approved/Announced Projects Only, Assuming Mid-Point Demand Trends

Project	TOTAL GROSS ACRES AVAILABLE (1)	2003-2005				2006-2010				2011-2015				2016-2020			
Maui Business Park Phase IB	4	4				24%											
Market Share Percentage																	
Maui Market Place	4	4				24%											
Market Share Percentage																	
Maui Lani Industrial Park	57	6				40				11							
Market Share Percentage		35%				85%				50%							
Industrial In-Fill	10	3				3				3				1			
Market Share Percentage		18%				6%				14%				11%			
Commercial Sites	20	4				4				8				8			
Market Share Percentage						9%				36%				89%			
Totals	95	17				47				22				9			
Regional Light Industrial Acreage Demand	290	51				75				79				85			
Shortage or (Excess) Supply	195	34				28				57				76			
Potential Residual Subject Demand																	
at 100% Capture Rate	195	34				28				57				76			
at 95% Capture Rate	185	32				27				54				72			
at 90% Capture Rate	176	31				25				51				68			

(1) In original sales. Acreage shown remains available for purchase.
(2) All latent demand assumed capture during first projection period.

Source: Cited projects developers/agents, & The Hallstrom Group, Inc.

Maui Business Park Phase II

The Hallstrom Group, Inc.

proposed projects and the remaining existing supply fall short of the forecast demand in the study region or exceed the total, a respective undersupply or oversupply situation is present.

Having accounted for all of the proposed space in the market, and acknowledging the unlikelihood of otherwise buildable sites in the region, it can be asserted the subject development will capture a significant portion of any residual demand. This approach is generally conservative, as it assumes the subject will capture only what is left over after all other projects garner their share. Given the nature of the subject holding we believe it could be a regional market leader, not a follower.

Table 9 displays the application to the Maui Business Park, Phase II, with the in-sales, proposed, and in-fill acreage considered in our analysis. Using this method, the 179-gross-acre subject project could anticipate full absorption within about 12 to 15 years from initial sales offering (forecast for circa 2006).

The Market Shares Method -- This approach accounts for the probable competitiveness of the subject inventory regardless of the total level of product being otherwise offered on the market. In essence, it is an estimate of how much of the total forecast demand in the Central Maui industrial and mixed-use markets the subject could expect to achieve on an annual basis in light of its locational, pricing and amenity characteristics.

Generally moderate in application, this technique tests "pure" competitiveness and is considered the classic methodology, but does require subjective selection of factors. Table 10 illustrates the techniques as applied to the subject property. We conclude the subject will have average to good competitive features, and forecast its absorption within 13 to 29 years using this method.

Given the favorable attributes of the subject property (direct access to the ports and highway system, and proximity to Kahului/Wailuku businesses and customers) and the current market acceptance of light industrial inventory, the subject is likely to gain a favorable share of the regional market demand. We therefore project the Maui Business Park, Phase II lots will be absorbed by the market within an approximately 12- to 18-year period from the beginning of initial sales.

Correlation

TABLE 10
SUMMARY OF SUBJECT PROJECTED DEMAND LEVELS
USING THE MARKET SHARES METHOD
Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment
of the Proposed Maui Business Park Phase II
 Kahului, Maui, Hawaii
 Assuming 179 Gross Acres of Sites to be Absorbed
 With Sales in 1984 to 2004

Scenario One: Using Optimistic Assumptions	Total Regional Light Industrial Demand (in Acres)	Effective Subject Share	Indicated Trace Subject Absorption (in Acres)
1	179	41.00%	74
2	179	50.00%	90
3	179	60.00%	107
4	179	65.00%	117
5	179	65.00%	117
6	202	61.00%	123
7	202	61.00%	123
8	202	61.00%	123
9	202	61.00%	123
10	202	61.00%	123
11	214	61.00%	130
12	214	61.00%	130
13	214	61.00%	130
14	214	61.00%	130
Totals	2852	61.31%	1192

Scenario One: Using Conservative Assumptions	Total Regional Light Industrial Demand (in Acres)	Effective Subject Share	Indicated Trace Subject Absorption (in Acres)
1	116	41.00%	48
2	116	50.00%	58
3	116	60.00%	70
4	116	65.00%	76
5	116	65.00%	76
6	134	61.00%	82
7	134	61.00%	82
8	134	61.00%	82
9	134	61.00%	82
10	134	61.00%	82
11	148	61.00%	90
12	148	61.00%	90
13	148	61.00%	90
14	148	61.00%	90
15	148	61.00%	90
16	148	61.00%	90
17	148	61.00%	90
18	148	61.00%	90
19	148	61.00%	90
20	148	61.00%	90
21	148	61.00%	90
22	148	61.00%	90
23	148	61.00%	90
24	148	61.00%	90
25	148	61.00%	90
26	148	61.00%	90
27	148	61.00%	90
28	148	61.00%	90
29	148	61.00%	90
Totals	3123	51.31%	1192

ANALYSIS/REPORT
31.3

179.0

51.31%

312.0

We do note that real estate demand on the neighbor islands is cyclical with periodic major upswings, and it is likely that during the first decade of the development, one or more upcycles may occur, resulting in much more rapid absorption than can be reflected through standardized analytical methodologies. Further, the simultaneous development of both the North and South Project Areas will provide a wider diversity of product, generate higher capture rates, and stimulate sales.

Economic Impact of the Proposed Development

The development of the Maui Business Park, Phase II subdivision will result in significant expenditures that will favorably impact the Maui economy on both a direct and indirect basis, increasing the level of capital investment and capital flow in the region, which will in turn create employment and widen the tax base.

From a direct perspective, the proposed "light industrial" (mixed-use industrial/commercial) lots and finished buildings thereon will create numerous construction, equipment operator and specialty trade jobs on- and off-site during the planning and emplacement of the infrastructure, and building of the improvements. After completion of the buildings and support facilities over an estimated 15-year total development period, there will be significant additional employment positions created by the tenant businesses and the buildings themselves (landscape, service, maintenance, and renovation needs in the course of their use).

Numerous local businesses will enjoy significant profit opportunities arising for contracting companies constructing the improvements, and for local businesses which would supply a substantial portion of the materials needed in the building efforts.

The general island economy also will benefit from the subject development and its employees and businesses, which will spend large amounts of wage income in off-site shops, restaurants, and service establishments throughout Maui, and in purchasing goods and services.

Indirectly, as these wages, profits, and expenditures move through the regional economy, they will have a ripple, or "multiplier," effect--increasing the amount of capital flowing to the entire community as a result of the subject.

Construction, operational and other workers earning wages from the Maui Business Park and associated off-site efforts will spend the majority of their income on living and entertainment expenses while supporting and patronizing other island businesses. Much of this spending would be re-directed by these businesses to other island industries, and significant portions of these secondary profits would in turn be put back through the region's economic and tax structure.

These substantial direct and indirect economic impacts associated with the proposed subject project, as quantified in the following sections, are all the result of the capital investment and entrepreneurship necessary to convert undeveloped sugar cane, agricultural and vacant lands into a working light industrial community. The Maui economy will be meaningfully stimulated by the capital investments and business requirements of park tenants and consumers who patronize the project.

Capital Investment and Construction Costs

The subject development will bring an estimated \$422 million in direct development capital into Maui over the 15-year model build-out period assumed for the project. A breakdown of the basic expense items, their respective costs and expenditure over time is summarized on Table 11.

Also shown are anticipated contractor and supplier profits flowing to local businesses as a result of the project, and profits associated with the anticipated light industrial and commercial operations.

Infrastructure cost estimates were at \$17,900,000 total, or \$100,000 per acre, based upon costs A&B incurred at nearby projects; a figure at the high end of the range seen at other recent neighbor island light industrial subdivisions. We have allocated these costs at \$11.8 million for the initial increments (years one and two of the project model), and \$5.9 million for a final increment.

Building construction costs were estimated at a total of \$404.2 million. This is based on the assumption that each "industrial" acre, on average, would be developed with 12,000 square feet of finished space at a cost of \$150 per square foot. The typical improvement would be a metal clad or masonry warehouse-type structure with a total improvement cost of \$1,950,000, which includes a \$150,000 allowance for site

TABLE 11
CONSTRUCTION COSTS AND CONTRACTOR AND SUPPLIER PROFIT ESTIMATES
Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment
of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii
In Constant Year 2003 Dollars

Development Year	1	2	3	4	5	6	7	8	9	10
Construction Costs (1)										
Infrastructure (2)	\$5,907,000	\$5,907,000			\$2,983,930	\$2,983,930				
Industrial Construction (3)			\$12,090,000	\$12,090,000	\$12,090,000	\$12,090,000	\$12,090,000	\$12,090,000	\$12,090,000	\$12,090,000
Commercial Construction (4)			\$19,000,000	\$19,000,000	\$19,000,000	\$19,000,000	\$19,000,000	\$19,000,000	\$19,000,000	\$19,000,000
TOTAL CONSTRUCTION COSTS	\$5,907,000	\$5,907,000	\$31,090,000	\$31,090,000	\$34,073,930	\$34,073,930	\$31,090,000	\$31,090,000	\$31,090,000	\$31,090,000
CONTRACTOR'S PROFIT	\$598,700	\$598,700	\$3,109,000	\$3,109,000	\$3,407,393	\$3,407,393	\$3,109,000	\$3,109,000	\$3,109,000	\$3,109,000
SUPPLIER'S PROFIT	\$177,210	\$177,210	\$1,243,600	\$1,243,600	\$1,333,118	\$1,333,118	\$1,243,600	\$1,243,600	\$1,243,600	\$1,243,600
Development Year										
	11	12	13	14	15	Totals				
Construction Costs (1)										
Infrastructure (2)						\$17,781,860				
Industrial Construction (3)	\$12,090,000	\$12,090,000	\$12,090,000	\$12,090,000	\$12,090,000	\$157,170,000				
Commercial Construction (4)	\$19,000,000	\$19,000,000	\$19,000,000	\$19,000,000	\$19,000,000	\$147,800,000				
TOTAL CONSTRUCTION COSTS	\$31,090,000	\$31,090,000	\$31,090,000	\$31,090,000	\$31,090,000	\$421,951,860				
CONTRACTOR'S PROFIT	\$3,109,000	\$3,109,000	\$3,109,000	\$3,109,000	\$3,109,000	\$42,195,186				
SUPPLIER'S PROFIT	\$1,243,600	\$1,243,600	\$1,243,600	\$1,243,600	\$1,243,600	\$16,700,256				

(1) Direct costs only.
 (2) "Backbone" and finish infrastructure estimated at \$17,900,000 (or \$100,000 per gross site acre). To be developed in two phases.
 (3) Light industrial construction costs estimated at \$1,950,000 per acre, assuming 12,000 square feet of floor area (.28 FAR) with building costs of \$150 per square foot, plus \$150,000 per acre for utilities extension, site work, paving and landscaping.
 (4) Commercial construction costs estimated at \$2,500,000 per acre, assuming 11,500 square feet of floor area (.26 FAR) with building costs of \$200 per square foot all-in except final tenant improvements, plus \$200,000 per acre for utilities extension, site work, paving and landscaping.

Source: Various, and The Hellen Group, Inc.

work, rock walks, landscaping and paving (roughly \$4.75 per square foot of non-building site area).

"Commercial" (retail/business) construction cost estimates are based on an assumption of 11,500 square feet of improvement area per acre, at a cost of \$700 per square foot of floor space with \$200,000 per acre in site finish work. The improvements would be of higher quality and finish than the industrial buildings with more elaborate interiors. The total expense per developed acre is \$2,500,000. This includes most interior/tenant improvements.

The overall split between uses for the subject development, given its prime commercial location and recent market experience in the area, is forecast at 55 percent retail/business and 45 percent light industrial.

The light industrial and commercial improvements are assumed to be built at a stabilized rate of 13.8 acres per year (6.2 acres of industrial and 7.6 acres of retail/business) with a 13-year build-out period following a two-year planning and infrastructure construction period.

The Maui Business Park will infuse an anticipated \$32.4 million annually into the Maui building industry on average over the build-out period. This is the equivalent of a more than 15 percent boost over recent yearly construction levels.

Employment Opportunities Created

Based on indicators provided by the construction of comparable sized projects and Hawaii industry averages, we have estimated the demand for on- and off-site, full-time equivalent employment positions associated with laying of initial infrastructure systems, building of the finished industrial and commercial structures, the on-going businesses in the park, and in providing continuing services to the occupied buildings.⁽¹⁾

The employment opportunities created by the subject development will not all be "new" jobs requiring new Maui residents but will be new opportunities for resident construction trade workers, youths reaching employment age, and existing local businesses.

(1) Only additional jobs, wages, costs and revenues being created as a result of on site activity are shown.

It is assumed the off-site/indirect work created will be steered towards existing Maui supply, equipment providers, and other service companies, which despite the up-tick in the county economy over the past several years remain in a somewhat "lean" period following the massive development activity of the late 1980s.

The subject development will provide needed employment opportunities in the construction, supply and building support industries during an estimated 15-plus year planning, site development and building construction period. The final planning/survey process, on-site backbone and subdivision infrastructure is anticipated to require approximately two years following receipt of necessary land approvals, with the industrial and commercial finished space construction about 13 more years.

Our employment estimates on are based on full-time "worker/years," although one worker/year (or circa 2,000 working hours) may be comprised of many employees involved in specialized tasks of a much shorter duration.

Estimates based on a 15-year period of project construction, and the associated number of employment opportunities created are displayed on the top of Table 12. We acknowledge our timeframe assumption is at the middle to low end of the probable sales and build-out range. However, as the dollar figures are constant (uninflated), the net aggregate impacts will be generally similar whether the construction takes 10 or 20 years. The moderate time-frame provides a more conservative framework for analysis.

Included in our projections on the table are the full-time equivalent off-site and support employment opportunities which will be provided to Maui businesses as a result of the project. Also shown are the employees of the operating tenant businesses occupying the finished floor space and maintenance/trade workers for the structures which will be required to service the project improvements over time.

The projections are founded on examples provided by various light industrial and retail/business developments undertaken on Maui and the Big Island over the past decade, and via formulae expressing relationships between total worker wages/benefits and construction task costs.

Table 12
Contd.

EMPLOYEE JOB COUNT AND WAGE ESTIMATES
Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment
of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii
In Constant Year 2003 Dollars

Development Year	11	12	13	14	15	Total 1 Through 15	Stabilized
Worker Requirements (1)							
Infrastructure							
Industrial Construction (2)	70	70	70	70	70	103	
Commercial Construction (3)	108	108	108	108	108	907	
Industrial/Commercial Businesses (4)	3,641	4,045	4,450	4,854	5,259	1,408	
Maintenance and On-Site Support (5)	182	202	222	243	263	34,810	5,239
Off-Site Employees (6)	1,600	1,770	1,940	2,110	2,280	18,840	2,280
TOTAL EMPLOYMENT CREATED	5,601	6,185	6,760	7,332	7,979	57,494	7,801
Worker Wages							
Infrastructure	\$0	\$0	\$0	\$0	\$0	\$1,917,287	
Industrial Construction	\$4,030,153	\$4,030,153	\$4,030,153	\$4,030,153	\$4,030,153	\$32,392,015	
Commercial Construction	\$4,237,574	\$4,237,574	\$4,237,574	\$4,237,574	\$4,237,574	\$31,348,462	
Industrial/Commercial Businesses	\$91,740,600	\$101,934,000	\$112,127,400	\$122,320,800	\$132,514,200	\$977,999,400	\$132,514,200
Maintenance and On-Site Support	\$4,321,501	\$5,023,590	\$5,725,679	\$6,427,768	\$7,129,857	\$45,717,399	\$4,321,501
Off-Site Employees	\$44,806,440	\$49,343,340	\$53,880,240	\$58,417,140	\$62,954,040	\$459,932,738	\$44,806,440
TOTAL ANNUAL WAGES PAID	\$151,336,378	\$166,802,979	\$182,261,488	\$197,714,397	\$213,167,166	\$1,572,937,308	\$282,879,377

TABLE 12

EMPLOYEE JOB COUNT AND WAGE ESTIMATES
Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment
of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii
In Constant Year 2003 Dollars

Development Year	1	2	3	4	5	6	7	8	9	10
Worker Requirements (1)										
Infrastructure										
Industrial Construction (2)	34	34			17	17				
Commercial Construction (3)			70	70	70	70	70	70	70	70
Industrial/Commercial Businesses (4)			108	108	108	108	108	108	108	108
Maintenance and On-Site Support (5)			402	809	1,214	1,618	2,023	2,427	2,832	3,236
Off-Site Employees (6)	14	14	30	40	61	81	101	121	142	162
TOTAL EMPLOYMENT CREATED	48	48	844	1,039	2,057	2,632	3,222	3,817	4,412	5,006
Worker Wages										
Infrastructure	\$1,949,000	\$1,949,000	\$0	\$0	\$994,643	\$994,643	\$0	\$0	\$0	\$0
Industrial Construction	\$0	\$0	\$4,030,153	\$4,030,153	\$4,030,153	\$4,030,153	\$4,030,153	\$4,030,153	\$4,030,153	\$4,030,153
Commercial Construction	\$0	\$0	\$4,237,574	\$4,237,574	\$4,237,574	\$4,237,574	\$4,237,574	\$4,237,574	\$4,237,574	\$4,237,574
Industrial/Commercial Businesses	\$0	\$0	\$10,193,400	\$20,386,800	\$30,580,200	\$40,773,600	\$50,967,000	\$61,160,400	\$71,353,800	\$81,547,200
Maintenance and On-Site Support	\$0	\$0	\$502,389	\$1,004,778	\$1,507,167	\$2,009,556	\$2,511,945	\$3,014,334	\$3,516,723	\$4,019,112
Off-Site Employees	\$381,648	\$381,648	\$4,751,080	\$6,334,773	\$7,918,466	\$9,502,159	\$11,085,852	\$12,669,545	\$14,253,238	\$15,836,931
TOTAL ANNUAL WAGES PAID	\$2,330,648	\$2,330,648	\$17,734,599	\$43,187,387	\$79,827,448	\$116,477,220	\$153,126,979	\$189,777,760	\$226,521,500	\$263,268,266

(1) All job counts expressed as "full-time" equivalent positions.
 (2) Estimated at 11.25 work-years per acre.
 (3) Estimated at 14.25 work-years per acre.
 (4) Estimated at one worker for every 400 square feet of finished floor space.
 (5) Estimated at one worker per 8,000 square feet of floor space.
 (6) Includes all off-site jobs created by work efforts at the project, direct and indirect. Estimated at 0.4 off-site positions per on-site position.

Source: Various, and The Hutterer Group, Inc.

• Extrapolation of state Department of Business Economic Development and Tourism (DBEDT) data, along with indicators provided by other state agencies and First Hawaiian Bank studies, demonstrate that each Hawaii worker creates demand for services (and related employment) during and directly attributable to the work day at up to a ten percent ratio. These positions include food businesses, providers of tools and trade goods, payroll/financial and insurance businesses, medical requirements and other secondary indirect/off-site employment.

During the 15-year model building period of the project, the number of worker/years created on- and off-site by the development varies from 34 to 7,979 positions annually, totaling 57,494 worker/years over the entire build-out timeframe. Of this total, 2,418 worker/years (an annual average of 161.2 positions) are direct construction-oriented, 36,810 total (or 2,454 per year) are on-going business operating positions, and 16,427 are off-site worker requirements.

On a stabilized basis, after the completion of construction (Year 15 of the model), the project will generate some 7,801 permanent full-time equivalent and/or enhanced employment opportunities--5,522 directly related to on-site activities, and 2,280 indirect positions throughout the island.

The average annual on-site job count during the 15-year subject development period of 2,738 positions represents about a 4.4 percent increase from the total jobs presently available in Maui County (2,738 additional jobs per year to the February 2003 job count of 62,600).

At build-out in circa 2020, the subject project will contain, on-site, some 5.2 percent of the total jobs on the island (5,521 jobs out of the SMS estimated 105,573 islandwide). The off-site positions created/supported by the subdivision will be another 2.2 percent of the then in-place workforce.

Additional secondary and/or supplementary employment will be created by the operating business within the development. Much of the capital and cash flow of the industrial and commercial businesses will be re-spent in the Maui economy, and are forecast to reach \$841 million per year on a stabilized basis (quantified in a subsequent section). Based on DBEDT data stating each \$75,000 to \$100,000 spent creates one employee position, an additional 8,410 to 11,200

Infrastructure employment forecasts are taken from discussions with developers, review of project records and ratios of direct costs to job creation (assuming an average wage of \$57,780/year plus benefits equal to 25 percent of wages).

Building construction is anticipated to require 11.1 total worker/years per 12,000 square feet of light industrial structure, including site work (one gross site acre). The 11,500 square feet per acre average for commercial buildings is estimated to require 14.3 total worker/years per structure. The average wage for these construction workers is also \$57,780 per year plus benefits.

Business operations in the light industrial and retail/business sections of the park are estimated at one worker per 400 square feet of finished floor space, or about 59 positions per acre. It will be slightly higher for the commercial-oriented uses, and slightly less (on average) for industrial uses. The average wage of these workers is estimated at \$25,200 per year.

The finished improvements and sites will require maintenance, service and repair workers which will, in total, equal some 263 worker/years annually on a stabilized basis, or one worker/year for 8,000 square feet of finished floor space (equal to about 1.5 worker/years per acre). These workers are estimated to be paid on average \$24,840 per year.

Off-site employees were estimated at 40 percent of on-site workers, and are comprised of three groups:

- Numerous off-site building industry positions will also be enhanced by the Maui Business Park, Phase II development, including such jobs as administration, office help, material providers, equipment maintenance and specialty tasks. Analysis of Maui County labor trends from 1980 through 2001 demonstrate a linkage equal to about 20 to 30 percent between the creation of on-site construction positions and direct off-site employment.
- Off-site support businesses, including contractor/retail/counter sales, fuel providers, shipping, storage and professional services will also benefit. A conservative job creation relationship of five to ten percent relative to on-site positions was used (or, one off-site support worker/year for each ten to 20 on-site worker/years).

Development Costs as Profit Income

While the significant majority of the materials needed to build the subject industrial and commercial structures must be imported to Maui, a portion of the construction costs spent in the development will flow to local businesses in the form of contractor profits and supplier profits.

Typically, within the industry net contractor profit margins are expected to be at 8 to 20 percent of total construction costs. We have used a conservative ten percent figure. Supplier profits were extrapolated at four percent of total costs; generally supplies/materials equate to 50 to 60 percent of total cost, with a profit margin for the supplier of six to eight percent.

Application of these estimates to the forecast development parameters of the subject project was shown on Table 11.

The total Contractor's Profit ranges from \$590,700 to \$3,407,393 per year, with a cumulative profit of \$42.2 million over the construction period. The total annual Supplier's Profit ranges from a low of \$177,210 to a high of \$1,333,118, and equates to \$16.7 million over the 15-year development time-frame.

Population and Business Operations

As an industrial and mixed-use industrial/commercial development, the proposed Maui Business Park, Phase II project will not have any resident population and the attendant needs for housing, schools, parks and most government services.

Upon build-out and stabilization, the cumulative business operations will annually generate some \$841,360,000 in gross sales/business activity based on an estimate of \$400 of "sales" per square foot of finished floor area. The figure is likely to be higher for the commercial uses (\$450-plus per square foot in 2003 dollars) and less for the industrial uses (\$250-plus per square foot).

Summary of Direct, Local Economic Impacts

The various direct, local economic impacts which will flow to the subject region as a result of the subject development are summarized on Table 13.

secondary jobs will be supported on the island as a result of the subject property businesses.

Wage Income Generated

In accordance with data compiled by the state Department of Labor and Industry Relations, we have estimated the personal income (in the form of wages) which will flow to Maui workers as a result of the Maui Business Park, Phase II project.

The average wage of a full-time infrastructure construction worker is estimated at \$57,780 per year based on DLIR data through February 2003. For industrial and commercial construction workers, the average annual pay will also be about \$57,780. Tenant business operating personnel are assumed to be paid \$25,200 per year on average (\$12.60 per hour), building maintenance and grounds/landscape workers are projected to receive average pay equivalent to \$24,840 per year. Off-site building and support industry jobs were estimated to receive an average pay of \$28,000 annually.

Overall project average wages are equal to \$27,358 per worker/year created during the development period, and \$26,007 on a stabilized basis.

Application of these wage estimates to the employment forecasts generates personal income (wage) projections directly resulting from subject development was shown at the bottom of Table 12. The wage figures are all presented in constant 2003 dollars, and will undoubtedly escalate over time in accordance with inflationary pressures.

In the first year of development, the "Total Annual Wages Generated" by the subject development effort would be \$2,350,000, increasing to a high of \$213.2 million, as the number of construction, business operations and maintenance/service workers peak in year 15. After completion of all construction, the on-going operational, maintenance, off-site/indirect employment would result in average annual wages of \$202.9 million thereafter in uninflated 2003 dollars.

Over the first 15 years of the development, on- and off-site, direct and indirect worker wages would total \$1.57 billion.

The annual Total Base Economic Impact increases from \$3,118,578 in year 1 of the development effort to a high of \$1.06 billion by year 15 (in 2003 dollars). Over the one-and-a-half decade development and stabilization period, the total is \$7.5 billion. Fueled by business operations, the estimated stabilized annual base impact thereafter is \$1.04 billion.

These dollars will be spent, then re-spent, on goods and services on the island, diminishing in impact on the local economy with each turnover as a portion flows off Maui for goods, services and financing commitments. First Hawaiian Bank studies have concluded the appropriate economic multiplier rates in Hawaii are from 1.2 to 3.5 times (or 20 to 250 percent) of the base impact amount. Mainland studies (by the Urban Institute and others) tend toward the upper end of this range, and reach multipliers as high as 4.0.

Due to the need to import more than 85-percent of supplies/goods used on Maui, the multiplier impact for the island is not as great as for mainland locales, particularly for construction-based expenditures. We have therefore tested multiplier rates at the mid-point of the market spectrum, ranging from 1.5 to 3.5 times.

On a conservative basis, using a relatively low-end multiplier effect ratio of 2.0, the total overall direct impact on the Maui island economy resulting from the Maui Business Park, Phase II project would be \$15.04 billion over the 15-year projection period (in constant 2003 dollars). On a stabilized annual basis thereafter, the overall impact would be at \$2.1 billion.

Public Cost/Benefit Assessment

The purpose of this analysis is to delineate the direct areas in which the proposed subject mixed-use industrial/commercial development will potentially impact the sphere of public agency resources, and quantify (where possible) the costs of providing expanded services to the project, versus the economic benefits that accrue to the community through an increase in local and state tax payments.

For most developments, potential direct costs to governmental services and programs include:

TABLE 13

SUMMARY OF ECONOMIC IMPACTS ASSOCIATED WITH DEVELOPMENT
Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment
of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii
In Constant Year 2003 Dollars

Development Year	1	2	3	4	5	6	7	8	9	10
ANNUAL WAGES GENERATED	\$2,350,668	\$2,350,668	\$27,734,598	\$43,187,307	\$59,827,660	\$73,280,169	\$89,343,434	\$104,998,143	\$120,450,852	\$135,903,561
CONTRACTOR'S PROFIT	\$390,700	\$390,700	\$3,109,000	\$3,109,000	\$3,407,393	\$3,407,393	\$3,109,000	\$3,109,000	\$3,109,000	\$3,109,000
SUPPLIER'S PROFIT	\$177,210	\$177,210	\$1,243,600	\$1,243,600	\$1,333,118	\$1,333,118	\$1,243,600	\$1,243,600	\$1,243,600	\$1,243,600
INDUSTRIAL/COMMERCIAL SALES (1)			\$64,720,000	\$129,440,000	\$194,160,000	\$258,880,000	\$323,600,000	\$388,320,000	\$453,040,000	\$517,760,000
TOTAL BASE ECONOMIC IMPACT	\$3,118,578	\$3,118,578	\$76,887,198	\$176,979,907	\$268,727,971	\$338,968,488	\$417,418,834	\$497,678,743	\$577,843,452	\$658,816,161
Multiplier Effect Rate	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
TOTAL OVERALL IMPACT	\$6,237,157	\$6,237,157	\$153,614,396	\$353,959,814	\$537,855,941	\$677,841,359	\$834,996,668	\$995,341,486	\$1,155,686,904	\$1,316,832,322

Development Year	11	12	13	14	15	Total Years 1 Through 15	Stabilized
ANNUAL WAGES GENERATED	\$151,256,370	\$166,808,979	\$182,261,688	\$197,714,397	\$213,167,106	\$1,372,937,200	\$202,879,377
CONTRACTOR'S PROFIT	\$3,109,000	\$3,109,000	\$3,109,000	\$3,109,000	\$3,109,000	\$42,193,184	
SUPPLIER'S PROFIT	\$1,243,600	\$1,243,600	\$1,243,600	\$1,243,600	\$1,243,600	\$16,700,234	
INDUSTRIAL/COMMERCIAL SALES	\$382,480,000	\$647,200,000	\$711,920,000	\$776,640,000	\$841,360,000	\$5,829,320,000	\$841,360,000
TOTAL BASE ECONOMIC IMPACT	\$738,188,970	\$818,361,579	\$898,534,288	\$978,706,997	\$1,058,879,706	\$7,531,357,243	\$1,644,239,377
Multiplier Effect Rate	2.0	2.0	2.0	2.0	2.0	2.0	2.0
TOTAL OVERALL IMPACT	\$1,476,377,940	\$1,636,723,158	\$1,797,668,576	\$1,957,413,994	\$2,117,759,413	\$15,042,784,484	\$3,288,478,754

(1) Estimated at \$400 per square foot of finished floor area.

Sources: Various, and The Halpern Group, Inc.

themselves the subject improvements and users will create the need for meaningful expansion of existing public services.

No new schools, parks, highways, recreational facilities, service agencies, hospitals, or other public enterprises will be required specifically because of this project. The impact on the total regional land base will be minimal. Public safety facilities in Kahului and Waihuku are proximate, generally have the personnel and equipment to service the businesses and buildings in the park, and will expand with overall community growth over the next two decades as the project is built. Further, most public infrastructure systems in the area were designed with the capacity to service development in the neighborhood.

However, the need for additional services is a cumulative effect, each project, each resident, tourist and, to a lesser degree, business adds a little bit to the community base until increased "need thresholds" are reached.

In regard to some services, the effective actual impact may not be apparent from a cost perspective, merely creating nominally greater demands which can be readily met through existing agencies and facilities without the need for additional workers or funds.

Our analysis of Maui County and state budgets indicate the actual effect of governmental services relating to the second phase of the Maui Business Park would not create the need to expand county and state services in and of itself.

As an alternative to actual cost estimates, which are often disparate as they inherently cannot provide for unexpected and/or atypical items, it is most common to project public costs on a per capita allocation.

While this is wholly appropriate for residential developments, as public costs and services generally accrue to where a person lives (or in the case of a tourist, where they are lodging), it is not considered to be necessarily accurate for an industrial or commercial project. By their very nature, industrial/commercial businesses are private enterprises responsible for their own costs and benefits.

Conversely, government services are holistic in nature, providing a foundation throughout a community, regardless of actual, specific impact on any given land holding. A business may not have a need for

- Police Protection
- Fire Protection
- Public Oversight Agencies
- Infrastructure Services
- Recreational Demands
- Educational Needs
- Infrastructure Costs
- Various Other Services and Financial Commitments

However, as a privately built industrial project many of these costs will not be increased on the state or county levels as a result of the proposed Maui Business Park, Phase II. There will be no increased educational or recreational needs directly attributable to the subject development; the major off-site public infrastructure items (highway and primary water/sewer mains) are already in place; and the development will require no specific public subsidies, welfare services, bonding or capital improvements.

Direct tax benefits to the state and county coffers will primarily flow from the project and its operation over time from three major sources:

- Real Property Taxes
- Gross Excise Tax Receipts
- State Income Taxes

Some cost/benefit issues are considered as off-setting, or "a wash," as the cost of the services to the government is theoretically directly reimbursed in the form of user fees. Building permits and utility hook-up fees are two prime examples. Other such items include workers compensation premiums and benefits, utility operations and associated use billing rates, and business oversight/registration versus licensing fees. These items are excluded from this study.

A concern of this analysis is the integration of the subject project into the overall state and Hawaii governmental services plan on both an actual and pro-rata perspective.

From an actual public service cost perspective to Maui and state agencies, the Maui Business Park will represent only a fraction of the county and state industrial/commercial plant and overall urban lands in use. Given the vast number of housing units, resorts, businesses, and agricultural lands on the island, it is difficult to assert that of

parks or schools, but they are essential to the patrons and workers and create the climate in which the business operates. Similarly, government administration, capital projects and public welfare items may have no direct relation to a particular project, but provide the economic underpinnings that enhances overall commercial success.

In order to meaningfully quantify public costs that may be associated with the subject development, we have therefore looked at the issue from both perspectives, on an actual cost basis, which we believe to be most appropriate for the subject project and is the focus of our conclusions; and on a per capita allocation basis.

Public Costs

Actual Costs

Maui County will directly incur several areas of cost increases as a result of the second phase of the Maui Business Park, primarily in regards to emergency services. Based on analysis of response frequencies, time/cost data, and past discussions with affected agencies, we have made general allowances for these items as summarized below.

Police/Enforcement -- Using a base cost of \$140 per hour for a responding officer (wages, benefits, overhead and amortized equipment), we estimate the annual additional police/enforcement cost to Maui County on a stabilized basis after project build-out will be \$422,800.

This is comprised of:

- Two miscellaneous calls per day at an average of two total officer hours each. (2 hrs. x \$140/hr. x 2 x 365 = \$204,400)
- Two "minor" incidents/traffic accidents each week requiring on average five hours of officer time. (5 hrs. x \$140 x 2 x 52 = \$72,800)
- One "major" incident/traffic accident each week requiring on average of 20 hours of officer time. (20 hrs. x \$140 x 52 = \$145,600)

This demand is the equivalent of 1.5 officer work/years (3,020 total hours).

Fire Protection -- These forecasts are based on a crew cost of \$800/hour (four to five firemen, wages, benefits, overhead and amortized equipment). We estimate that at build-out, the yearly additional costs to Maui County resulting from the project is \$201,600 per year.

This is comprised of:

- One "minor" fire/rescue per week requiring one crew for a total of three hours (response and/or clean-up). (3 hrs. x \$800/hr. x 52 = \$124,800)
- One "major" fire/rescue every other month requiring two crews for a total of eight hours each. (2 crews x 8 hrs. x \$800/hr. x 6 = \$76,800)

Emergency Medical Response -- This is based on average cost per response of \$500, with an average of four calls per week. The total cost to the county would be \$104,000 per year on a stabilized basis after build-out. (\$500/response x 4 per week x 52 = \$104,000)

Road Maintenance -- An allowance of \$50,000 per year was made for this item.

The total annual "actual" cost to the county on a stabilized basis at build out of the subject development is estimated at \$778,400. This cost was reached on an escalating basis over time, beginning at 10 percent in year 3 and increasing in accordance with the number of operating businesses in the business park.

State of Hawaii costs would include highway frontage work, health inspections of food service establishments and other minor oversight duties. An allowance of \$250,000 per year was made for these items, increasing to the stabilized level as the park is built out.

Per Capita Costs

An alternative method for determining public costs is through per capita expenditures incurred by the State of Hawaii and Maui County in accordance with the de facto population area of the jurisdiction. This is founded on the principal that each individual on the island equitably benefits from all governmental costs, regardless of type or focus throughout the day, with each new member of the community (whether resident or visitor) creating a proportionate new cost burden in their daily home and working life.

As previously noted, this is an atypical application as most costs are viewed as accruing to residential aspects of a persons lifestyle and land use. We have included it as a means of demonstrating the overall public fiscal impact potential of the proposed subject project even when viewed from this maximum potential cost perspective. We judge this method to be secondary at best and as setting the absolute upper limit on all public costs (actual, indirect and inferred).

According to the state Department of Budget and Finance database,⁽⁴⁾ the state expects to spend a total of \$7.48 billion on services, salaries, infrastructure, and financing in fiscal 2003. The total de facto population in the state on an average daily basis at year-end 2002 was about 1,356,000 persons, including residents, tourists, and military personnel.

The per capita expenditure by the state will thus be about \$5,516 for 2003, an increase of several percent from 2002. From 1979 through 2002, state government expenditures increased at a rate of just over five percent annually compounded.

The stabilized average daily worker population on-site at the subject at build-out will be 5,522 persons, a figure reached in year 15 of the development model. Assuming that each worker spends about one-quarter of their life on the job (or at their place of employment), the allocated state cost per worker would be \$1,379 per year. The total annual "costs" to the public purse at stabilization by the project using the per capita allowance method would be \$7.61 million in constant year 2003 dollars.

Analyzed on a similar basis, Maui County's budget for the island government in fiscal year 2003⁽⁵⁾ is \$268,885,834, which represents an escalation over time of more than four percent compounded annually since 1995.

The current de facto population in Maui County is some 175,000 persons. The resulting de facto per capita county expenditure for this year is therefore anticipated to be \$1,536.

(4) "Executive Branch FY2003 Operating Appropriations by Department (All Funds)."

(5) "Revenue and Expenditure Summary - FY2003 County Funds."

Using a 25 percent of total county cost share as being attributable to each worker while on the job, the average annual amount spent by Maui County to support the workers at the proposed Maui Business Park, Phase II is \$384 per worker.

Application of this figure to the total on-site worker population at subject build out would be \$2,120,448 annually in costs to the county government on a stabilized basis (5,522 workers x \$384).

Total Public Costs -- On an actual cost basis, which we believe to be the preferred analytical method for a business park, the state and county expenses associated with the subject development would range from \$102,840 in year 3 of the project (the first year of business occupancy) to a stabilized maximum of \$1,028,400 at build-out in year 15 in year 2003 dollars.

On a per capita allowance basis, which we acknowledge is an atypical perspective and an absolute maximum accounting of all direct, indirect and inferred costs, the total governmental costs at build-out to the state and county would be \$9.74 million annually.

Public Fiscal Benefits

Real Property Taxes -- Property taxes paid by landowners in the subject project were calculated using the 2003 tax rates for both land and buildings, improved and unimproved.

Assessed values for the subdivided subject lots are based on sales prices ranging from \$20 to \$40 per square foot, with an average of \$25 per square foot. The most valuable lots would be those having direct highway frontage/exposure or located near the entrance points. The improvement assessments are based on the projected development/construction costs of the finished buildings (at \$1,950,000 per acre for the industrial structures and \$2,500,000 per acre for the retail/office buildings). This may result in a slight understatement of assessments on the improvements, as market value often exceeds reproduction expense.

It was assumed the land would be classified as industrial and be taxed at the rate of \$6.75 annually per \$1,000 of assessed value. The improvements, whether industrial or commercial, are also assumed to have a tax rate of \$6.75 per \$1,000 of assessment.

Land taxes are based on an unserviced value of \$75,000 per acre for the 179 gross acres of the subject site in year 1 following entitlement

and prior to subdivision completion, increasing to \$871,200 per gross acre in year 2 as the initial increment subdivision infrastructure is finished, and is being absorbed at market lot prices. The assessed values of the finished improvements are added as of the year of their construction.

All real property value of the subject holding is assumed to be vested in the completed "salable" components, with no assessment placed against open spaces, roads, or other community systems.

The total real property tax to be paid to Maui County in 2003 dollars ranges from \$90,619 in year 1 of development, to a stabilized level of \$3,780,775 at build-out in year 15 and beyond. The aggregate real property taxes paid over the 15-year study time-frame will be \$33.9 million.

State Income Tax - The state will receive income taxes from two sources:

- the wages of the workers associated with the construction, maintenance, and operation of the Maui Business Park, Phase II components; and
- the corporate profits from contractors and suppliers serving the construction and maintenance phases of the development, and as generated by on-going industrial and commercial operations.

According to DBEDT data, individual State of Hawaii income tax liability as a ratio to gross income has ranged from 5.5 to 5.9 percent during the past decade, with the more current figures tending toward the mid to upper-end of the range. We have employed an effective tax rate of 5.80 percent of gross income for individual workers and full-time residents.

The effective tax rate for the corporate income is estimated at 2.00 percent of gross operating profits, based on available DBEDT statistics.

The total income tax revenues to be received by the state are projected at \$151,697 in the first year of construction increasing to a maximum level at year 15 of \$13.8 million annually in constant 2003 dollars.

On a stabilized basis, after build-out, the permanent on-site, building maintenance and off-site workers, and operating businesses, would pay an annual state income tax of \$13.2 million. Over the 15-year modeling period, the cumulative income taxes paid are estimated at \$101.8 million.

We have not included any corporate income or other taxes which will be paid by A&B Properties as a result of its profits from undertaking the Maui Business Park development, or from the secondary jobs created by the discretionary spending of workers and businesses. Such items have the potential to be substantial contributions to the state coffers.

State Gross Excise Tax -- This 4.166 percent of expenditures tax was applied against:

- the total estimated construction contract costs;
- the total gross sales of the industrial and commercial businesses; and
- the discretionary expenditures of the worker population of the subject (estimated at 40 percent of total wages).

The anticipated state excise tax receipts arising from the subject development grow from an estimated \$285,257 in the first year of development to a peak of \$39.9 million. Over the 15-year study period, the receipts total \$289.1 million and stabilize at circa \$38.4 million per year.

We have not included any excise tax revenues associated with the direct, local "multiplier effect" expenditures on Maui, or those created in the secondary market by the suppliers to the operating businesses or secondary worker expenditures.

Total Public Benefits (Revenues) -- In constant 2003 dollars, the aggregate annual tax revenues flowing from the subject development at full project build-out range from:

- \$90,619 to \$3,780,775 per year for Maui County, stabilizing over time at the higher figure, totaling \$33.9 million over the 15-year development projection model;

TABLE 14

SUMMARY OF ANNUAL PRIMARY GOVERNMENTAL TAX RECEIPTS AND PUBLIC SERVICE COSTS
 Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment
 of the Proposed Maui Business Park Phase II
 Kahului, Maui, Hawaii
 In Constant Year 2003 Dollars

On Stabilized Basis At Build-Out	State of Hawaii					
	Actual Cost Comparison			Per Capita Allocation Comparison		
	Receipts	Costs	Net Benefits or (Costs)	Receipts	Costs	Net Benefits or (Costs)
Amount per Year	\$51,632,071	(\$250,000)	\$51,382,071	\$51,632,071	(\$7,614,838)	\$44,017,233

On Stabilized Basis At Build-Out	Maui County					
	Actual Cost Comparison			Per Capita Allocation Comparison		
	Receipts	Costs	Net Benefits or (Costs)	Receipts	Costs	Net Benefits or (Costs)
Amount per Year	\$3,780,775	(\$778,400)	\$3,002,375	\$3,780,775	(\$2,120,448)	\$1,660,327

Source: The Hallstrom Group, Inc.

Maui Business Park, Phase II

The Hallstrom Group, Inc.

- \$436,954 to \$53,695,404 annually for the State of Hawaii, stabilizing at \$51.6 million per year, and cumulatively at \$390.9 million over the 15-year forecast period; and
- \$527,573 to \$57,476,179 per year for total tax receipts (county and state), totaling \$424.9 million for the initial 15 years of the Maui Business Park, Phase II community.

Correlation

Table 14 summarizes our costs/benefits findings on both an actual cost and per capita allowance basis for the entire project and each constituent phase.

Our public cost/benefit assessment is comprehensively displayed on Table 15, which also contains the correlation of public service costs (actual basis) with the anticipated tax revenue benefits.

As can be seen, regardless of the cost methodology adopted, in no single year does public coffers suffer a net loss.

CERTIFICATION

The undersigned do hereby certify that, to the best of our knowledge and belief, the statements of fact contained in this report are true and correct. It is further certified that the reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, opinions, and conclusions. We further certify that we have no present or prospective interest in the property that is the subject of this report, and have no bias with respect to the property that is the subject of this report or the parties involved with this assignment. Our engagement in this assignment was not contingent upon developing or reporting predetermined results. Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal. The appraisal analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics

TABLE 15
Contd.

PUBLIC COST/BENEFIT SUMMARY TABLE
Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment
of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii
In Constant Year 2003 Dollars

Development Year	11	12	13	14	15	Total Years 1 Through 15	Established
PUBLIC BENEFITS (Revenues)							
1. REAL PROPERTY TAXES							
Cumulative Assessed Values (1) (2)							
Improvements - Industrial	\$79,110,000	\$71,900,000	\$341,990,000	\$371,080,000	\$404,170,000		\$404,170,000
Land - Industrial	\$155,944,800	\$155,944,800	\$155,944,800	\$155,944,800	\$155,944,800		\$155,944,800
Total Assessed Value	\$435,754,800	\$466,844,800	\$497,934,800	\$527,024,800	\$560,114,800		\$560,114,800
TOTAL REAL PROPERTY TAXES	\$2,341,345	\$3,181,202	\$3,341,844	\$3,578,917	\$3,710,775	\$33,924,435	\$3,788,775
2. STATE INCOME TAXES							
Taxable Personal Income	\$151,356,270	\$166,808,979	\$182,261,488	\$197,714,397	\$213,167,106	\$1,572,977,300	\$202,879,377
Taxable Corporate Profits	\$50,931,000	\$54,128,600	\$61,306,200	\$66,483,800	\$71,661,400	\$336,077,042	\$71,661,400
Personal Taxes Paid	\$8,778,664	\$9,674,921	\$10,571,178	\$11,467,435	\$12,363,692	\$91,230,343	\$11,767,004
Corporate Taxes Paid	\$1,019,020	\$1,122,572	\$1,226,124	\$1,329,676	\$1,433,228	\$10,601,141	\$1,433,228
TOTAL STATE INCOME TAXES	\$9,797,684	\$10,797,493	\$11,797,302	\$12,797,111	\$13,796,920	\$101,831,484	\$13,200,232
3. STATE GROSS EXCISE TAX							
Taxable Transactions							
Construction Contracts	\$31,090,000	\$31,090,000	\$31,090,000	\$31,090,000	\$31,090,000	\$421,951,840	
Worker Disposable Income Purchases	\$60,542,508	\$66,723,591	\$72,904,675	\$79,085,759	\$85,266,843	\$629,174,920	\$81,151,751
Discretionary Expenditures	\$182,480,000	\$647,200,000	\$711,970,000	\$776,640,000	\$841,310,000	\$5,899,570,000	\$841,380,000
Total Taxable Transactions	\$474,112,508	\$745,013,591	\$815,964,675	\$886,815,759	\$957,666,843	\$6,970,696,760	\$922,511,751
TOTAL STATE GROSS EXCISE TAX	\$32,883,517	\$31,837,244	\$33,911,845	\$36,944,745	\$39,978,484	\$389,147,345	\$38,431,848
TOTAL GROSS PUBLIC REVENUES							
To Maui County (Item #1)	\$2,941,345	\$3,151,202	\$3,361,049	\$3,570,917	\$3,780,775	\$33,924,435	\$3,780,775
To State (Items #2 & 3)	\$7,856,239	\$8,646,291	\$9,436,253	\$10,227,300	\$11,016,145	\$97,907,049	\$11,633,071
AGGREGATE TAX REVENUES	\$10,797,584	\$11,797,493	\$12,797,302	\$13,798,217	\$14,796,920	\$131,831,484	\$15,413,846
PUBLIC COSTS (Expenditures)							
By Maui County	\$700,540	\$778,400	\$778,400	\$778,400	\$778,400	\$4,616,400	\$778,400
By State of Hawaii	\$215,000	\$250,000	\$250,000	\$250,000	\$250,000	\$1,750,000	\$250,000
TOTAL PUBLIC COSTS	\$915,540	\$1,028,400	\$1,028,400	\$1,028,400	\$1,028,400	\$6,366,400	\$1,028,400
NET PUBLIC BENEFITS							
To Maui County	\$2,240,785	\$2,972,802	\$3,322,600	\$3,792,517	\$3,002,375	\$37,308,035	\$3,002,375
To State of Hawaii	\$7,640,554	\$8,374,089	\$9,214,053	\$9,956,883	\$10,783,720	\$90,599,014	\$11,633,071
AGGREGATE NET BENEFITS	\$9,881,339	\$11,346,891	\$12,536,653	\$13,749,400	\$13,786,095	\$127,907,049	\$14,635,446

TABLE 15

PUBLIC COST/BENEFIT SUMMARY TABLE
Market Study, Economic Impact Analysis and Public Cost/Benefit Assessment
of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii
In Constant Year 2003 Dollars

Development Year	1	2	3	4	5	6	7	8	9	10
PUBLIC BENEFITS (Revenues)										
1. REAL PROPERTY TAXES										
Cumulative Assessed Values (1) (2)										
Improvements			\$31,090,000	\$62,180,000	\$93,270,000	\$124,360,000	\$155,450,000	\$186,540,000	\$217,630,000	\$248,720,000
Land	\$13,425,000	\$13,425,000	\$13,425,000	\$13,425,000	\$13,425,000	\$13,425,000	\$13,425,000	\$13,425,000	\$13,425,000	\$13,425,000
Total Assessed Value	\$13,425,000	\$15,944,800	\$17,034,800	\$18,124,800	\$19,214,800	\$20,304,800	\$21,394,800	\$22,484,800	\$23,574,800	\$24,664,800
TOTAL REAL PROPERTY TAXES	\$96,619	\$1,852,437	\$3,243,485	\$4,634,533	\$6,025,581	\$7,416,629	\$8,807,677	\$10,198,725	\$11,589,773	\$12,980,821
2. STATE INCOME TAXES										
Taxable Personal Income	\$2,350,668	\$2,350,668	\$27,734,598	\$43,167,307	\$58,600,016	\$74,032,725	\$89,465,434	\$104,898,143	\$120,330,852	\$135,763,561
Taxable Corporate Profits	\$767,910	\$767,910	\$9,530,200	\$15,962,909	\$22,395,618	\$28,828,327	\$35,261,036	\$41,693,745	\$48,126,454	\$54,559,163
Personal Taxes Paid	\$136,319	\$136,319	\$1,608,607	\$2,804,864	\$4,001,121	\$5,197,378	\$6,393,635	\$7,589,892	\$8,786,149	\$9,982,407
Corporate Taxes Paid	\$115,318	\$115,318	\$1,906,600	\$3,162,045	\$4,417,490	\$5,672,935	\$6,928,380	\$8,183,825	\$9,439,270	\$10,694,715
TOTAL STATE INCOME TAXES	\$251,637	\$251,637	\$3,515,207	\$5,966,909	\$8,418,611	\$10,870,313	\$13,322,015	\$15,773,717	\$18,225,419	\$20,677,121
3. STATE GROSS EXCISE TAX										
Taxable Transactions										
Construction Contracts	\$3,907,000	\$3,907,000	\$3,907,000	\$3,907,000	\$3,907,000	\$3,907,000	\$3,907,000	\$3,907,000	\$3,907,000	\$3,907,000
Worker Disposable Income Purchases	\$940,267	\$940,267	\$11,093,839	\$17,747,323	\$24,400,807	\$31,054,291	\$37,707,775	\$44,361,259	\$51,014,743	\$57,668,227
Business Park Sales/Operations			\$44,720,000	\$129,640,000	\$194,560,000	\$259,480,000	\$324,400,000	\$389,320,000	\$454,240,000	\$519,160,000
Total Taxable Transactions	\$4,847,267	\$4,847,267	\$106,903,839	\$177,804,323	\$252,164,807	\$325,434,291	\$397,607,775	\$470,781,259	\$543,954,743	\$617,129,227
TOTAL STATE GROSS EXCISE TAX	\$283,257	\$283,257	\$4,453,614	\$7,487,313	\$10,521,011	\$13,554,709	\$16,588,407	\$19,622,105	\$22,655,803	\$25,689,501
TOTAL GROSS PUBLIC REVENUES										
To Maui County (Item #1)	\$96,619	\$1,052,437	\$1,843,485	\$2,634,533	\$3,425,581	\$4,216,629	\$5,007,677	\$5,798,725	\$6,589,773	\$7,380,821
To State (Items #2 & 3)	\$436,954	\$436,954	\$6,252,822	\$10,292,376	\$14,236,649	\$18,180,934	\$22,125,218	\$26,069,502	\$29,994,146	\$33,938,796
AGGREGATE TAX REVENUES	\$533,573	\$1,489,391	\$8,096,307	\$12,926,909	\$17,662,230	\$22,397,563	\$27,132,895	\$31,868,227	\$36,603,919	\$41,319,617
PUBLIC COSTS (Expenditures)										
By Maui County			\$77,840	\$155,680	\$233,520	\$311,360	\$389,200	\$467,040	\$544,880	\$622,720
By State of Hawaii			\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000
TOTAL PUBLIC COSTS			\$327,840	\$405,680	\$483,520	\$561,360	\$637,200	\$713,040	\$794,880	\$872,720
NET PUBLIC BENEFITS										
To Maui County	\$96,619	\$1,052,437	\$1,165,645	\$1,316,642	\$1,448,840	\$1,580,697	\$1,712,475	\$1,844,253	\$1,976,031	\$2,107,809
To State of Hawaii	\$436,954	\$436,954	\$6,079,662	\$10,676,533	\$14,217,649	\$17,863,814	\$21,509,979	\$25,156,144	\$28,802,309	\$32,448,474
AGGREGATE NET BENEFITS	\$533,573	\$1,489,391	\$7,245,307	\$11,993,175	\$15,666,479	\$19,344,481	\$23,022,474	\$26,700,462	\$30,378,450	\$33,766,283

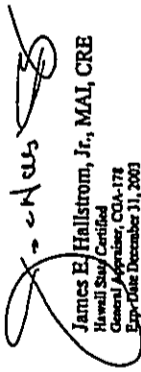
(1) Assessed value for improvements are based on estimated construction cost of industrial and commercial improvements.


(2) Assesses SLU - Urban approvals achieved in Year 1, resulting in a land value of \$75,000 per acre. Finished light industrial lots are projected by assessed values at \$25 per net square foot.

Source: The Hahn Group, Inc.

and Standards of Professional Appraisal Practice of the Appraisal Institute, and the Uniform Standards of Professional Appraisal Practice. The use of this report is subject to the requirements of the Appraisal Institute relating to review by duly authorized representatives. The undersigned certify that they have made personal inspections of the property that is the subject of this report. No other persons provided significant real property appraisal assistance other than the undersigned.

The Appraisal Institute conducts programs of continuing education for their designated members. As of the date of this report, James E. Hallstrom, Jr. has completed the requirements of the continuing education program of the Appraisal Institute.


James E. Hallstrom, Jr., MAI, CRE
Member Since 1988
General Appraiser, CMAA-178
Expires December 31, 2003


Tom W. Holliday

/as

4360_R01

ADDENDA



PROFESSIONAL QUALIFICATIONS OF JAMES E. HALLSTROM, JR., MAI, CRE

Business Background	<p>President</p> <p>The Hallstrom Group, Inc. Honolulu, Hawaii (1980 - Present)</p> <p>Former Senior Vice President and Treasurer</p> <p>Hastings, Martin, Hallstrom and Chew, Ltd., Honolulu, Hawaii (1972-1980)</p> <p>Former Real Property Appraiser and Analyst</p> <p>Administration, Inc., a subsidiary of C. Brewer and Company, Limited Honolulu, Hawaii (1971-1972)</p> <p>Former Senior Real Property Appraiser and Analyst</p> <p>Opitz Realty, Madison, Wisconsin (1969-1971)</p>
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National Designations and Memberships

- CRE Designation (1998) - The Counselors of Real Estate
- MAI Designation (1976) - American Institute of Real Estate Appraisers
- SRPA Designation (1975) - Society of Real Estate Appraisers

The American Institute of Real Estate Appraisers (AIARE) and the Society of Real Estate Appraisers (SREA) consolidated in 1991, forming the Appraisal Institute (AI).

Education

- M.S. (Real Estate Appraisal and Investment Analysis) 1971, University of Wisconsin at Madison
- B.A. (Economics) 1969, Brigham Young University at Provo
- Additional numerous specialized real estate studies in connection with qualifying for national professional designations, and uninterrupted Continuing Education.
- Completed Continuing Education requirements with the Appraisal Institute through December 31, 2002.

Professional Involvement

- Former President and Officer for Hawaii AIARE and SREA Chapters
- Instructor for Society of Real Estate Appraisers Course 101, "Introduction to Appraising Real Property" and Course 201, "Principles of Income Property Appraising"
- Contributing author to the "Hawaii Real Estate Investor"
- Lecturer at many professional seminars and clinics.
- Appointed numerous times as an Arbitrator and Mediator.

Qualified Expert Witness

Federal and State Courts
State Land Use and County Hearings
Arbitration Proceedings

State of Hawaii Certification

Certified General Appraiser, License Number CGA-178, Exp. Date December 31, 2003

Community Service

Active registered member of the Boy Scouts of America; former Director of Le Jardin Academy; former Advisory Board Member of the School of Business, Brigham Young University, Hawaii Campus; Director of Hawaii Reserves, Inc.

PROFESSIONAL BACKGROUND AND SERVICES

The Hallstrom Group, Inc. is a Honolulu based independent professional organization that provides a wide scope of real estate consulting services throughout the State of Hawaii with particular emphasis on valuation studies. The purpose of the firm is to assist clients in formulating realistic real estate decisions. It provides solutions to complex issues by delivering thoroughly researched, objective analyses in a timely manner. Focusing on specific client problems and needs, and employing a broad range of tools, including after-tax cash flow simulations and feasibility analyses, the firm minimizes the financial risks inherent in the real estate decision making process.

The principals and associates of the firm have been professionally trained, are experienced in Hawaiian real estate, and are actively associated with the Appraisal Institute and the Counselors of Real Estate, nationally recognized real estate appraisal and counseling organizations.

The real estate appraisals prepared by The Hallstrom Group accomplish a variety of needs and function to provide professional value opinions for such purposes as mortgage loans, investment decisions, lease negotiations and arbitrations, condemnations, assessment appeals, and the formation of policy decisions. Valuation assignments cover a spectrum of property types including existing and proposed resort and residential developments, industrial properties, high-rise office buildings and condominiums, shopping centers, subdivisions, apartments, residential leased fee conversions, special purpose properties, and vacant acreage, as well as property assemblages and portfolio reviews.

Market studies are research-intensive, analytical tools oriented to provide insight into investment opportunities and development challenges, and range in focus from highest and best use determinations for a specific site or improved property, to an evaluation of multiple (present and future) demand and supply characteristics for long-term, mixed-use projects. Market studies are commissioned for a variety of purposes where timely market information, insightful trends analyses, and perceptive conceptual conclusions or recommendations are critical. Uses include the formation of development strategies, bases for capital commitment decisions, evidence of appropriateness for state and county land use classification petitions, fiscal and social impact evaluations, and the identification of alternative economic use/conversion opportunities.

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PROFESSIONAL QUALIFICATIONS OF THOMAS W. HOLLIDAY

Business Background

Senior Analyst The Hallstrom Group, Inc.
Honolulu, Hawaii

Former Staff Appraiser Davis-Baker Appraisal Co.
Avalon, Santa Catalina Island, California

Education

- B.A. (Communications/Journalism) 1978 California State University at Fullerton
- SREA Course 201 - Principles of Income Property Appraising
- Numerous professional seminars and clinics
- Contributing author to Hawaii Real Estate Investor, Honolulu Star Bulletin

On January 1, 1991, the American Institute of Real Estate Appraisers (AIREA) and the Society of Real Estate Appraisers (SREA) consolidated, forming the Appraisal Institute (AI).

£ HOUSING DEMAND ANALYSIS

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Housing Demand Analysis
for the Proposed
MAUI BUSINESS PARK, PHASE II

Located at
Kahului, Maui, Hawaii

Prepared for
A&B Properties, Inc.

September 2004

EXHIBIT: A

ASSIGNMENT AND SUMMARY OF CONCLUSIONS

Assignment

Our assignment has been to quantify the additional net housing demand impact (or "load") on the Island of Maui resulting from the development of the proposed Maui Business Park, Phase II (MBPPII), a light industrial subdivision planned for 179 acres fronting Hana Highway, near Kahului Airport, and abutting similar mixed-commercial and light industrial uses.

The focus of our study was essentially:

1. To provide greater detail on the impact that MBPPII will have on the existing and near-term Maui labor pool (beyond mere numbers of jobs and wages). Among the items addressed will be: who the probable workers are; where they will come from; and, job creation trending over time.
2. To reasonably quantify the additional housing unit demand which will specifically be created as a result of the subject development, and the probable unit types, pricing levels, absorption timing and locational preferences associated with the demand.
3. To identify and assess alternative methodologies and mitigation measures which could be pursued to meet the labor force and housing demands associated with the subject development.

Our analysis uses historic data and prevailing conditions within models forecasting Maui employment and migration trends and the impacts of the proposed subject development on the labor pool and Maui housing market. The emphasis was on creating formulae addressing the component factors of in-migration on employment and housing demand (or net additional load) using available data resources and survey applications.

The investigation and analysis builds upon our *Market Study, Economic Impact Analysis, and Public Cost/Benefit Assessment of the Proposed Maui Business Park, Phase II* (April 2003) previously

published regarding the proposed subject development. In addition to completing independent demographic, labor and economic research along with detailed surveys of employers and workers in the study area, we have employed data from source materials and studies by others including:

- The SMS Maui Community Plan Update Program: *Socio-Economic Forecast, Phase I Report* (June 2002).
- The State of Hawaii Department of Business, Economic Development and Tourism, "Data Books" for years 1975 through 2002, the *Hawaii Population and Economic Projection and Simulation Models*, and other DBEDT resources.
- The United States Census findings for 1980, 1990 and 2000.
- Various Maui County agencies, specifically the Department of Housing and Human Concerns and their *2004 Affordable Rates Price and Affordable Rent Guidelines*.

Insight and information were also drawn from numerous secondary sources including the Maui Community Plan Update Program report completed by Community Resources, Inc. in 1992, the US Department of Housing and Urban Development, Hawaii-based financial institutions, advocacy groups and other public and private sources as cited.

The pertinent findings from our study are presented in the following summary of conclusions, with the remainder of the report being a series of addenda containing the background data, analysis and support for our findings. The addenda are primarily series of tables with concise discussion of variable sources, inputs, relationships and outcomes.

Summary of Conclusions

Based on our analysis of the probable employment and employee housing characteristics of the proposed Maui Business Park, Phase II development, we have reached the following conclusions as of September 1, 2004:

*Maui Employment/
Housing Overview*

Four decades ago as Maui was beginning its transformation from an agrarian to urban-based economy, the labor resources of the island were insufficient to keep up with the worker demands resulting from development. There were too few residents available to fill all the positions, a condition which was exacerbated by the many Maui youths moving off-island upon reaching working/college age. The economic growth coupled with the out-migration created the need for large numbers of in-migrating workers.

The ratio of jobs per resident on Maui moved from the upper-40s percentile in the 1960s, indicative of a pre-urban economy, to a current ratio of more than 60 percent, which is at modern service-based standards.

The rapid influx of in-migrating workers necessary to meet expanding business requirements brought havoc to the housing sector, which was unable to fully keep pace with emerging demand. The shortfall was magnified by the focus of developers toward higher yield resort-oriented product, difficulty in achieving adequate infrastructure capacities, and an increasing number of vacation/second home/retiree purchasers absorbing available inventory.

From the late 1960s into the mid-1980s, as much as 65-plus percent of the new jobs created were being filled by people in-migrating to the island, with only 35 percent or so being filled by Maui residents. While most in-migrants were seeking lifestyle enhancement not economic opportunity, the net effect was the same. During this period, it was correct to conclude that creating jobs directly created the need for more housing and governmental services.

But times have changed. The population of the island has nearly tripled over the past three decades and the number of children has skyrocketed. With them coming of working age there is no longer an acute undersupply of labor resources; rather, progressive actions must be undertaken to ensure adequate employment opportunities for the next Maui generation.

No more are the majority of new jobs on Maui filled by outsiders; they are primarily going to existing residents. The statistics are moving towards the inverse of 35 years ago, with now about 60 percent to

upwards of two-thirds of the new jobs created in the island being filled by Mauians.

While the on-going economic boom on Maui is resulting in exceptionally low unemployment rates at present, this is somewhat of a near-term affect and not indicative of long-term trends or foundational migration factors.

In fact, unemployment or mass out-migration is looming on the horizon for Maui residents coming of working age unless steps are taken to insure there are sufficient new jobs created. According to SMS projections completed for the community plan updating process, there will be between 18,000 (low forecast) and 37,000 (high) new civilian jobs created on Maui by 2020, assuming a sufficient land base is made available. During the same period, about 34,000 children will become of working age, an average of 1,889 per year based on extrapolation of year 2000 U.S. Census data.

It can no longer be reasonably contended that the creation of a job on Maui still results in a direct need for additional housing and government services. Most of the future workers are already on the island, and there will be demand for more than 20,000 new jobs, 15,000 new homes (most "affordable priced") and the attendant new schools, parks, and services by the naturally expanding resident population regardless of whether Maui Business Park, Phase II is constructed or not.

Creating employment today is no longer part of the problem, it is part of the solution. Expanding the employment and tax bases are a must to service the existing citizens of the county as they move into adulthood. Governmental agencies cannot continue to look to the past as a model for a very different future. A sustainable community is one that offers housing, employment and lifestyle opportunities for the next generation. The MBP II will be a needed component in meeting sustainable employment levels as it is built and operated over the coming decades.

The Maui labor pool reflects a similar trending curve. In the 1960s, in-migrating workers captured up to two-thirds (and often more) of the new employment opportunities being created by the expanding urban economy. According to the Hawaii Department of Labor, during this period the number of persons moving to the islands seeking work far exceeded the number of Hawaii residents moving to work on the Mainland. The "ratio of interstate movement of job seekers" ranged from 117.2 to 135.5 (meaning 17 to 35 percent more workers moved to Hawaii than away from it). This is indicative of a high in-migration of workers.

The rates have fallen significantly since that time, with in-migrants now capturing only one-third to 45 percent of new employment opportunities. Now, the number of workers leaving Hawaii for the Mainland far outpaces those moving to the islands, with up to four times as many out-migrating workers as those in-migrating, resulting in a "ratio of interstate movement" of less than .30.

We forecast that during the next two decades the percentage of new jobs going to in-migrating workers will continue to decline, falling to a probable range between 6 and 28 percent by 2020. The lower-end of the range will be actualized if the large-scale out-migration of Maui youths is curbed, the upper-end if increasing migration continues unabated.

Based on analysis of demographic trends, specifically resident labor pool expansion and in-migration levels, we estimate that some 800 to 900 of the new positions created at MBPPII (or about 16 percent of the project total) will be filled by in-migrating job seekers, with the remaining 4,600 to 4,700 positions (84 percent) filled by in-place Maui residents; most workers who will be entering the labor pool during the coming two decades.

The created jobs, for both resident and in-migrating workers, can be generally categorized as:

- Entry-Level/Low Skill -- 45 percent of total on-site jobs (2,485 positions) with an average annual wage of \$18,300 (2003 dollars).
- Mid-Level/Moderate Skill -- 40 percent of total jobs (2,209 positions) with an average annual wage of \$27,000.

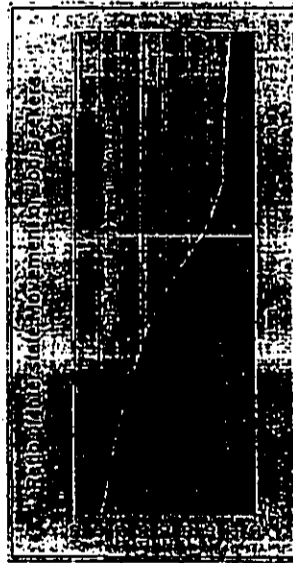
Maui Business Park, Phase II Employment Creation (Addendum I, Tables 1 through 9)

In our 2003 market study and economic impact analysis, we estimated the MBPPII will contain some 5,522 permanent, on-site, full time equivalent (FTE) jobs at build-out in circa 2020. This represents about 20 percent of the total new jobs forecast to be created on the island over the next 17 years (all types), and 51 percent of the trade and service jobs which will comprise the project's employment. This is similar to the ratios evident in the historic light industrial/commercial development of Wailuku/Kahului.

While the natural growth rate of the Maui full-time resident community could provide sufficient labor resources to meet the worker demands of MBPPII, the significant out-migration of Maui youths to Oahu and the mainland coupled with the strong attraction of Maui to persons living elsewhere, will result in many of the project's positions being filled by in-migrating workers.

From 1960 to 1990, in-migration was the primary factor in Maui population growth (not natural community factors), increasing from 53.0 percent of the total resident expansion during the 1960s to a high of 68.7 percent of the growth during the 1980s. Since that time, the ratio has consistently fallen, with in-migration currently comprising about 49.7 percent of the growth; a level expected to decline even further by 2020.

Historic and projected worker migration trends are displayed on the following graph.



- **Management/High Skill** -- 15 percent of total jobs (828 positions) with an average annual wage of \$41,000.

Based on our survey of Kahului businesses and review of industry data, we estimate that approximately forty-five percent (45%) of the full-time equivalent worker positions created in the retail/commercial components of Maui Business Park, Phase II will be comprised of part-time workers. Some fifteen percent (15%) of the FTE jobs in the industrial component will be staffed by part-time help. Most part-timers are entry level, seniors or secondary income providers.

Analysis also indicates that about one-third of the tenants in Maui Business Park, Phase II will be relocating Maui concerns having an existing worker staff and will not be creating meaningful numbers of new jobs. These businesses will generate circa 30 percent of the total FTE positions in the development. As in-place residents, they do not constitute a demand segment for new housing units.

The housing demands of the in-place Maui residents who will be employed at MBP II are existent with or without the development, and it cannot be reasonably asserted the project is a source cause of the demand. However, the in-migrating workers attracted by the economic opportunities associated with the subdivision will create the need for additional housing capacity beyond the standard requirements of the community.

Coupling the projected demographic/in-migration trends of workers in the subject development with average wage estimates and Maui household income characteristics, the demand for additional housing units on the island as a result of the in-migration impacts of MBP II were quantified.

The application of the net in-migration, full-time worker housing load formula used to quantify the affordable housing unit demand created by MBP II is shown on Table A.

We estimate the net demand for total additional affordable housing units (or "housing load") on the island generated by in-migrating full-time workers taking MBP II jobs will be at 190 units. The average sales price for the units should be in the range of \$218,000 to \$257,000, or meeting the affordable pricing criteria for households earning income in the 86 to 100 percent of the County median.

Maui Business Park
Phase II Employee
Housing (Addendum II,
Tables 10 through 12)

TABLE A
CALCULATION OF AFFORDABLE UNIT DEMAND CREATED BY IN-MIGRATING WORKERS TO SUBJECT DEVELOPMENT
Housing Demand Analysis of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii

Total On-Site Full Time Equivalent Positions	5,522
Less Part-Time Workers (1)	(1,822)
Total Full-Time Workers	3,700
Less Full-Time Employees in Businesses Relocating from Elsewhere on Maui (2)	(1,110)
Net Full-Time, New Workers	2,590
Ratio of In-Migrating Workers at MBP II	16.00%
Estimated Full Time In-Migrating Workers to MBP II	414
Employee Housing Load Ratio (3)	1.85
Total Unit Housing Load Created by MBP II Due to In-Migration	214
Percentage at or Below Housing Affordability Standards	85.0%
AFFORDABLE HOUSING UNITS REQUIRED	190

Average Required to Meet Demand (4) 13
Indicated Affordability Price Range \$218,000 to 257,000
Probable Development Type Moderate Density

(1) Estimated at 45% of retail/commercial and 15% of industrial positions. 60 percent of total park employment in retail businesses, 40 percent in industrial.
(2) Relocating businesses will comprise about 33% of Park tenants and an estimated 30% of total Park employment.
(3) The ratio of job creation to household creation (jobs per household).
(4) Assuming multifamily housing development to meet demands with average of 15 units per acre.

Source: The Hallstrom Group, Inc.

An additional 34 units of net demand resulting from in-migrations of MBPII workers would be for homes having an average price of \$320,000. At this level, which equates to an annual household income at 120 percent of the County median, the units would be considered as market (or "gap group") priced and outside the standard affordable requirement guidelines.

A variety of multifamily model types would be appropriate for meeting the forecast subject in-migrating affordable housing demand, ranging from studio to three bedroom units, with two and one bedroom types being the most preferable. Given the economics of Maui residential development, the construction of the units could only be feasible, on a free-standing basis apart from inclusion in a larger mixed-market project, if they were built as "moderate density" apartments, town homes, walk-up "flats", or attached homes.

The appropriate site density for development of this type would be about 15 units per acre, resulting in a demand for 13 acres of land having multi-family potentials.

The demand for the units would occur on a generally consistent basis over about 13 years from 2008 through 2020.

We conducted a survey of "newer" businesses (in projects less than a decade old) and their employees in the subject neighborhood in order to identify prevailing in-migration, housing and other characteristics, and to test the reasonableness of our macro-economic statistical based analysis. Questions directed towards employee housing traits included:

- Area/Town where you now live?
- Area/Town where you would like to live (if different)?
- Do you plan on moving in the next three years?
- If so, will you move somewhere else on Maui or off-island?
- How long is your commute to work?
- Do you own or rent your residence?
- How many people are in your household?

- Other than children, is your household multi-generational or an extended family?
- Were you born on Maui?
- If not, did you come to the island as a youth or adult?
- Where did you go to high school?

Business were queried in regards to whether they were a franchise, corporate or independent operation; the number of total, full and part-time workers; and, if they were a new business, an expansion (new outlet) for an existing concern, or one that has relocated from elsewhere on Maui.

The results of the survey confirmed the findings of our 2003 market study and economic impact analysis for MBPII as well as the general indications provided through this housing study. Among the primary survey insights:

- About 60 percent of the employees have been Maui residents either since birth or were moved to the island as a youth; 40 percent are recent/adult in-migrants. This is in-sync with the estimated islandwide employee ratios of 55 to 66 percent being "residents" and 33 to 45 percent being in-migrating workers. About 40 percent of the in-migrants came from Oahu, virtually all of the remainder from the mainland.
- 60 percent of the employees live in Central Maui (including Paia), 20 percent in Upcountry areas, 15 percent in the Kihel-Wailea corridor, and 5 percent in West Maui. Some 35 percent expect or would like to move during the next three years. The most favorable areas to live, according to the respondents, would be Central Maui with a 51 percent preference; Upcountry, 24 percent; South Maui, 16 percent; and West Maui, 8 percent.
- 55 percent of the employees surveyed rented their housing; 45 percent owned their home.
- Commute time from home to work ranged from 5 to 50 minutes, with an average of about 15 minutes and 10 to 20

minutes" being the most common response (or statistical mode).

- Household size ranged from 1 to 11 members, with an average of 2.8 persons, and a mode of 2 persons. Less than 15 percent of the households were either multi-generational or extended family homes.
- About one-third of the businesses in the newer A&B Kahului projects (Airport Triangle, Maui Marketplace and Maui Business Park, Phase I) have relocated from elsewhere on the island. Another 10 percent are new (satellite) locations for existing Maui companies. The remaining 55-plus percent of the businesses are new to the community. However, the new businesses contained a disproportionately large share of the total floor space and employment positions.
- Significant numbers of the employment positions are filled by several part-time workers, particularly in the retail/commercial businesses. The survey indicated that from 25 to 60-plus percent of positions in the retail segment were oriented towards part-time help, with food service and shops having the highest degree of part-timers. Among the light industrial-oriented businesses, the incidence of part-time filled employment positions is less than in retail, with survey respondents ranging five percent to nearly 20 percent of the positions being filled part-time workers. Overall, park-wide, it is estimated that about one-third of the total employment positions will be filled by part-time workers.

We conclude the equitable provision by A&B Properties for meeting affordable housing demands associated with the master development of MBPPII would be a requirement of approximately 13 acres, with the preferable location for the land donation being in or near Central Maui, with Upcountry and North Kihui being secondary sites.

ADDENDUM I

Maui Business Park, Phase II Employment Creation

In order to ascertain the type of job opportunities and the source of workers to be located at the subject development (MBPPII), an analysis of historic and projection of future employment and in-migration trends was completed. The primary focus of our analysis was three-fold:

1. The number and type of jobs created over time and their relationship to resident population.
2. The source of Maui population growth ("natural increase" versus in-migration) and the movement of job seekers.
3. The number of Maui residents reaching working age and their effect on the island labor pool.

Statistics from several sources were employed, primarily:

- SMS (previously cited Community Plan update report)
- State of Hawaii Department of Business, Economic Development and Tourism (DBEDT)
- State of Hawaii Department of Labor and Industrial Relations (LOIH)

Data from these sources were correlated with the indicators from our Market Study and Economic Impact analysis of the proposed subject development to provide a picture of the historical, current and projected employment and in-migration trends in Hawaii and on Maui.

A series of models were constructed depicting subject employment creation as a function of job growth and worker origin on a year-by-year basis. The process is presented on Table 1 through 9. The following narrative summarizes our analysis and findings, as keyed to the tables.

TABLE 1
COMPARISON OF HISTORICAL POPULATION, EMPLOYMENT AND JOB TRENDS
 Housing Demand Analysis of the Proposed Maui Business Park Phase II
 Kahului, Maui, Hawaii

Year	1970	1980	1990	2000	2004
Maui County Resident Population	46,156	70,991	100,504	128,841	138,000
Compounded Percent Annual Change		4.40%	3.34%	2.31%	1.98%
Maui County Job Count (1)	21,320	33,425	55,000	79,800	84,200
Compounded Percent Annual Change		4.23%	5.16%	3.79%	1.54%
Ratio of Jobs to Population	46.19%	47.08%	54.72%	61.94%	61.01%
Jobs by Industry (Percent of Total) (2)					
Agriculture	11.83%	8.30%	4.73%	2.44%	2.14%
Construction	5.39%	9.03%	5.73%	3.32%	3.62%
Manufacturing	7.30%	5.63%	3.53%	2.19%	1.78%
Transportation/Communications/Utilities	6.09%	6.74%	5.43%	5.64%	4.99%
Trade	21.22%	19.24%	24.82%	20.93%	11.88%
Finance/Insurance/Real Estate	5.57%	6.03%	6.09%	3.76%	3.38%
Hotel/Recreation/Leisure Services	12.35%	14.54%	16.71%	14.33%	24.94%
Other Services	11.65%	10.67%	14.82%	15.71%	15.32%
Public Administration	14.78%	12.69%	10.64%	9.84%	10.27%
Self-Employed	3.48%	7.17%	7.45%	21.80%	21.38%
Total	100%	100%	100%	100%	100%

(1) Includes all civilian wage earning jobs and self-employed positions (estimated).
 (2) Classification of jobs has varied over time. 1970 figures based on extrapolation of available data from early 1970s. 2000 figures based on correlation of 2000 and 2001 data.

Source: State of Hawaii DBEDT and LOHII, SMS, and The Hallstrom Group, Inc.

We note, where possible we have utilized statistics specific to the Island of Maui. However, for some of the data points only Maui County or statewide figures were available, with appropriate extrapolations made where necessary. The tables have footnotes which provide further detail on the data sources and their application.

The population, employment and job type trends for Maui County from 1970 to 2004 are displayed on Table 1. The key indicators are the rate of job growth versus that for population growth. From 1970 to the turn of the century, the rate of employment creation far surpassed that of population expansion; a primary factor in the need for in-migrating workers.

However, the trend has begun to reverse itself and now the resident population is outpacing employment increases. During the study period, the number of residents on the island increased by 199 percent while the number of jobs grew 295 percent, resulting in the ratio of "jobs to population" increasing from 46.2 percent, typical of an agrarian or pre-urban economy, to 61.0 percent, a figure within the standard range for a modern, service-based economy.

The largest gains in employment opportunities were seen in the "hotel/recreation/leisure services" and the "self-employed" fields, with the "trade", "other services" and "public administration" categories also being major contributors. The largest declines were seen in "agriculture", "construction" and "manufacturing".

Projected employment and job trends for the County from 2004 through 2020 are shown on Table 2. The SMS "baseline" forecasts show population increasing by 27 percent during the time-frame while jobs escalate some 33 percent, resulting in a ratio of 64 jobs per 100 full-time residents. The relationship of job types is estimated to be relatively steady, with slight gains posted in the "transportation/communications/utilities" and "other services" groupings.

Table 3 summarizes how the Maui County population expanded from 1961 to 2004 as a function of "natural increase" versus "net migration". The data illustrates the cyclical flow of in-migrating workers into the County as urbanization sped forward during the last four decades and its recent slow-down as the community has reached a stabilized urban status.

TABLE 3
SUMMARY OF MAUI COUNTY POPULATION GROWTH AND IMMIGRATION TRENDS
 Housing Demand Analysis of the Proposed Maui Business Park Phase II
 Kahului, Maui, Hawaii

Period	1961 to 1970	1971 to 1980	1981 to 1990	1991 to 2000	2001 to 2004
Population Increase (Net Change)	3,301	24,833	29,513	28,337	9,159
Source of Population Growth (1)					
Growth from Natural Increase	1,551	10,803	9,234	11,301	4,611
Percent of Total Increase	47.0%	43.5%	31.3%	39.9%	50.3%
Effective Net Growth Rate (annual average) (2)	3.3	18.4	18.8	9.9	8.6
Percent of Women of Child Bearing Age (3)	24.1%	22.9%	23.0%	21.1%	21.1%
Growth from Net Migration (4)	1,750	14,032	20,279	16,436	4,548
Percent of Total Increase	53.0%	56.5%	68.7%	58.0%	49.7%
Effective Net Growth Rate (annual average) (2)	3.9	24.0	23.8	14.3	8.3
Ratio of In-migration Movement of Job Seekers (5) (Annual Average During Period)	133.3	117.2	91.3	38.7	26.5

(1) Growth factor for 1961-1970 and 1971-1980 extrapolated from state-wide figures. Others are specific to Maui County.
 (2) Effective rate of annual growth per 1,000 members of population.
 (3) Women between the ages of 15 and 44.
 (4) Includes net movement into or out of armed forces.
 (5) Statewide figures. Ratios above 100 indicate an in-migration of workers, ratios lower than 100 indicate net out-migration.
 Figures for 2001-04 extrapolated from 2001 & 2002 data as adjusted to reflect economic trends.

Source: State of Hawaii DBEDT and The Hallstrom Group, Inc.

TABLE 2
PROJECTED POPULATION, EMPLOYMENT AND JOB TRENDS
 Housing Demand Analysis of the Proposed Maui Business Park Phase II
 Kahului, Maui, Hawaii

Year	2004	2005	2010	2015	2020
Maui County Resident Population	138,000	139,573	151,269	163,265	175,136
Compounded Percent Annual Change		1.14%	1.62%	1.54%	1.41%
Maui County Job Count (1)	84,200	85,944	93,752	102,874	112,253
Compounded Percent Annual Change ²		2.07%	1.75%	1.87%	1.54%
Ratio of Jobs to Population	61.01%	61.58%	61.98%	63.01%	64.09%
Jobs by Industry (Percent of Total) (2)					
Agriculture	2.14%	2.33%	2.13%	1.94%	1.78%
Construction	3.62%	3.30%	3.21%	3.09%	2.98%
Manufacturing	1.78%	2.09%	1.92%	1.75%	1.60%
Transportation/Communications/Utilities	4.99%	5.76%	5.87%	5.93%	5.98%
Trade	11.88%	12.56%	12.18%	11.61%	11.02%
Finance/Insurance/Real Estate	3.38%	3.79%	3.69%	3.58%	3.48%
Hotel/Recreation/Leisure Services	24.94%	22.61%	22.56%	22.93%	23.32%
Other Services	15.32%	16.02%	16.81%	17.44%	18.03%
Public Administration	10.27%	10.03%	10.07%	10.00%	9.92%
Self-Employed	21.67%	21.51%	21.55%	21.72%	21.84%
Total	100%	100%	100%	100%	100%

(1) Includes all civilian wage earning jobs and self-employed positions (estimated).
 (2) Classification of jobs has varied over time. 1970 figures based on extrapolation of available data from early 1970s. 2000 figures based on correlation of 2000 and 2001 data.

Source: SMS, and The Hallstrom Group, Inc.

TABLE 4

**PROJECTED MAUI COUNTY POPULATION GROWTH AND IN-MIGRATION TRENDS
USING UNADJUSTED DEMOGRAPHIC TRENDS
Housing Demand Analysis of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii**

Period	2004 to 2005	2006 to 2010	2011 to 2015	2016 to 2020
Population Increase (Net Change)	1,573	11,696	11,996	11,871
Source of Population Growth				
Growth from Natural Increase	794	6,108	6,605	7,104
Percent of Total Increase	50.5%	52.2%	55.1%	59.9%
Effective Net Growth Rate (annual average) (2)	8.5	8.4	8.4	8.4
Percent of Women of Child Bearing Age (3)	21.0%	20.4%	20.3%	20.1%
Growth from Net Migration (1)	779	5,589	5,390	4,763
Percent of Total Increase	49.5%	47.8%	44.9%	40.1%
Effective Net Growth Rate (annual average) (2)	8.4	7.7	6.9	5.6
Ratio of Interstate Movement of Job Seekers (2) (Annual Average During Period)	26.0	25.0	22.0	19.0

(1) Includes net movement into or out of armed forces.

(2) Ratios above 100 indicate an in-migration of workers, ratios lower than 100 indicate net out-migration.

(3) Women between the ages of 15 and 44

Source: SMS, State of Hawaii DBEDT and The Hallstrom Group, Inc.

During the 1960s, 53 percent of the population expansion in the County was as result of net in-migration (more people coming into the islands than moving out), a ratio which increased in the 1970s before peaking in the 1980s at 68.7 percent of total growth. The ratio has moved downward since, falling below half for the first time in the study period during 2001-04 with an estimated 49.7 percent of the population increase due to net in-migration.

Tracking of interstate movement of job seekers supports this trend, with a ratio of 135.5 during the 1960s, which is indicative of a major influx of outside workers relative to those leaving (35.5 percent more workers moved into the state than moved out), declining to a current level of 26.5 from 2001-04, indicating a major out-flow of workers seeking jobs outside Hawaii relative to in-migration (three times as many workers moved from Hawaii than moved to the islands).

The forecasts for Maui County population growth by source and interstate job movement ratios for the period 2004 through 2020 are depicted on Table 4. It is expected the trends evident since the early 1990s will continue, with a greater percentage of population growth being a function of "natural increase" as opposed to "net migration". This will be a product of several factors, notably that the Maui resident population is reaching an urban critical mass capable of self-generating large-scale population growth outpacing in-migration levels, and the renowned high cost of living on the island serves to dampen some outsider interest.

In fact, the limitations of the County and its economy will result in vast numbers of youths moving away from the islands upon reaching working age. We forecast the ratio of interstate movement of job seekers will continue at its currently low level, falling to about 19.0 by 2020, meaning far more workers are moving out of Hawaii to the mainland than vice versa (at a rate of about four to one).

The number of Maui residents available for and entering into the labor pool has increased dramatically over the past 34 years, as shown on Table 5. During the 1970s, an average of some 1,180 Maui residents turned 20 each year, considered as the permanent workforce eligibility age, with approximately 798 entering the labor pool (after allowance for out-migration and other factors). Currently, there are about 2,118 Maui youths turning 20 each year, up 79 percent from three decades ago, and there are 1,707 persons entering the labor pool annually, more than double the earlier rate.

TABLE 3
HISTORIC ANALYSIS OF MAUI ISLAND RESIDENTS ENTERING THE LABOR POOL
 Heading Demanded Analysis of the Proposed Maui Retirement Park Phase II
 Kahului, Maui, Hawaii

Period	1978 to 1979	1980 to 1990	1991 to 2000	2001 to 2004
Number of Persons Reaching Working Age (1)				
Total During Period	11,795	12,014	14,112	8,071
Cumulative Total	11,795	23,809	37,921	45,992
Annual Average	1,319	1,329	1,611	2,118
Net Migration of Persons Reaching Working Age (2)				
Total During Period	344	(115)	1,843	(910)
Cumulative Total	344	(115)	1,728	818
Annual Average	24	(13)	184	(217)
Percent of Total Reaching Working Age	2.1%	-3.6%	11.6%	-18.7%
Net Persons Reaching Working Age Annually	1,204	1,170	1,427	1,900
Other Adjustments to Labor Pool Entry Estimates				
Disabled, Unable to Work (4)	36	35	54	37
Institutionalized (5)	6	6	13	13
Economically Advantaged (6)	6	6	9	9
Persons Never Entering Workforce (7)	181	117	108	57
Gross Growth in Maui Island Labor Pool (8)				
Total During Period	799	4,443	7,216	8,535
Cumulative Total	799	5,242	12,458	21,072
Annual Average	799	893	1,515	1,997

(1) From SMS Maui County Community Plan Update Program, June 2002 (Exhibit 1.4, Maui Island, Resident Forecast).
 Age 19 and older as workforce eligibility entry age is correlated with available data and forecasts which generally
 have age groupings of 15 to 19 years of age. DREDDT data used for 1970 to 1989 comparison.
 (2) Estimates shown above cited SMS/DREDDT tables by subtracting the number of 20 to 24 years of age persons in a period
 from the total of 15 to 19 years of age persons in the previous period. Unadjusted for monthly net out-migration,
 monthly net in-migration between the two periods. Positive number shows net in-migration, negative number net out-migration.
 (3) Number of persons reaching 65 each year, the expected average end of the working period. From SMS exhibit
 (4) Number of persons reaching 65 each year, the expected average end of the working period. From SMS exhibit
 (5) Number of persons reaching 65 each year, the expected average end of the working period. From SMS exhibit
 (6) Number of persons reaching 65 each year, the expected average end of the working period. From SMS exhibit
 (7) Number of persons reaching 65 each year, the expected average end of the working period. From SMS exhibit
 (8) Includes persons who migrate to Maui from other islands. In 2005, the figure was 0.51 percent of population.
 (9) Persons of sufficient means choosing to work in Maui. Allowance factor is 0.5 percent used.
 (10) Persons of sufficient means choosing to work in Maui due to family obligations (primarily "non-resident") and jobs of non-resident
 (11) 2000 & 2001 labor force survey of working age reported 18 percent of the population below 16 percent of
 workforce, a disparity of 2.4 percent. To this is added an allowance of 0.5 percent for "unemployed" and "unemployed"
 in 1.7 percent current estimate for this figure. For prior years, island-based indicators were used, which show a marked
 decline in percent during the period, from circa 3.1 percent in the 1970s to less than 1.0 percent by 1990.
 (12) Does not include deduction for workers leaving the labor pool in retirement age.

Source: State of Hawaii DREDDT, SMS and The Haldeman Group, Inc.

The projected number of Maui residents entering the labor pool from 2004 through 2020 is quantified on Table 6. Even under the SMS assumptions that out-migration of workers from Maui will escalate rapidly during the forecast period, with the rate doubling over the next two decades and more than 5,400 youths moving off-island, the number of residents entering the island's labor pool will still remain near current levels, averaging about 1,542 persons annually over the next 16 years, totaling 24,674 persons.

The correlation of the employment, job creation, and resident vs. in-migration projections is shown on Table 7. Primarily, it shows probable "employment capture rates" for the 28,053 jobs forecast to be created on Maui during the next 16 years as divided between Maui resident and in-migrating workers under several scenarios. The four alternatives assumed: expanding out-migration of Maui residents; stable out-migration, no net out-migration, and, limited migration.

For purposes of this report, which is intended to focus on housing needs, and to avoid artificially effecting conclusions, we believe the most appropriate scenario is Number 3, "Assuming no Net Out-Migration of Maui Residents". Or, assuming the residents on Maui stay on the island if possible and fill their pro rata share of jobs. Under this alternative, in-migrating workers capture 37 percent of new employment opportunities in 2005 (consistent with current levels), decreasing to 16.8 percent by the year 2020. Of the total new jobs on the island, 21,019 will be filled by island residents and 7,034 by in-migrating workers.

Application of the resident vs. in-migrating worker ratios to the 5,522 jobs to be created at MBPPI is shown on Table 8, which also depicts their creation over time and relationship with total island job growth. Businesses in the subject development will generate new openings at a stabilized rate of about 425 jobs annually, which is from 22.7 to 27.2 percent of all the new jobs forecast for Maui over the coming 16 years (through 2020).

The projections were then adjusted for job types, based on the propensity of in-migrating workers to be attracted to jobs in hotel, recreation, leisure services, fine dining, and self-employed; activities that are not likely to be found at the subject. Local residents are more typically employed in the retail, warehouse, manufacturing, shipping, fast food and supply businesses which will dominate MBPPI. After adjustment, we forecast that 4,639 (or 84 percent) of the jobs created

TABLE 1
PROJECTED MAUI COUNTY BUDGET YEAR'S BROADBAND TECH EMPLOYMENT
Headcount Demand Analysis of the Proposed Broadband Park Phase II
(Kahului, Maui, Hawaii)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Annual Number of Jobs Created	1,344	1,243	1,242	1,242	1,242	1,242	1,242	1,242	1,242	1,242	1,242	1,242	1,242	1,242	1,242	1,242	1,242	1,242	1,242	1,242	1,242	34,913
Job Creation by Industry																						
Agriculture	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Construction	200	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Manufacturing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trade/Wholesale	154	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Transportation	72	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117
Information Services	0	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
Healthcare Services	1,242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Public Administration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Self-employed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Estimate of Employment Exposure Base																						
1. Assumed Employment Base (Excludes Out-of-State Residents (1))																						
Headcount	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913
Percent of Total New Jobs	25.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%
Number of New Jobs	8,913	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500
2. Assumed State Job Out-of-State Residents (2)																						
Headcount	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913
Percent of Total New Jobs	21.7%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%
Number of New Jobs	7,563	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516
3. Assumed Total Jobs (Sum of Assumptions 1 & 2)																						
Headcount	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913
Percent of Total New Jobs	25.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%	27.2%
Number of New Jobs	8,913	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500
4. Assumed Limited Migration (3)																						
Headcount	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913	34,913
Percent of Total New Jobs	21.7%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%
Number of New Jobs	7,563	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516	8,516

(1) Based on SMS projections (Exhibit 1-4). The corresponding target base is 118 to 122 percent per year.
 (2) Assuming net migration of 200 persons per year.
 (3) Assuming net migration of 200 persons per year and in-migration of 100 persons per year.
 (4) Assuming net migration of 200 persons per year and in-migration of 100 persons per year.
 Source: SMS and The Hollmann Group, Inc.

TABLE 6
PROJECTION OF MAUI ISLAND RESIDENTS ENTERING THE LABOR POOL
Headcount Demand Analysis of the Proposed Broadband Park Phase II
(Kahului, Maui, Hawaii)

Period	2004 to 2005	2006 to 2010	2011 to 2015	2016 to 2020
Number of Persons Reaching Working Age (1)				
Total During Period	2,118	9,278	18,248	10,995
Cumulative Total	2,118	11,404	21,344	32,239
Assumed Average	2,118	1,876	2,859	2,199
Net Migration of Persons Reaching Working Age (2)				
Total During Period	(218)	(1,297)	(1,118)	(2,184)
Cumulative Total	(218)	(1,515)	(3,229)	(4,813)
Assumed Average	(218)	(259)	(340)	(437)
Percent of Total Reaching Working Age	-10.3%	-13.2%	-16.8%	-19.2%
Net Persons Reaching Working Age Annually	1,900	1,617	1,706	1,262
Other Adjustments to Labor Pool Entry Estimates				
Disabled, Unable to Work (4)	57	49	51	53
Individuals (5)	13	11	12	12
Economically Disadvantaged (6)	9	8	9	9
Persons Never Entering Workforce (7)	57	49	51	53
Net Growth to Maui Island Labor Pool (8)				
Total During Period	1,716	7,201	7,283	7,255
Cumulative Total	1,716	9,016	16,219	24,874
Assumed Average	1,716	1,448	1,541	1,591

(1) From SMS Maui County Summary Plan Update Program, June 2002, (Exhibit 1-4, Maui Island, Resident Forecast). Age of 20 without a workforce eligibility entry is compared with available data and forecasts which generally have age groups of "13 to 19 years of age".
 (2) Estimated using above cited SMS table by subtracting the number of "20 to 24 years of age" persons in a period from the total of "13 to 19 years of age" persons in the previous period. Unadjusted for mortality rate, which is generally similar between the two groups. Positive number shows in-migration, negative number out-migration.
 (3) Number of persons reaching 65 each year, the accepted average end of the working period. From SMS table.
 (4) Most recent computer data for Hawaii is from 1990 US Census which indicated 3.02 percent of the working age population was "prevented from working" due to a disability. Revised survey methods no longer generate this data point. A three percent increase for this factor is assumed.
 (5) Includes principal earners and patients in long-term care facilities. In 2000, the figure was 0.61 percent of population.
 (6) Persons of sufficient means choosing never to enter workforce. Allowance factor of 0.5 percent used.
 (7) Persons choosing not enter workforce due to family obligations (primarily "housewives"). Analysis of statewide data for 2000 & 2001 shows that women of working age represent 63.3 percent of the population but only 48.6 percent of workforce, a disparity of 21.3 percent. To this we have made an allowance for "housework" and contribution tracking in a 3.0 percent estimate for this factor.
 (8) Does not include deductions for workers leaving the labor pool at retirement age.
 Source: State of Hawaii DBEDT, SMS and The Hollmann Group, Inc.

by Park tenants will be filled by Maui residents, the remaining 883 positions (16 percent) will be taken by in-migrating workers.

The subject employment forecasts are further detailed on Table 9, which includes comparisons between island-wide job creation (totals and by type) and MBPPI positions, and grouping of subject jobs by type/skill level. As previously noted, Park businesses will create between 22 and 27 percent of all new employment on the island over the next two decades, and it will constitute from 60 to 63 percent of all new jobs in the fields which will be represented at the subject.

Of the positions at MBPPI, approximately 2,485 (or 45 percent) will be entry level/low skill jobs, 2,209 (40 percent) will be mid-level/moderate skill jobs, and 828 (15 percent) will be management/high skill jobs.

ADDENDUM II

Maui Business Park, Phase II Employee Housing

Having quantified the number, type, skill level and resident status of the projected workers at MBPPI, the next step in the study process is extrapolate from these indicators estimates of affordable housing unit demand associated with the employees. Our primary focus in this section is four-fold:

1. To estimate household incomes of subject workers.
2. To identify conventional and government-based mortgage criteria associated with homeownership.
3. To assess housing pricing parameters for subject workers and determine the relative level of affordability.
4. To quantify the extent of additional "affordable" housing demand created by in-migrating workers to MBPPI.

Statistics and formulae from several sources were employed, primarily:

- County of Maui Department of Housing and Human Concern

TABLE 6
DEPICTION OF SUBJECT JOB CREATION AS A FUNCTION OF AGE GROUPS AND WORKER ORIGIN
(Working Document Analysis of the Proposed Maui Business Park Phase II)
(Maui, Maui, Hawaii)

Year	2001	2006	2011	2016	2021	2026	2031	2036	2041	2046	2051	2056	2061	2066	2071	2076	Total
Annual Number of Jobs Created for Maui	1,744	1,862	1,981	2,101	2,221	2,341	2,461	2,581	2,701	2,821	2,941	3,061	3,181	3,301	3,421	3,541	36,663
Annual Number of Permanent Jobs Created on Maui Business Park Phase II (1)				42	42	42	42	42	42	42	42	42	42	42	42	42	5,712
Percent of Total				2.0%	1.9%	1.8%	1.7%	1.6%	1.5%	1.4%	1.3%	1.2%	1.1%	1.0%	0.9%	0.8%	15.6%
Estimated Jobs to In-Migrants				293	293	293	293	293	293	293	293	293	293	293	293	293	4,333
Percent of Total				16.8%	13.8%	12.6%	11.5%	10.6%	9.7%	8.9%	8.1%	7.4%	6.7%	6.1%	5.6%	5.1%	11.7%
Estimated Jobs to Maui Residents				128	128	128	128	128	128	128	128	128	128	128	128	128	1,776
Percent of Total				7.3%	6.9%	6.4%	5.9%	5.5%	5.1%	4.7%	4.4%	4.1%	3.8%	3.5%	3.2%	3.0%	4.8%
Estimated Jobs to In-Migrants				168	168	168	168	168	168	168	168	168	168	168	168	168	2,557
Percent of Total				9.6%	9.0%	8.4%	7.8%	7.4%	6.9%	6.5%	6.1%	5.8%	5.5%	5.2%	4.9%	4.6%	7.0%

(1) Accounting for the propensity of in-migrants to be in the (Healthcare, Food Services, and Retail) sectors.

Source: BMRB and The Hollmann Group, Inc.

- State of Hawaii Department of Housing and Community Development (HCD)
- United State Department of Housing and Urban Development (HUD)
- Various "conventional" (private, market-based) mortgage lenders

Employee wage estimates were taken from our 2003 economic impact analysis of the proposed subject development.

The application of the formulae to the subject employee projections, resulting in housing demand and affordability indicators are shown on Tables 10 through 12. The following narrative summarizes our analysis and findings, as keyed to the tables.

Table 10 breaks-down the MBPIL workers by type/skill category, resident status and annual worker wage, and then quantifies their average household income using various government-supplied statistics. The 2003 average household income on Maui was \$60,700 and average, home-owning households had nearly two full-time equivalent workers.

Based on our projections, the average household incomes for MBPIL workers in the "entry level/low skill" category, comprising 45 percent of the subject jobs, will be \$52,613, or about 86.7 percent of the Maui average. "Mid-level/moderate skill" workers at the Park will have household incomes estimated at \$60,620, which is equal to 100 percent of the county average; and, those in the "management/high-skill" grouping have forecast household incomes of \$73,234, or at 120.6 percent of the county average.

The household income estimates are converted into housing prices on Table 11 based on prevailing government and private mortgage financing guidelines. The top half of the chart utilizes HUD and Maui County Department of Housing criteria, which call for a five percent down payment, a maximum allowable housing expense of 33 percent of gross household income, and reserves for taxes and insurance.

The total indicated affordable price for a housing unit among the subject groups is at \$217,715 for the entry level employee group, \$257,398 for the mid-level workers, and \$319,988 for the management

TABLE 9

PROJECTED MAUI COUNTY INDUSTRY VERSUS HOUSING EMPLOYMENT
Housing Demand Analysis of the Proposed Mid-Barbets Park Phase II
(Maui, Hawaii)

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Annual Number of Jobs Created on Maui (Estimated)	1,344	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	17,808
All Creative Industries by Primary Industry Type Found in Subject Development																	
Trade/Comm./Admin																	
Tech																	
Professional/Biz Svcs																	
Other Services																	
Total																	
Percent of All Creative Jobs on Island																	
All Creative of Mid-Barbets Park Phase II																	
Total On-Site Jobs at Park Assembly																	
Percent of Island Total by Subject Type																	
Percent of All Jobs Created on Island																	
Cumulative All Creative at Park																	
Grouping of MBPIL Jobs by Typical Level																	
Entry Level/Low Skill																	
Percent of Total Park Jobs																	
Mid-Level/Moderate Skill																	
Percent of Total Park Jobs																	
Management/High Skill																	
Percent of Total Park Jobs																	

Source: The Midtown Group, Inc.

TABLE 11

ESTIMATE OF HOUSING PRICE AFFORDABILITY FOR MBP11 EMPLOYEES
Housing Demand Analysis of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii

1. Based on HUD/Maui County Criteria

Grouping	Entry Level/Low Skill	Mid-Level/Moderate Skill	Management/High Skill
Gross Household Monthly Income	\$4,384	\$5,052	\$6,103
Maximum Allowable Housing Expense (1)	\$1,447	\$1,667	\$2,014
Less Tax and Insurance Reserve (2)	(\$150)	(\$150)	(\$150)
Less Mortgage Insurance Payment (2)	(\$90)	(\$90)	(\$90)
Net Amount Available for Debt Service	\$1,207	\$1,427	\$1,774
Maximum Mortgage Amount (3)	\$206,829	\$244,528	\$303,989
Down payment at 5% of Sales Price (2)	\$10,886	\$12,870	\$15,999
Total Affordable Purchase Price	\$217,715	\$257,398	\$319,988

2. Based on Conventional Financing Criteria

Grouping	Entry Level/Low Skill	Mid-Level/Moderate Skill	Management/High Skill
Gross Household Monthly Income	\$4,384	\$5,052	\$6,103
Maximum Allowable Housing Expense (4)	\$1,228	\$1,414	\$1,709
Maximum Mortgage Amount (5)	\$210,428	\$242,300	\$292,851
Down payment at 20% of Sales Price (5)	\$52,607	\$60,575	\$73,213
Total Affordable Purchase Price	\$263,035	\$302,875	\$366,064

(1) Based on HUD/Maui County affordability criteria at 33%.

(2) As established by Maui County Department of Housing and Human Concerns for housing affordability formula.

(3) Assuming 5.75% annual interest and 30 year mortgage (Hala Mae rate), per Maui County Department of Housing and Human Concerns.

(4) Conventional financing with maximum monthly mortgage payment at 28% of gross income. No reserves of mortgage insurance required.

(5) Assuming 5.75% annual interest and 30 year mortgage.

(6) Conventional financing standard.

Source: State of Hawaii, Maui County and The Hallstrom Group, Inc.

TABLE 10

SUMMARY OF MBP11 EMPLOYMENT BY WAGES AND GROSS HOUSEHOLD INCOMES,
Housing Demand Analysis of the Proposed Maui Business Park Phase II
Kahului, Maui, Hawaii

Grouping	Entry Level/Low Skill	Mid-Level/Moderate Skill	Management/High Skill
Number of Jobs in Park	2,485	2,209	828
Percent of Total	45.0%	40.0%	15.0%
Jobs Filled by In-Migrating Workers	398	353	132
Percent of Jobs by Skill Level	16.0%	16.0%	16.0%
Percent of Total Jobs in Park	7.2%	6.4%	2.4%
Average Annual Worker Wage	\$18,300	\$27,000	\$41,000
<i>Estimate of Household Income</i>			
Additional Incomes in Household (Full-Time Equivalents)	0.99	0.97	0.93
Average Additional Income Amount (1)	\$34,313	\$33,620	\$32,234
Total Average Household Income	\$52,613	\$60,620	\$73,234
Percent of County Median for 2003 (2)	86.7%	99.9%	120.6%

(1) Assuming average worker wage of \$36,777 for 2004. Taken from DBEDT statewide data for average wage compiled through 2002 at \$34,660, plus increases of three percent annually for 2003 and 2004.

(2) The average Maui County income for a family of four in 2003 was \$60,700.

Source: The Hallstrom Group, Inc.

category. The entry and mid-level group figures are within the "affordable" pricing range for Maui, the management category is within general market parameters.

The lower half of the table shows the application using conventional (or private) financing criteria, which calls for a 20 percent down payment, and a maximum monthly household expense at 28 percent of gross income, with no set asides for reserves. Due to the high down payment requirement and no reserve funds, the supportable home price is higher for every category under conventional criteria than government guidelines.

The indicated affordable house for the subject entry level worker household is \$263,035, for the mid-level household it is at \$302,875, and for the management group is at \$366,064.

Table 12 displays the crux of our study, combining the employee, in-migration, housing and affordability factors into an estimate of the affordable housing unit demand created by in-migrating workers to MBP II. The variables and application of the formula are as follows, presented according to the line items of the chart:

- **Total On-Site Full-Time Equivalent Positions** -- This figure is taken from our prior economic impact analysis of MBP II.
- **Less Part-Time Workers** -- Many of the jobs in the Park will be filled by several part-time workers instead of a single full-time employee, particularly in the retail and food service businesses. Our investigation, as detailed in the footnote, indicates that about 33 percent of the total MBP II positions will be comprised by part-time help. Often, these workers are entry level, seniors, or other persons not looking for full-time employment, who typically live within an existing household. And, while their income may be vital to a household, it is not reasonable to expect these workers to provide the primary impetus towards support for more housing units.
- **Total Full-Time Workers** -- By deducting the positions which will be filled by part-time employees from the total positions, the number of full-time workers in the subject development is estimated.

TABLE 12

CALCULATION OF AFFORDABLE UNIT DEMAND CREATED BY IN-MIGRATING WORKERS TO SUBJECT DEVELOPMENT
Housing Demand Analysis of the Proposed Maid Business Park Phase II
 Kahului, Maui, Hawaii

Total On-Site Full Time Equivalent Positions	5,522
Less Part-Time Workers (1)	(1,822)
Total Full-Time Workers	3,700
Less Full-Time Employees in Businesses Relocating from Elsewhere on Maui (2)	(1,110)
Net Full-Time, New Workers	2,590
Ratio of In-Migrating Workers at MBP II	16.00%
Estimated Full Time In-Migrating Workers to MBP II	414
Employee Housing Load Ratio (3)	1.85
Total Unit Housing Load Created by MBP II Due to In-Migration	224
Percentage at or Below Housing Affordability Standards	85.0%

AFFORDABLE HOUSING UNITS REQUIRED

Average Required to Meet Demand (4)	13
Indicated Affordability Price Range	\$218,000 to 257,000
Probable Development Type	Moderate Density

(1) Estimated at 45% of retail/commercial and 15% of industrial positions. 60 percent of total park employment in retail businesses, 40 percent in industrial.
 (2) Relocating businesses will comprise about 33% of Park tenants and an estimated 30% of total Park employment.
 (3) The ratio of job creation to household creation (jobs per household).
 (4) Assuming multifamily housing development to meet demands with average of 15 units per acre.

Source: The Hallstrom Group, Inc.

- Less Employees in Business Relocating from Elsewhere on Maui -- According to our survey of recent central and south Maui light industrial and commercial subdivisions and historic activity in neighbor island projects, we estimate that approximately one-third of the tenants in MBP11, comprising about 30 percent of the employees in the Park, will be existing, relocating Maui businesses; not new concerns creating new jobs. As many of the relocating positions will be filled by part-time workers, the 30 percent ratio was applied only against the "total full-time workers" estimate.
- Net Full-Time New Workers -- The projected total number of new positions at MBP11 was estimated by subtracting the full-time relocating employees from the total full-time workers figure.
- Ratio of In-Migrating Workers -- Estimated at 16 percent of total Park workers, see Table 8.
- Estimated Full-Time Workers In-Migrating to MBP11 -- Calculated by multiplying the ratio of in-migrating workers by the number of full-time new workers.
- Employee Housing Load Ratio -- This is the ratio of job creation to household creation. According to SMS, there were 75,068 jobs and 40,041 households on Maui in 2000, equating to a housing load ratio of 1.87 (households divided by jobs); or, for every household there are nearly two jobs. The ratio is expected to decrease slightly during the next two decades, and be at 1.79 in 2020. This data conforms with the general experience in the community and census statistics that it typically requires two jobs to support a home on Maui. In essence for every 1.87 jobs created on Maui, a new household, and resulting housing unit demand, is generated. We have employed a factor of 1.85 for our analysis, showing downward movement from current levels as forecast by SMS.
- Total Unit Housing Load Created by MBP11 Due to In-Migration -- This figure is calculated by dividing the full-time in-migrating worker total by the housing load factor. It represents the total additional housing units on Maui which will be required beyond resident population levels due to meet

- the housing demands of off-island workers coming to Maui who work in MBP11.
- Percentage at or Below Affordability Standards -- As shown on Tables 10 and 11, approximately 85 percent of the workers at the subject subdivision will be in the entry level/low skill or mid-level/moderate skill groupings of Park employees. These full-time workers would likely live in households earning about, or less than, the median household income for Maui, and would require a home meeting "affordable" pricing criteria.
- Affordable Housing Units Required -- By applying the ratio of those requiring affordable housing units against the total housing load, we conclude that a total of 190 affordable-priced new housing units will be needed on Maui as a result of persons in-migrating to work at MBP11. This is the critical indicator from our analysis.
- Urban Acreage Required to Meet Demand -- Acknowledging the most probable means to meet the quantified demand is through moderate density, multi-family development of units priced at \$218,000 to \$257,000 (as indicated on the table), approximately 13 acres of urban lands will be required, assuming a standard density of 15 units per acre.

ADDENDUM III

Waialuku Industrial/Commercial Area Employee Survey

A survey was conducted of the businesses located in newer industrial/commercial subdivisions (less than a decade old) in the subject neighborhood, including the Airport Triangle, and the initial phases of the Maui Business Park. The intent was to gather information on employee in-migration, housing and other characteristics, and on business formation, movement and employment.

More than 60 businesses were contacted, with 30 (slightly less than half) providing sufficient responses to be used in survey analysis. A total of 113 employees in these businesses responded in full to the

survey questions. We note the partial responses did not show meaningful deviation from the more complete questionnaires.

The business survey is shown on Table 13. The two focal questions were the "Number of Workers" (and their division between full and part-time); and whether it was a new, expanding or relocating business.

The employee housing survey is shown on Table 14. The primary queries included whether they were born on Maui or when they moved to the island, where they lived now, and if they planned on moving in the near term.

The results of the business survey are summarized on Table 15.

The results of the employee housing survey are summarized on Table 16.

CERTIFICATION

The undersigned do hereby certify that, to the best of our knowledge and belief, the statements of fact contained in this report are true and correct. It is further certified that the reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, opinions, and conclusions. We further certify that we have no present or prospective interest in the property that is the subject of this report, and have no personal interest with respect to the parties involved. We have no bias with respect to the property that is the subject of this report or the parties involved with this assignment. Our engagement in this assignment was not contingent upon developing or reporting predetermined results. Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal. The appraisal analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute, and the Uniform Standards of Professional Appraisal

Table 13

BUSINESS SURVEY

Name of Business: _____

Location/Address: _____

Business Type: _____

Franchise or Independent: _____

Number of Workers: Total _____
 Full-Time _____
 Part-Time _____

Is this a new business, an expansion (new outlet) for an existing business, or one that has relocated from elsewhere on Maui to the center? _____

Notes: _____

Survey By: _____ Date/Time: _____

Table 14
EMPLOYEE HOUSING SURVEY

If so, will you move somewhere else on Maui or off-island: _____

How long is your commute to work (minutes or miles): _____

Do you rent or own your residence: _____

How many people are in your household: _____

Other than any children you may have, is your household multi-generational or have extended family members: _____

Were you born on Maui: _____

If you were not born on Maui, did you come over as a youth or adult: _____

Where did you go to high school: _____

Business Name: _____

Area/town where you live now: _____

Area/town where you would like to live (if different): _____

Do you plan on moving in the next three years: _____

If so, will you move somewhere else on Maui or off-island: _____

How long is your commute to work (minutes or miles): _____

Do you rent or own your residence: _____

How many people are in your household: _____

Other than any children you may have, is your household multi-generational or have extended family members: _____

Were you born on Maui: _____

If you were not born on Maui, did you come over as a youth or adult: _____

Where did you go to high school: _____

Survey by: The Halstrom Group, Inc.
Paahā Tower, Suite 1150
1001 Bishop Street
Honolulu, Hawaii 96813

Prepared for A&B Properties, Inc.

Survey by: The Halstrom Group, Inc.
Paahā Tower, Suite 1150
1001 Bishop Street
Honolulu, Hawaii 96813

Prepared for A&B Properties, Inc.

TABLE 15

SUMMARY OF BUSINESS SURVEY RESPONSES
Hearing Demand Analysis of the Proposed Mixed Business Park Phase II
Kahului, Maui, Hawaii

Question	Numeric and Percentage Response			
	Retail	Industrial	Service	Food & Beverage
1. Business Type Response Percentage	8 26.67%	8 26.67%	10 33.33%	4 13.33%
2. Franchise or Independent Response Percentage	Independent			
	16 53.33%	14 46.67%		
3. Number of Workers Response Percentage	0 to 10			
	10 33.33%	11 36.67%	4 13.33%	5 16.67%
4. Percentage of Full vs. Part Time Workers Response Percentage	75 to 100 Percent			
	15 50.00%	10 33.33%	5 16.67%	0 0.00%
5. New, Expanding or Relocating Business Response Percentage	New			
	11 36.67%	9 30.00%	10 33.33%	

Source: The Hillbom Group, Inc.

TABLE 16

SUMMARY OF EMPLOYEE HOUSING SURVEY RESPONSES
Hearing Demand Analysis of the Proposed Mixed Business Park Phase II
Kahului, Maui, Hawaii

Question	Numeric and Percentage Response					
	Overall Male	West Male	South Male	Upcountry	Other	
1. Where do you live now Response Percentage	48 64.1%	5 4.4%	17 15.9%	23 20.3%	0 0.0%	
2. Where would you like to live Response Percentage	38 51.3%	9 7.9%	18 15.9%	27 23.8%	1 0.8%	
3. Do you plan on moving in the next three years? Response % Yes/No	Yes					
	40 33.0%	73 64.6%				
4. If no, will you move on island or out of island? Response Percentage	On Island					
	48 64.1%	11 18.6%	54 N/A			
5. How long is the commute to work Response Percentage	Less than 10 Min.					
	32 23.3%	49 43.6%	26 23.0%	6 5.3%		More than 30 Min.
6. Do you rent or own Response Percentage	Rent					
	42 54.8%	11 43.1%				
7. How many in household Response Percentage	One					
	15 12.3%	42 37.1%	48 42.4%	9 7.9%	0 0.0%	More than Eight
8. Multi-Generational or extended household Response Percentage	Yes					
	13 11.2%	91 64.7%				
9. Bars on Maui Response Percentage	Yes					
	53 41.6%	38 51.3%				
10. If not, youth or adult who moved to Maui Response Percentage	Youth					
	13 22.4%	43 73.3%	55 N/A			
11. Where attended high school Response Percentage	On Maui					
	61 51.8%	22 19.4%	1 0.8%	26 23.0%	2 2.6%	None/GED/Other

Source: The Hillbom Group, Inc.

Practice. The use of this report is subject to the requirements of the Appraisal Institute relating to review by duly authorized representatives. The undersigned certify that they have made personal inspections of the property that is the subject of this report. No other persons provided significant real property appraisal assistance other than the undersigned.

The Appraisal Institute conducts programs of continuing education for their designated members. As of the date of this report, James E. Hallstrom, Jr. has completed the requirements of the continuing education program of the Appraisal Institute.

James E. Hallstrom, Jr.
James E. Hallstrom, Jr., MAI, CRE
Member Since Certified
General Appraiser, License #171
Exp. Date December 31, 2005

Tom W. Holliday
Tom W. Holliday

4360BR01

ADDENDA



PROFESSIONAL QUALIFICATIONS OF JAMES E. HALLSTROM, JR., MAI, CRE

Business Background

President The Hallstrom Group, Inc.
Honolulu, Hawaii (1980 - Present)

Former Senior Vice President and Treasurer Hastings, Martin, Hallstrom and Chew, Ltd., Honolulu, Hawaii (1972-1980)

Former Real Property Appraiser and Analyst Administration, Inc., a subsidiary of C. Brewer and Company, Limited Honolulu, Hawaii (1971-1972)

Former Senior Real Property Appraiser and Analyst Opitz Realty, Madison, Wisconsin (1969-1971)

National Designations and Memberships

- CRE Designation (1998) - The Counselors of Real Estate Appraisers
- MAI Designation (1976) - American Institute of Real Estate Appraisers
- SRPA Designation (1975) - Society of Real Estate Appraisers

The American Institute of Real Estate Appraisers (AIREA) and the Society of Real Estate Appraisers (SREA) consolidated in 1991, forming the Appraisal Institute (AI).

Education

- M.S. (Real Estate Appraisal and Investment Analysis) 1971, University of Wisconsin at Madison
- B.A. (Economics) 1969, Brigham Young University at Provo
- Additional numerous specialized real estate studies in connection with qualifying for national professional designations, and uninterrupted Continuing Education.
- Completed Continuing Education requirements with the Appraisal Institute through December 31, 2002.

Professional Involvement

- Former President and Officer for Hawaii AIREA and SREA Chapters
- Instructor for Society of Real Estate Appraisers Course 101, "Introduction to Appraising Real Property" and Course 201, "Principles of Income Property Appraising"
- Contributing author to the "Hawaii Real Estate Investor"
- Lecturer at many professional seminars and clinics.
- Appointed numerous times as an Arbitrator and Mediator.

Qualified Expert Witness

Federal and State Courts
State Land Use and County Hearings
Arbitration Proceedings

State of Hawaii Certification

Certified General Appraiser, License Number CGA-178, Exp. Date December 31, 2005

Community Service

Active registered member of the Boy Scouts of America; former Director of Le Jardin Academy; former Advisory Board Member of the School of Business, Brigham Young University, Hawaii Campus; Director of Hawaii Reserves, Inc.

PROFESSIONAL BACKGROUND AND SERVICES

The Hallstrom Group, Inc. is a Honolulu based independent professional organization that provides a wide scope of real estate consulting services throughout the State of Hawaii with particular emphasis on valuation studies. The purpose of the firm is to assist clients in formulating realistic real estate decisions. It provides solutions to complex issues by delivering thoroughly researched, objective analyses in a timely manner. Focusing on specific client problems and needs, and employing a broad range of tools including after-tax cash flow simulations and feasibility analyses, the firm minimizes the financial risks inherent in the real estate decision making process.

The principals and associates of the firm have been professionally trained, are experienced in Hawaiian real estate, and are actively associated with the Appraisal Institute and the Counselors of Real Estate, nationally recognized real estate appraisal and counseling organizations.

The real estate appraisals prepared by The Hallstrom Group accomplish a variety of needs and function to provide professional value opinions for such purposes as mortgage loans, investment decisions, lease negotiations and arbitrations, condemnations, assessment appeals, and the formation of policy decisions. Valuation assignments cover a spectrum of property types including existing and proposed resort and residential developments, industrial properties, high-rise office buildings and condominiums, shopping centers, subdivisions, apartments, residential leased fee conversions, special purpose properties, and vacant acreage, as well as property assemblages and portfolio reviews.

Market studies are research-intensive, analytical tools oriented to provide insight into investment opportunities and development challenges, and range in focus from highest and best use determinations for a specific site or improved property, to an evaluation of multiple (present and future) demand and supply characteristics for long-term, mixed-use projects. Market studies are commissioned for a variety of purposes where timely market information, insightful trends analyses, and perceptive conceptual conclusions or recommendations are critical. Uses include the formation of development strategies, bases for capital commitment decisions, evidence of appropriateness for state and county land use classification petitions, fiscal and social impact evaluations, and the identification of alternative economic use/conversion opportunities.

AMERSON
WILSON AND
MARKET STUDIES

MARK TOWNS
STATE USE
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M PRELIMINARY ENGINEERING REPORT

PRELIMINARY ENGINEERING REPORT

FOR

MAUI BUSINESS PARK - PHASE II

Prepared by A&B Properties, Inc.

April 2004

PRELIMINARY ENGINEERING REPORT

FOR

MAUI BUSINESS PARK - PHASE II

A. EXISTING INFRASTRUCTURE:

1. Water System:

The Kahului industrial area is served by the County of Maui's Department of Water Supply system. The source of water for this system is the Waihee Wells, which were developed by the Central Maui Source Joint Venture and dedicated to the Board of Water Supply. The three developed wells have a total capacity of 13.5 million gallons per day. A&B Properties, Inc. is a member of this joint venture and has an allocation of 4/19 of the developed capacity. Water storage tanks that serve the Kahului system are located in Wailuku and Waichu.

The Iao Aquifer and the Waihee Aquifer supply potable water for Central Maui. In July of 2003, the Iao Aquifer system was designated a State Groundwater Management Area.

South Project Area

When A&B developed Maui Business Park - Phase I, a 12-inch waterline was installed in Dairy Road and extended to Pakaula Street. There is an existing stub-out of this waterline at Ho'okele Street and Pakaula Street.

North Project Area

There is an existing 12-inch waterline in Dairy Road and Keolani Place that serves the Airport Industrial development, including Kmart and Costco. There also is a 16-inch waterline in Keolani Place that goes to the Kahului Airport. A 3-inch waterline in Haleakala Highway serves the former Central Power Plant area.

2. Wastewater System:

The County of Maui's existing wastewater system services the Kahului industrial area. The Wailuku-Kahului Wastewater Reclamation Facility is located on Amala Place near Kanaha Beach. This facility has a capacity of 7.9 million gallons per day (mgd) of which an estimated 7 mgd has been allocated for existing and projected flows.

South Project Area

A 16-inch sewerline extension was connected to the Alamaha Street sewage pump station when Maui Business Park Phases I-A and I-B were developed. This line extension terminates as an 8-inch line on Ho'okele Street, near Puunene Avenue. The force main from Alamaha SPS flows to the Kahului Sewage Pump Station on Hana Highway. Flows from this SPS are then pumped to the Wailuku-Kahului Reclamation Facility.

North Project Area

There are, existing 8-inch and 18-inch sewerlines that service the Airport Industrial area, including Costco and Kmart. Sewage in these lines flow down to the Airport Triangle sewage pump station located on Kela Street. This SPS and all sewerlines that are connected to it are owned and maintained by A&B. The 6-inch force main from this SPS is connected to the County's system at Alamaha Street and Papa Place. Sewage then flows to the Alamaha SPS, Kahului SPS and finally to the Wailuku-Kahului Wastewater Reclamation Facility for treatment.

3. Storm Drainage:

South Project Area

The proposed development area is currently planted in sugar cane. There is no storm drainage system and runoff is retained or absorbed within the cane fields. In severe storms, some runoff flows to Hana Highway and Dairy Road, where there is a culvert under Hana Highway at the low point.

There are two drainage retention basins located north of the South Project Area, just east of the Wal-Mart property. These basins were constructed to retain runoff from Maui Business Park-Phase I-B and they have the capacity to retain additional runoff. The estimated flow from the undeveloped 141 acres is about 77 cubic feet per second (cfs).

North Project Area

The North Project Area is planted in sugar cane or unused agricultural land. A portion of this parcel, along Haleakala Highway, is leased to Maui Pineapple Company for a seed processing plant. There is no drainage system on this area except an earthen channel in back of Kmart, between Hana Highway and Costco's lot that takes drainage from Maui Business Park-Phase I-A. This channel is connected to the Airport Industrial's concrete open channel, which crosses Haleakala Highway, Keolani Place and is located along the eastern boundary of Kanaha Pond. This channel has its outlet at the Kalia Gulch near the airport. The Airport Industrial drainage system is owned and maintained by A&B. Estimated flows generated from this undeveloped 32 acres is about 14 cfs.

4. **Roadways:**

South Project Area

The South Project Area is bordered on the west by Puunene Avenue, on the north by Ho'okele Street and on the east by Hana Highway. Pulehu Road runs through the easterly portion of this area. Pakaula Street is located between Ho'okele Street and Dairy Road. The future Airport Access Road right-of-way is the northern boundary of the South Project Area. Existing access points are Puunene Avenue, Ho'okele Street, Pakaula Street and Pulehu Road.

North Project Area

Hana Highway is the westerly boundary for the North Project Area and Haleakala Highway is the easterly boundary. The future Airport Access Road right-of-way is the southern boundary. The existing access to this area is Haleakala Highway. Hana Highway and the future Airport Access Road have access restrictions.

5. **Electrical, Telephone and Cable Television Systems:**

Electricity for central Maui, including the Maui Business Park Phase II site is generated by Maui Electric Company, Limited's (MECO) Kahului and Maalaea plants. Hawaiian Commercial & Sugar Company also generates electricity, which is connected to MECO's system. The Kahului plant, which generates about 34 megawatts, is located next to Kahului Harbor. The Maalaea plant, near Kealia Pond, generates about 196 mw and HC&S, next to the Puunene Mill, generates about 12 mw. MECO's Kanaha Substation, located at the corner of Hana Highway and Dairy Road, will serve the project areas.

Verizon Hawaii provides telephone and other communication services to the Kahului area. They have a switching station located on Puunene Avenue near Wakea Avenue.

Cable television service is provided to Kahului by Oceanic Time Warner Cable of Hawaii. Their system is located throughout the area in underground and overhead cables and other facilities.

South Project Area

Existing electrical service for this area ends in Maui Business Park-Phase 1-B, at Ho'okele Street and Pakaula Street. A transmission line from HC&S' Puunene Mill runs overhead in an easement through this area to connect to MECO's system at Dairy Road near Pakaula Street. MECO's transmission line to east Maui is located on Hana Highway, which borders the both project areas. Pulehu Road also has overhead electrical lines from Hana Highway and extends beyond Hansen Road.

Telephone and cable television services have been extended to Ho'okele Street and Pakaula Street at Maui Business Park-Phase 1-B. Overhead telephone cables are located along Hana Highway and Pulehu Road, together with MECO's transmission system.

North Project Area

MECO has an overhead line for this area along Haleakala Highway and is an extension of their system from Dairy Road and Keolani Place. This system is connected to the Kanaha Substation.

Telephone and cable services are available at Dairy Road, Haleakala Highway and Keolani Place.

B. **PROPOSED INFRASTRUCTURE IMPROVEMENTS**

1. **Water System:**

Based on guidelines in the 2002 Water System Standards (water usage of 6,000 gallons per day per acre), potable water supply for Maui Business Park Phase II is estimated at 0.86 million gallons per day based upon the project's net acreage (approximately 80% of the project's 179 gross acres). As a comparison, based on the Interim Water Usage Standard for Central Maui (water usage of 2,477 gallons per day per acre), potable water supply would be estimated at about 0.45 million gallons per day.

A&B Properties, Inc., will participate in the funding and construction of adequate water source, storage, and transmission facilities and improvements to accommodate water use generated by Maui Business Park Phase II. Alexander & Baldwin, Inc., has substantial rights to the surface water flowing in the Wahee and Spreckels Ditches. These ditches run generally from north to south above and through Wailuku Town (Wahee and Spreckels, respectively). Over the last 10 years, Alexander & Baldwin, Inc.'s share of the flow rate in these ditches has averaged almost 42 MGD (22.7 MGD in the Wahee Ditch and 19.2 MGD in the Spreckels Ditch). Sufficient flow from either or both ditches could be appropriately treated to produce a potable supply for Phase II of the Maui Business Park. Locations of these ditches, land ownership of Alexander & Baldwin, Inc., locations of DWS' water system infrastructure, and DWS' experience in operating surface water treatment plants make treatment of the ditch water for potable use a particularly feasible alternative:

With the Hopoi Chute connection from the Wahee Ditch to the Waiale Reservoir, there are three possible raw water sources for a treatment plant located near to the reservoir. In addition to taking water from the Hopoi Chute, water could be withdrawn directly from Spreckels Ditch or from Waiale Reservoir.

Alexander & Baldwin, Inc.'s land ownership would allow it to construct a water treatment plant to use one or more of these surface water sources and deliver it into

the Central Maui System at a location that would enable DWS to supply Phase II of the Maui Business Park.

DWS has extensive experience in operating both membrane filtration plants and conventional treatment plants in compliance with requirements of EPA's Safe Water Treatment Rule and Interim Enhanced Safe Water Treatment Rule. DWS currently operates plants at Kamaole Weir using water from EMI's Wailoa Ditch, Piholo on the Lower Kula system, Olinda on the Upper Kula system, the Iao Plant using Iao Stream water, and at Mahinahina above Lahaina using water from ML&P's Honokohau Ditch. DWS has the staff with the necessary operator certifications to run treatment plants to produce potable water.

South Project Area

The water system for the South Project Area will be extended from the 12-inch waterline in Ho'okele Street at Pakaula Street. The water system will be designed to Department of Water Supply standards and dedicated to them upon completion.

North Project Area

A new 12-inch waterline will be installed in Haleakala Highway from the intersection of Dairy Road and Keolani Place to Kulena Street for the Airport Industrial Subdivision III. This waterline will be extended from that point to serve the North Project Area. The proposed water system improvements will be designed to Department of Water Supply standards and dedicated to the Board of Water Supply.

2. Wastewater System:

South Project Area

The estimated sewage to be generated from this area will be about 0.23 million gallons per day (mgd), based on a flow rate of 1,600 gallons per acre per day for light industrial uses. Sewage from the area west of the drainage retention basin will flow into the existing 8-inch sewerline in Ho'okele Street at Pakaula Street. These flows will go through existing lines in Maui Business Park Phases I-A and I-B into the Alamaha Street system.

We have investigated some alternatives to take the remaining sewage to the existing wastewater system. One of these is to direct flows across Hana Highway to the Airport Industrial Subdivision system. A new 12-inch sewerline will be installed by A&B in Haleakala Highway from Dairy Road to the North Project Area. The existing sewerline in Dairy Road is connected to the existing Airport Industrial Subdivision Pump Station. This proposed system would then require rerouting flows from this pump station through a new 8-inch force main along Hana Highway to the Kahului Pump Station. This would divert and reduce flows to the Alamaha Pump Station.

North Project Area

The estimated sewage that will be generated from this area will be about 0.05 mgd, based on a flow rate of 1,600 gallons per day per acre. Sewage will flow into the same new 12-inch sewerline in Haleakala Highway that will receive south Project Area sewage, then to the Airport Industrial Pump Station, to the proposed Hana Highway force main and to the Kahului Pump Station. Sewage from this pump station flows through a force main to the Wailuku-Kahului Wastewater Reclamation Facility (WWRP).

This 7.9 mgd Wailuku-Kahului WWRP has capacity for the estimated 0.28 mgd flow that will be generated by both project areas. The proposed sewage system will be designed to County of Maui standards.

3. Drainage System:

South Project Area

The two existing drainage retention basins near Wal-Mart have an estimated combined capacity of 80 acre-feet. The estimated flow volume into these basins, with existing Maui Business Park-Phase I-B and build-out of the South Project Area, will be about 48 acre-feet for a 100-year, 24-hour storm. Therefore, there will be capacity for the flows from the proposed developed area.

The estimated flow from the developed area is estimated at about 293 cubic feet per second. This is an increase of about 216 cfs from the undeveloped area. The storm drainage system for this area will be designed to take the development runoff to the existing drainage retention basins, which have the capacity for these flows. This system will be designed to County of Maui standards.

Earth berms will be constructed along the southerly boundary of the South Project Area to retain offsite runoff within the sugar cane fields. The existing HC&S ditches in the cane fields will also divert a portion of the offsite flows from this development area.

North Project Area

The estimated runoff from this area is about 61 cfs, which would be an increase of about 47 cfs from the undeveloped area. Since there is no drainage system to serve this area, retention basins will be constructed to retain the 100-year, 24-hour storms. Another option would be to have retention basins on each developed lot with capacitors to retain onsite generated runoff. The drainage system will be designed to County standards.

Earth berms will be constructed along the southern boundary to keep offsite runoff from flowing on to the North Project Area.

Maui Landfill for disposal. A&B has been cooperating with the County in increasing the area at this landfill for their future expansion plans.

4. Roadways:

South Project Area

Access to this area from Puunene Avenue will be Ho'okele Street, which will be extended to Hana Highway. This is proposed to be a collector road and provide an alternative route between these two existing major roadways. Pulehu Road will also be connected to the Ho'okele Street extension. The Pulehu Road intersection with Hana Highway will be eliminated since Ho'okele Street will be the new access to that highway. Access from Dairy Road to the project area will be via Pakaula Street to Ho'okele Street. Pakaula Street will be an access to the Airport Access Road when it is constructed in the future by the State. Ho'okele Street and the internal roadways will be designed to County of Maui's standards and dedicated upon completion.

North Project Area

Access to this area will be from Haleakala Highway. An access from Hana Highway, with limited right turn in/right turn out movements is proposed for this area. This would permit traffic on Hana Highway to enter Area B and avoid using the Dairy Road to Haleakala Highway route. This would relieve some of the traffic on Dairy Road going to Kmart, Costco and the airport.

A traffic impact analysis report has been prepared for this development and is included in the Change in Zoning Application.

5. Electricity, Telephone and Cable Television:

The estimated electrical demand for both project areas is about 2 megawatts. Line extensions from the existing electrical system will provide power to the proposed development. Maui Electrical Company's Kahului and Maalaea Plants generate sufficient electricity to provide services to these areas. The estimated time to build MECO's proposed Waena plant, located on Pulehu Road, will be about five years.

The underground electrical system for this development will be designed to MECO's standards. MECO's Kanaha substation at Dairy Road and Hana Highway has room to expand if required by this and other developments.

Telephone and cable television systems will be extended to both project areas from their existing systems at Phase 1 of Kahului Industrial Park and Airport Industrial Park. The underground systems will be designed to current standards and the developer will cooperate with these utilities in expanding their services to the proposed areas.

6. Solid Waste:

Solid waste generated within the project areas will be collected by private waste collection companies or by the County's Solid Waste Division and hauled to the Central

N PRELIMINARY DRAINAGE REPORT

PRELIMINARY DRAINAGE REPORT

FOR

MAUI BUSINESS PARK PHASE II

Prepared by:

A&B Properties, Inc.

March 2003

Revised April 2004

PRELIMINARY DRAINAGE REPORT

for

MAUI BUSINESS PARK PHASE II

TMK: 3-8-79: 13, TMK: 3-8-06: 4 (Por.), and TMK: 3-8-01: 2 (Por.)

Kahului, Maui, Hawaii

Date: 3/17/03

Revised 4/29/04

STORM DRAINAGE

Presently, the majority of the site is used for sugar cane production; the remainder of the site is covered with brush, grass, and trees. The drainage pattern generally results in surface runoff sheet flowing from South to North at an average slope of approximately 2 percent. Most of the runoff is retained by depressions and berms within the site. The estimated runoff from the developed site (Attachment A) of the South Project Area will be about 293 cubic feet per second (cfs) for a 100 year, 24-hour storm. This will be an increase of about 216 cfs to the existing (Attachment A). Runoff from this developed site will be retained by an on-site system designed in accordance with the Maui County's drainage standards. The estimated runoff from the developed site (Attachment A) of North Project Area will be about 61 cfs for a 10 year, 1-hour storm. This will be an increase of about 47 cfs to the existing (Attachment A). A portion of the runoff from this developed site will be retained by an on-site system designed in accordance with the Maui County's drainage standards; the remaining runoff will flow into an existing system which was designed to accommodate the flow.

The soil types are generally Pulehu clay loam (Psa), Ewa silty clay loam (Esa), and Molokai silty clay loam (Moa, MuB). These are characterized by having slow runoff potential and moderate permeability. It is subject to slight erosion if not protected.

The "SCS" method and the Rational Formula are used to determine storm runoff in accordance with the "Rules for the Design of Storm Drainage Facilities in the County of Maui", November 12, 1995. This design criteria indicates that the drainage system be designed to accommodate a storm having a recurrence interval of 100 years and 24 hour duration for the South Project Area since the drainage area is more than 100 acres, and to accommodate a storm having a recurrence interval of 10 years and 1 hour duration for the North Project Area since the drainage area is less than 100 acres.

HYDROLOGIC CALCULATIONS
EXISTING CONDITIONS
FOR
THE SOUTH PROJECT AREA

Purpose:

Determine the onsite surface runoff volume generated by the existing conditions of the project site. The "SCS" method will be used to determine the peak onsite surface runoff volume having a 100 year recurrence interval and 24 hour duration.

SCS Method:

- I. Drainage Area = 141.4 acres
- II. Slope = 2%
- III. Soil Types = EaA : Ewa silty clay loam
Psa : Pulehu clay loam
- IV. Hydrologic Classification, from Table 14:
Classification "B"
- V. Run-off Curve Number, CN, from Table 25 & 26:
Sugar cane, partial cover, contoured:
139.4 ac. Hydrologic soil group "B", CN = 59
Open space, fair condition:
2 ac. Hydrologic soil group "B", CN = 69
Weighted CN = $\frac{139.4 \text{ ac.} \times 59}{141.4} + \frac{2 \text{ ac.} \times 69}{141.4}$
- VI. 100 year 24 Hour Rainfall Amount (see Rainfall Isohyet Map) = 7.5 inches.
- VII. Peak Rates of Discharge for small watersheds (see Design Charts):
Q (flat slope) = 20.5 cfs/inch of runoff
- VIII. Runoff Depth, d, from Table 24:
d = 2.90 inches
- IX. Determine Peak Discharge:
Q = 20.5 cfs/inch x 2.90 inches
Q = 60 cfs
From Table 28, determine slope adjustment factor:
SF = 1.285
Q = 1.285 x 60 cfs
Q = 77 cfs.

Runoff from site under existing conditions = 77 cfs.

**ATTACHMENT A
HYDROLOGIC CALCULATIONS
DEVELOPED CONDITIONS
FOR
THE SOUTH PROJECT AREA**

Purpose:

Determine the onsite surface runoff volume generated by the development of the project site. The "SCS" method will be used to determine the peak onsite surface runoff volume having a 100 year recurrence interval and 24 hour duration.

SCS Method:

- I. Drainage Area = 141.4 acres
- II. Slope = 2%
- III. Soil Types = EaA = Ewa silty clay loam
PsA = Pulehu clay loam
- IV. Hydrologic Classification, from Table 14: Classification "B"
- V. Runoff Curve Number, CN: CN = 88 (from Table 25, industrial districts, hydrologic soil group "B")
- VI. 100-Year, 24-Hour Rainfall Amount (see Rainfall Isohyet Map) = 7.5 inches.

VII. Peak Rates of Discharge for Small Watersheds (see Design Charts):

Q (flat slope) = 37.5 cfs/inch of runoff

VIII. Runoff Depth, d, from Table 24:

d = 6.085 inches

IX. Determine Peak Discharge:

Q = 37.5 cfs/inch x 6.085 inches
Q = 228.2 cfs
From Table 28, Determine Slope Adjustment Factor:
SF = 1.285
Q = 1.285 x 228.2 cfs.
Q = 293 cfs.

Runoff from site under developed conditions = 293 cfs.

HYDROLOGIC CALCULATIONS

EXISTING CONDITIONS

FOR

THE NORTH PROJECT AREA

PURPOSE:

Determine the onsite surface runoff volume generated by the existing conditions of the project site. The rational method will be used to determine the peak onsite surface runoff volume having a 10-year recurrence interval and a one-hour rainfall of 2 inches.

- I. Drainage Area = 32.3 Acres
- II. Runoff Coefficient, C:

Open Areas		
Infiltration (high)	-	0.00
Relief (flat)	-	0.00
Vegetal Cover (good)	-	0.03
Development Type (agricultural)	-	0.15
	C	0.18

III. Time of Concentration, t_c

t_c = 45 min.

IV. Rainfall Intensity, i:

One Hour Rainfall, for t_m = 10 years, = 2 inches
Therefore, i = 2.35 in./hr.

V. Runoff, Q:

Q	=	CiA
Q	=	0.18 x 2.35 x 32.3
Q	=	14 cfs.

HYDROLOGIC CALCULATIONS

DEVELOPED CONDITIONS

FOR

THE NORTH PROJECT AREA

DESIGN CHARTS

PURPOSE:

Determine the onsite surface runoff volume generated by the developed project site. The rational method will be used to determine the peak onsite surface runoff volume having a 10-year recurrence interval and a one-hour rainfall of 2 inches.

I. Drainage Area = 32.3 Acres

II. Runoff Coefficient, C:

C = 0.80

III. Time of Concentration, t_c

$t_c = 40$ min.

IV. Rainfall Intensity, i :

One Hour Rainfall, for $t_m = 10$ years, = 2 inches
Therefore, $i = 2.35$ in./hr.

V. Runoff, Q:

Q	=	CIA
Q	=	0.80 x 2.35 x 32.3
Q	=	61 cfs.

If 90 percent or more of the site is made up of one soil, calculate soil loss for the area based on that soil. If no soil occupies 90 percent or more of the site, calculate soil loss for each soil that makes up at least 10 percent of the area. Obtain a weighted average annual soil loss for the area (see Example 6). The soil loss equation can be used to evaluate erosion hazard for various periods of the year. This is useful on construction sites to determine the period of least hazard for land grading. To determine soil loss by periods, use one of the "Expected Monthly Distribution of Erosive Rainfall". Examples 7 and 8 explain use of the charts.

- b. Obtain LS value (L and S are combined and given as one value). Use Table 16.
4. Determine cover and management factor C for the appropriate crop or cover condition. Use Tables 17 to 22.
5. On cropland determine erosion control practice factor P from Table 23. On other lands P has a value of 1 and does not affect the equation.
6. Multiply the values R, K, LS, C and P obtained in the previous steps. The product A is the computed average annual soil loss expressed in tons per acre per year.

TABLE 14. SOIL PROPERTIES RELATED TO EROSION AND SEDIMENTATION FOR THE ISLANDS OF KAUAI, OAHU, MAUI, MOLOKAI, AND LANAI

Soil Symbol	Soil Series	Erodibility Factor (K)	Hydrologic Soil Group	Soil Resistance (C)	Soil Loss Tolerance (LS) (T/HA-YR)
A9, A9A, A9B	Aloa	0.10	A	IV	5
A9C, A9D, A9E, A9F	Aloa	0.10	B	I	5
A9G, A9H, A9I, A9J, A9K	Aloa	0.17	B	I	5
A9L, A9M, A9N, A9O, A9P, A9Q, A9R, A9S, A9T, A9U, A9V, A9W, A9X, A9Y, A9Z	Aloa	0.05	B	I	5
A9AA, A9AB, A9AC, A9AD, A9AE, A9AF, A9AG, A9AH, A9AI, A9AJ, A9AK, A9AL, A9AM, A9AN, A9AO, A9AP, A9AQ, A9AR, A9AS, A9AT, A9AU, A9AV, A9AW, A9AX, A9AY, A9AZ	Aloa	0.10	B	I	5
A9BA, A9BB, A9BC, A9BD, A9BE, A9BF, A9BG, A9BH, A9BI, A9BJ, A9BK, A9BL, A9BM, A9BN, A9BO, A9BP, A9BQ, A9BR, A9BS, A9BT, A9BU, A9BV, A9BW, A9BX, A9BY, A9BZ	Aloa	0.10	B	I	5
A9CA, A9CB, A9CC, A9CD, A9CE, A9CF, A9CG, A9CH, A9CI, A9CJ, A9CK, A9CL, A9CM, A9CN, A9CO, A9CP, A9CQ, A9CR, A9CS, A9CT, A9CU, A9CV, A9CW, A9CX, A9CY, A9CZ	Aloa	0.10	B	I	5
A9DA, A9DB, A9DC, A9DD, A9DE, A9DF, A9DG, A9DH, A9DI, A9DJ, A9DK, A9DL, A9DM, A9DN, A9DO, A9DP, A9DQ, A9DR, A9DS, A9DT, A9DU, A9DV, A9DW, A9DX, A9DY, A9DZ	Aloa	0.10	B	I	5
A9EA, A9EB, A9EC, A9ED, A9EE, A9EF, A9EG, A9EH, A9EI, A9EJ, A9EK, A9EL, A9EM, A9EN, A9EO, A9EP, A9EQ, A9ER, A9ES, A9ET, A9EU, A9EV, A9EW, A9EX, A9EY, A9EZ	Aloa	0.10	B	I	5
A9FA, A9FB, A9FC, A9FD, A9FE, A9FF, A9FG, A9FH, A9FI, A9FJ, A9FK, A9FL, A9FM, A9FN, A9FO, A9FP, A9FQ, A9FR, A9FS, A9FT, A9FU, A9FV, A9FW, A9FX, A9FY, A9FZ	Aloa	0.10	B	I	5
A9GA, A9GB, A9GC, A9GD, A9GE, A9GF, A9GG, A9GH, A9GI, A9GJ, A9GK, A9GL, A9GM, A9GN, A9GO, A9GP, A9GQ, A9GR, A9GS, A9GT, A9GU, A9GV, A9GW, A9GX, A9GY, A9GZ	Aloa	0.10	B	I	5
A9HA, A9HB, A9HC, A9HD, A9HE, A9HF, A9HG, A9HH, A9HI, A9HJ, A9HK, A9HL, A9HM, A9HN, A9HO, A9HP, A9HQ, A9HR, A9HS, A9HT, A9HU, A9HV, A9HW, A9HX, A9HY, A9HZ	Aloa	0.10	B	I	5
A9IA, A9IB, A9IC, A9ID, A9IE, A9IF, A9IG, A9IH, A9II, A9IJ, A9IK, A9IL, A9IM, A9IN, A9IO, A9IP, A9IQ, A9IR, A9IS, A9IT, A9IU, A9IV, A9IW, A9IX, A9IY, A9IZ	Aloa	0.10	B	I	5
A9JA, A9JB, A9JC, A9JD, A9JE, A9JF, A9JG, A9JH, A9JI, A9JJ, A9JK, A9JL, A9JM, A9JN, A9JO, A9JP, A9JQ, A9JR, A9JS, A9JT, A9JU, A9JV, A9JW, A9JX, A9JY, A9JZ	Aloa	0.10	B	I	5
A9KA, A9KB, A9KC, A9KD, A9KE, A9KF, A9KG, A9KH, A9KI, A9KJ, A9KK, A9KL, A9KM, A9KN, A9KO, A9KP, A9KQ, A9KR, A9KS, A9KT, A9KU, A9KV, A9KW, A9KX, A9KY, A9KZ	Aloa	0.10	B	I	5
A9LA, A9LB, A9LC, A9LD, A9LE, A9LF, A9LG, A9LH, A9LI, A9LJ, A9LK, A9LL, A9LM, A9LN, A9LO, A9LP, A9LQ, A9LR, A9LS, A9LT, A9LU, A9LV, A9LW, A9LX, A9LY, A9LZ	Aloa	0.10	B	I	5
A9MA, A9MB, A9MC, A9MD, A9ME, A9MF, A9MG, A9MH, A9MI, A9MJ, A9MK, A9ML, A9MN, A9MO, A9MP, A9MQ, A9MR, A9MS, A9MT, A9MU, A9MV, A9MW, A9MX, A9MY, A9MZ	Aloa	0.10	B	I	5
A9NA, A9NB, A9NC, A9ND, A9NE, A9NF, A9NG, A9NH, A9NI, A9NJ, A9NK, A9NL, A9NM, A9NO, A9NP, A9NQ, A9NR, A9NS, A9NT, A9NU, A9NV, A9NW, A9NX, A9NY, A9NZ	Aloa	0.10	B	I	5
A9OA, A9OB, A9OC, A9OD, A9OE, A9OF, A9OG, A9OH, A9OI, A9OJ, A9OK, A9OL, A9OM, A9ON, A9OO, A9OP, A9OQ, A9OR, A9OS, A9OT, A9OU, A9OV, A9OW, A9OX, A9OY, A9OZ	Aloa	0.10	B	I	5
A9PA, A9PB, A9PC, A9PD, A9PE, A9PF, A9PG, A9PH, A9PI, A9PJ, A9PK, A9PL, A9PM, A9PN, A9PO, A9PP, A9PQ, A9PR, A9PS, A9PT, A9PU, A9PV, A9PW, A9PX, A9PY, A9PZ	Aloa	0.10	B	I	5
A9QA, A9QB, A9QC, A9QD, A9QE, A9QF, A9QG, A9QH, A9QI, A9QJ, A9QK, A9QL, A9QM, A9QN, A9QO, A9QP, A9QQ, A9QR, A9QS, A9QT, A9QU, A9QV, A9QW, A9QX, A9QY, A9QZ	Aloa	0.10	B	I	5
A9RA, A9RB, A9RC, A9RD, A9RE, A9RF, A9RG, A9RH, A9RI, A9RJ, A9RK, A9RL, A9RM, A9RN, A9RO, A9RP, A9RQ, A9RR, A9RS, A9RT, A9RU, A9RV, A9RW, A9RX, A9RY, A9RZ	Aloa	0.10	B	I	5
A9SA, A9SB, A9SC, A9SD, A9SE, A9SF, A9SG, A9SH, A9SI, A9SJ, A9SK, A9SL, A9SM, A9SN, A9SO, A9SP, A9SQ, A9SR, A9SS, A9ST, A9SU, A9SV, A9SW, A9SX, A9SY, A9SZ	Aloa	0.10	B	I	5
A9TA, A9TB, A9TC, A9TD, A9TE, A9TF, A9TG, A9TH, A9TI, A9TJ, A9TK, A9TL, A9TM, A9TN, A9TO, A9TP, A9TQ, A9TR, A9TS, A9TT, A9TU, A9TV, A9TW, A9TX, A9TY, A9TZ	Aloa	0.10	B	I	5
A9UA, A9UB, A9UC, A9UD, A9UE, A9UF, A9UG, A9UH, A9UI, A9UJ, A9UK, A9UL, A9UM, A9UN, A9UO, A9UP, A9UQ, A9UR, A9US, A9UT, A9UU, A9UV, A9UW, A9UX, A9UY, A9UZ	Aloa	0.10	B	I	5
A9VA, A9VB, A9VC, A9VD, A9VE, A9VF, A9VG, A9VH, A9VI, A9VJ, A9VK, A9VL, A9VM, A9VN, A9VO, A9VP, A9VQ, A9VR, A9VS, A9VT, A9VU, A9VV, A9VW, A9VX, A9VY, A9VZ	Aloa	0.10	B	I	5
A9WA, A9WB, A9WC, A9WD, A9WE, A9WF, A9WG, A9WH, A9WI, A9WJ, A9WK, A9WL, A9WM, A9WN, A9WO, A9WP, A9WQ, A9WR, A9WS, A9WT, A9WU, A9WV, A9WW, A9WX, A9WY, A9WZ	Aloa	0.10	B	I	5
A9XA, A9XB, A9XC, A9XD, A9XE, A9XF, A9XG, A9XH, A9XI, A9XJ, A9XK, A9XL, A9XM, A9XN, A9XO, A9XP, A9XQ, A9XR, A9XS, A9XT, A9XU, A9XV, A9XW, A9XX, A9XY, A9XZ	Aloa	0.10	B	I	5
A9YA, A9YB, A9YC, A9YD, A9YE, A9YF, A9YG, A9YH, A9YI, A9YJ, A9YK, A9YL, A9YM, A9YN, A9YO, A9YP, A9YQ, A9YR, A9YS, A9YT, A9YU, A9YV, A9YW, A9YX, A9YY, A9YZ	Aloa	0.10	B	I	5
A9ZA, A9ZB, A9ZC, A9ZD, A9ZE, A9ZF, A9ZG, A9ZH, A9ZI, A9ZJ, A9ZK, A9ZL, A9ZM, A9ZN, A9ZO, A9ZP, A9ZQ, A9ZR, A9ZS, A9ZT, A9ZU, A9ZV, A9ZW, A9ZX, A9ZY, A9ZZ	Aloa	0.10	B	I	5

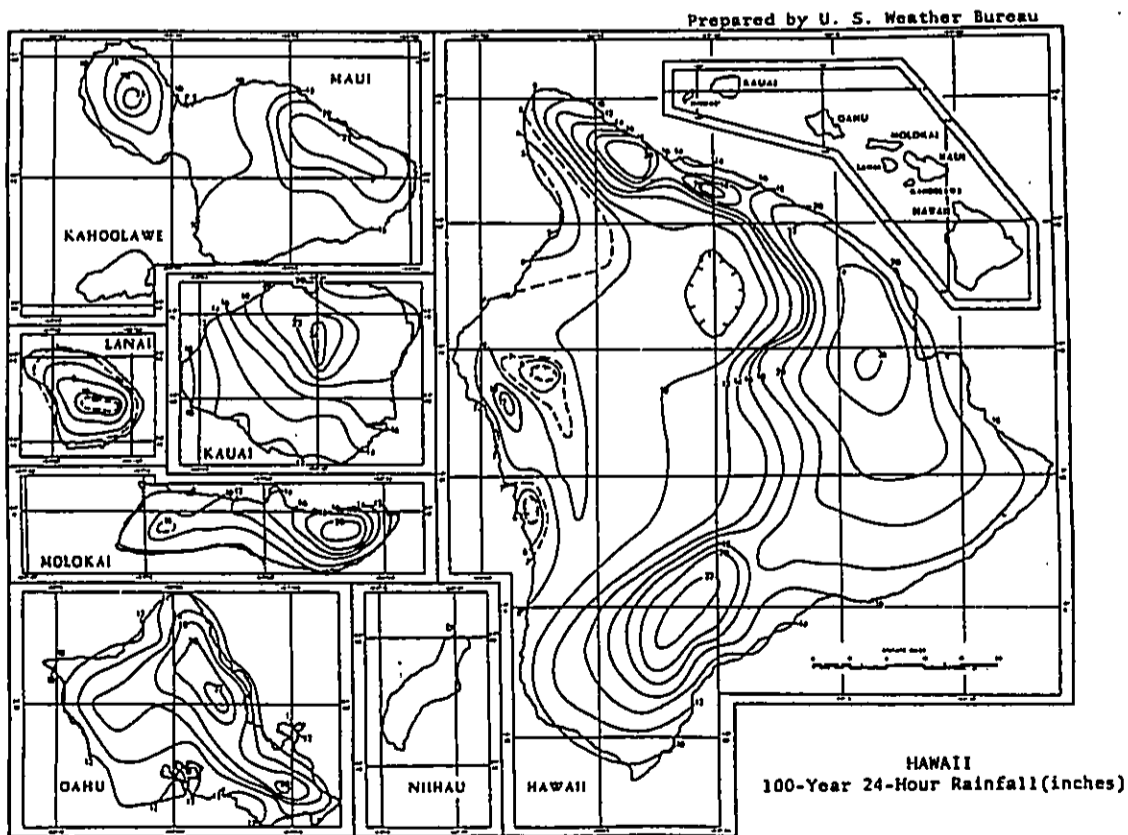


TABLE 14. SOIL PROPERTIES RELATED TO EROSION AND SEDIMENTATION FOR THE ISLANDS OF GUAM, SAO, MOGI, MOGOTI, AND LAMAI (continued)

Soil Symbol	Soil Series	Erodibility Factor(E)	Hydrologic Classification	Soil Resist. Group	Tolerance Value(T) t/ha./yr.
MD, ME	Makabao	0.17	B	III	2
MD, ME	Makabao	0.18	B	III	2
MD, ME	Makabao	0.19	B	III	2
MD, ME	Makabao	0.20	B	III	2
MD, ME	Makabao	0.21	B	III	2
MD, ME	Makabao	0.22	B	III	2
MD, ME	Makabao	0.23	B	III	2
MD, ME	Makabao	0.24	B	III	2
MD, ME	Makabao	0.25	B	III	2
MD, ME	Makabao	0.26	B	III	2
MD, ME	Makabao	0.27	B	III	2
MD, ME	Makabao	0.28	B	III	2
MD, ME	Makabao	0.29	B	III	2
MD, ME	Makabao	0.30	B	III	2
MD, ME	Makabao	0.31	B	III	2
MD, ME	Makabao	0.32	B	III	2
MD, ME	Makabao	0.33	B	III	2
MD, ME	Makabao	0.34	B	III	2
MD, ME	Makabao	0.35	B	III	2
MD, ME	Makabao	0.36	B	III	2
MD, ME	Makabao	0.37	B	III	2
MD, ME	Makabao	0.38	B	III	2
MD, ME	Makabao	0.39	B	III	2
MD, ME	Makabao	0.40	B	III	2
MD, ME	Makabao	0.41	B	III	2
MD, ME	Makabao	0.42	B	III	2
MD, ME	Makabao	0.43	B	III	2
MD, ME	Makabao	0.44	B	III	2
MD, ME	Makabao	0.45	B	III	2
MD, ME	Makabao	0.46	B	III	2
MD, ME	Makabao	0.47	B	III	2
MD, ME	Makabao	0.48	B	III	2
MD, ME	Makabao	0.49	B	III	2
MD, ME	Makabao	0.50	B	III	2
MD, ME	Makabao	0.51	B	III	2
MD, ME	Makabao	0.52	B	III	2
MD, ME	Makabao	0.53	B	III	2
MD, ME	Makabao	0.54	B	III	2
MD, ME	Makabao	0.55	B	III	2
MD, ME	Makabao	0.56	B	III	2
MD, ME	Makabao	0.57	B	III	2
MD, ME	Makabao	0.58	B	III	2
MD, ME	Makabao	0.59	B	III	2
MD, ME	Makabao	0.60	B	III	2
MD, ME	Makabao	0.61	B	III	2
MD, ME	Makabao	0.62	B	III	2
MD, ME	Makabao	0.63	B	III	2
MD, ME	Makabao	0.64	B	III	2
MD, ME	Makabao	0.65	B	III	2
MD, ME	Makabao	0.66	B	III	2
MD, ME	Makabao	0.67	B	III	2
MD, ME	Makabao	0.68	B	III	2
MD, ME	Makabao	0.69	B	III	2
MD, ME	Makabao	0.70	B	III	2
MD, ME	Makabao	0.71	B	III	2
MD, ME	Makabao	0.72	B	III	2
MD, ME	Makabao	0.73	B	III	2
MD, ME	Makabao	0.74	B	III	2
MD, ME	Makabao	0.75	B	III	2
MD, ME	Makabao	0.76	B	III	2
MD, ME	Makabao	0.77	B	III	2
MD, ME	Makabao	0.78	B	III	2
MD, ME	Makabao	0.79	B	III	2
MD, ME	Makabao	0.80	B	III	2
MD, ME	Makabao	0.81	B	III	2
MD, ME	Makabao	0.82	B	III	2
MD, ME	Makabao	0.83	B	III	2
MD, ME	Makabao	0.84	B	III	2
MD, ME	Makabao	0.85	B	III	2
MD, ME	Makabao	0.86	B	III	2
MD, ME	Makabao	0.87	B	III	2
MD, ME	Makabao	0.88	B	III	2
MD, ME	Makabao	0.89	B	III	2
MD, ME	Makabao	0.90	B	III	2
MD, ME	Makabao	0.91	B	III	2
MD, ME	Makabao	0.92	B	III	2
MD, ME	Makabao	0.93	B	III	2
MD, ME	Makabao	0.94	B	III	2
MD, ME	Makabao	0.95	B	III	2
MD, ME	Makabao	0.96	B	III	2
MD, ME	Makabao	0.97	B	III	2
MD, ME	Makabao	0.98	B	III	2
MD, ME	Makabao	0.99	B	III	2
MD, ME	Makabao	1.00	B	III	2

TABLE 15. Runoff curve numbers for selected agricultural, suburban, and urban land use

Land use description	Hydrologic soil group			
	A	B	C	D
Cultivated land without conservation treatment	72	81	88	91
Cultivated land with conservation treatment	62	71	78	81
Pasture or range land poor condition	68	79	86	89
Pasture or range land good condition	39	61	74	80
Meadow good condition	30	58	71	78
Wood or Forest land thin stand, poor cover, no mulch	45	66	77	83
Wood or Forest land good cover	25	55	70	77
Open Spaces, lawns, parks, golf courses, cemeteries, etc. grass cover on 75% or more of the area	39	61	74	80
grass cover on 50% to 75% of the area	49	69	79	84
Commercial and business areas (83% impervious)	89	92	94	95
Industrial districts (72% impervious)	81	88	91	93
Residential				
Average lot size		Average % Impervious		
X acre or less		63		
X acre		38		
X acre		30		
X acre		25		
1 acre		20		
Paved parking lots, roofs, driveways, etc.				
Streets and roads				
paved with curbs and storm sewers				
Gravel				
dirt				

1. For a more detailed description of agricultural land use curve numbers refer to National Engineering Handbook, Section 4, Hydrology, Chapter 9, Aug. 1972.
 2. Good cover is protected from grazing and litter and brush cover soil.
 3. Curve numbers are computed assuming the runoff from the house and driveway is directed towards the street with a minimum of roof water directed to lawns where additional infiltration could occur.
 4. The remaining pervious areas (lawns) are considered to be in good pasture condition for these curve numbers.

TABLE 26. Runoff curve numbers for separate in Hawaii

Cover and Treatment	Hydrologic Soil Group			
	A	B	C	D
Limited cover, straight row	67	78	83	89
Partial cover, straight row	49	69	79	84
Complete cover, straight row	39	61	74	80
Limited cover, contoured	63	75	82	86
Partial cover, contoured	23	59	75	83
Complete cover, contoured	6	35	70	79

Notes:
 Limited cover: Case newly planted, or mowed case with a limited root system canopy over less than 1/4 the field area.
 Partial cover: Case in the transition period between limited cover and complete cover; canopy over 1/4 to nearly the entire field area.
 Complete cover: Case from the stage of growth when full canopy is provided to the stage at harvest.
 Straight-row planting is up and down hill or cross-slope on slopes greater than 2 percent. Contoured planting is the usual contour or cross-slope planting on slopes less than 2 percent.

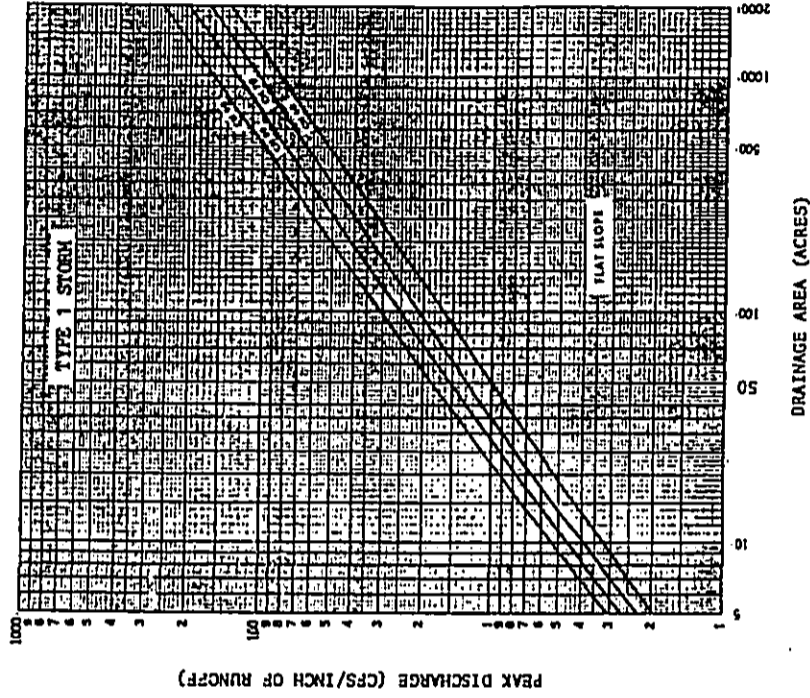
TABLE 27. Runoff curve numbers for pineapple in Hawaii

Cover and Treatment	Hydrologic Soil Group			
	A	B	C	D
Partial cover, cross-sloped	67	78	83	89
Complete cover, cross-sloped	49	69	79	84
Partial cover, cross-sloped & terraced	63	75	82	86
Complete cover, cross-sloped & terraced	39	61	74	80
Partial cover, contoured & terraced	62	71	78	81
Complete cover, contoured & terraced	23	59	75	83

Notes:
 Partial cover: Stage of growth between time when crop is newly planted until initial closing in.
 Complete cover: Stage of growth when crop is completely closed in, including ratoon crops.

SECTION 4
Peak rates of discharge for small watersheds

This section contains charts for estimating peak rates of runoff from small watersheds. They provide a basic peak discharge rate for a 24-hour duration storm associated with a watershed in a natural condition.



Peak rates of discharge for small watersheds (24-hour type I storm distribution). Sheet 1 of 3.

APPENDIX B ESTIMATING RUNOFF

SECTION I

Estimating runoff is the process of determining the volume or peak rate of runoff, from a given watershed for the design storm, or the safe yield expected from the watershed. This section establishes procedures for estimating depth and peak rates of runoff and annual and seasonal yield from small watersheds for use in designing soil and water conservation measures.

The procedures for determining yield and peak rates are applicable to drainage areas of 5 to 2,000 acres.

Tables and charts are included for a quick and

reliable way to estimate peak rates of discharge and associated runoff volumes for a range of rainfall amounts, soil types, land use, cover conditions and average watershed slope.

Rainfall is the principal source of water that may run off the surface of small watersheds. The kind of soil and type of vegetation growing in it have a major effect on the amount of water that runs off. Mechanical treatment on a watershed, along with its topography and shape, affects the rate at which water runs off. The combined effect of soil, vegetative cover and conservation practices on the amount of rainfall that runs off the watershed are represented by "runoff-curve numbers" (CN's).

TABLE 28. Slope adjustment factors by drainage areas

Slope %	Flat slopes									
	10 acres	20 acres	50 acres	100 acres	200 acres	500 acres	1,000 acres	2,000 acres		
0.1	0.49	0.47	0.44	0.43	0.42	0.41	0.41	0.40		
0.2	.61	.59	.56	.55	.54	.53	.53	.52		
0.3	.69	.67	.63	.64	.63	.62	.62	.61		
0.4	.76	.74	.72	.71	.70	.69	.69	.68		
0.5	.82	.80	.78	.77	.77	.76	.76	.75		
0.7	.90	.89	.88	.87	.87	.87	.87	.87		
1.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
1.5	1.13	1.14	1.14	1.14	1.14	1.14	1.14	1.14		
2.0	1.21	1.24	1.25	1.25	1.25	1.25	1.25	1.25		

Slope %	Moderate slopes									
	10 acres	20 acres	50 acres	100 acres	200 acres	500 acres	1,000 acres	2,000 acres		
3	.93	.92	.91	.90	.90	.90	.90	.89		
4	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
5	1.04	1.05	1.07	1.08	1.08	1.08	1.08	1.09		
6	1.07	1.10	1.12	1.14	1.15	1.16	1.17	1.18		
7	1.09	1.13	1.18	1.21	1.22	1.23	1.23	1.24		

Slope %	Steep slopes									
	10 acres	20 acres	50 acres	100 acres	200 acres	500 acres	1,000 acres	2,000 acres		
8	.92	.88	.84	.81	.80	.78	.78	.77		
9	.94	.90	.86	.84	.83	.82	.81	.81		
10	.96	.92	.88	.87	.86	.85	.84	.84		
11	.98	.94	.91	.90	.89	.88	.87	.87		
12	.99	.95	.92	.91	.91	.90	.90	.90		
13	1.01	.97	.94	.94	.94	.93	.93	.93		
14	1.04	.99	.96	.96	.96	.96	.95	.95		
15	1.07	1.02	.99	.98	.98	.98	.98	.98		
16	1.10	1.05	1.00	1.00	1.00	1.00	1.00	1.00		
20	1.23	1.18	1.14	1.14	1.14	1.14	1.14	1.14		
25	1.36	1.31	1.27	1.27	1.27	1.27	1.27	1.27		
30	1.49	1.44	1.40	1.40	1.40	1.40	1.40	1.40		
40	1.72	1.67	1.63	1.63	1.63	1.63	1.63	1.63		
50	2.00	1.95	1.91	1.91	1.91	1.91	1.91	1.91		

TABLE 24. Runoff depth in inches for selected CN's and rainfall amounts

Rainfall (inches)	Curve Number (CN)									
	60	65	70	75	80	85	90	95	98	
1.0	0	0	0	0.03	0.08	0.17	0.32	.56	.79	
1.2	0	0	0.03	0.07	0.15	0.28	0.46	.74	.99	
1.4	0	0.02	0.06	0.13	0.24	0.39	0.61	.92	1.18	
1.6	0.01	0.05	0.11	0.20	0.34	0.52	0.76	1.11	1.38	
1.8	0.03	0.09	0.17	0.29	0.44	0.65	0.93	1.29	1.58	
2.0	0.06	0.14	0.24	0.38	0.56	0.80	1.09	1.44	1.77	
2.5	0.17	0.30	0.46	0.65	0.89	1.18	1.53	1.96	2.27	
3.0	0.33	0.51	0.72	0.96	1.25	1.59	1.98	2.45	2.78	
4.0	0.76	1.03	1.33	1.67	2.04	2.46	2.92	3.43	3.77	
5.0	1.30	1.63	2.04	2.45	2.89	3.37	3.88	4.42	4.76	
6.0	1.92	2.35	2.80	3.28	3.78	4.31	4.85	5.41	5.76	
7.0	2.60	3.10	3.63	4.15	4.69	5.26	5.82	6.41	6.76	
8.0	3.33	3.90	4.47	5.04	5.63	6.22	6.81	7.40	7.76	
9.0	4.10	4.72	5.34	5.95	6.57	7.19	7.79	8.40	8.76	
10.0	4.90	5.57	6.23	6.88	7.52	8.16	8.78	9.40	9.76	
11.0	5.72	6.44	7.13	7.82	8.48	9.14	9.77	10.39	10.76	
12.0	6.56	7.32	8.05	8.76	9.45	10.12	10.76	11.39	11.76	

1. To obtain runoff depths for CN's and other rainfall amounts not shown in this table, use an arithmetic interpolation.

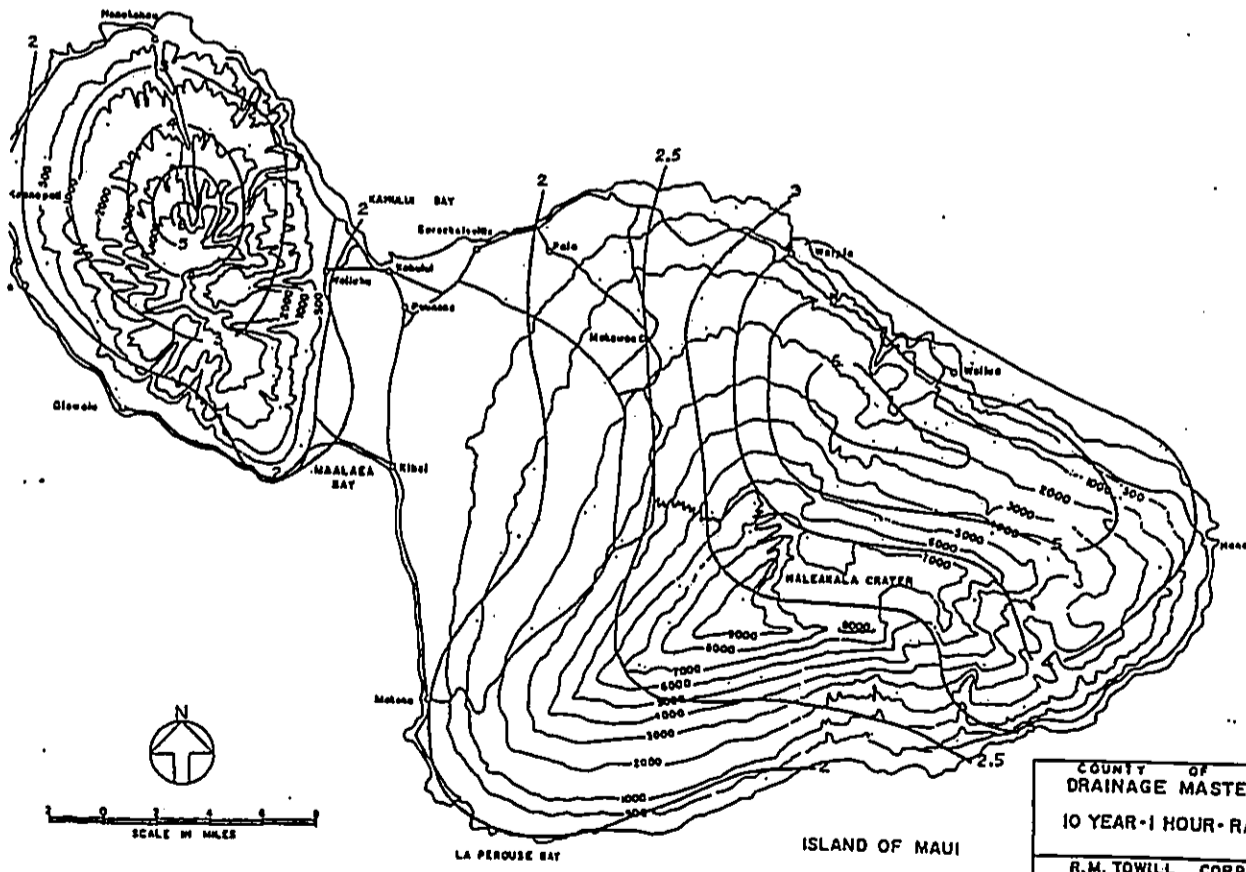


Table 1

GUIDE FOR THE DETERMINATION OF RUNOFF COEFFICIENTS FOR BUILT-UP AREAS*

WATERSHED CHARACTERISTICS	EXTREME	HIGH	MODERATE	LOW
INFILTRATION	NEGLECTIBLE 0.20	SLOW 0.14	MEDIUM 0.07	HIGH 0.0
RELIEF	STEEP (> 25%) 0.08	HILLY (15-25%) 0.06	ROLLING (5-15%) 0.03	FLAT (0-5%) 0.0
VEGETAL COVER	NONE 0.07	POOR (< 10%) 0.05	GOOD (10-50%) 0.03	HIGH (50-90%) 0.0
DEVELOPMENT TYPE	INDUSTRIAL & BUSINESS 0.55	HOTEL - APARTMENT 0.45	RESIDENTIAL 0.40	AGRICULTURAL 0.15

*NOTE: The design coefficient "C" must result from a total of the values for all four watershed characteristics of the site.

Table 2

RUNOFF COEFFICIENTS

Type of Drainage Area ----- Runoff Coefficient C

Parks, cemeteries	0.25
Playgrounds	0.35
Railroad yard areas	0.40
Unimproved areas	0.30
Streets:	
Asphaltic	0.95
Concrete	0.95
Brick	0.85
Driveway and walks	0.85
Roofs	0.95
Lawns:	
Sandy soil, flat, 2%	0.10
Sandy soil, avg., 2-7%	0.15
Sandy soil, steep, 7%	0.20
Heavy soil, flat, 2%	0.17
Heavy soil, avg., 2-7%	0.22
Heavy soil, steep, 7%	0.35

COUNTY OF MAUI
DRAINAGE MASTER PLAN
10 YEAR-1 HOUR-RAINFALL

R.M. TOWILL CORPORATION
CIVIL ENGINEERS - SURVEYORS

Table 3

MINIMUM RUNOFF COEFFICIENTS FOR BUILT-UP AREAS

Residential areas	C=0.55
Hotel, apartment areas	C=0.70
Business areas	C=0.80
Industrial areas	C=0.80

The type of soil, the type of open space and ground cover and the slope of the ground shall be considered in arriving at reasonable and acceptable runoff coefficients.

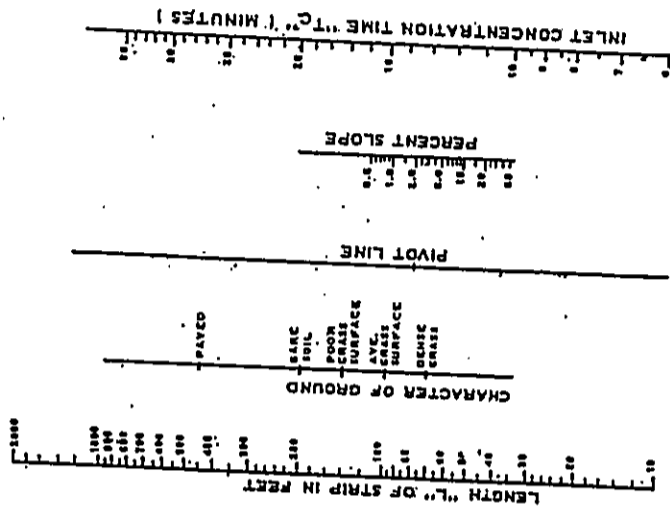


Plate 1
Overland
Flow
Chart

Table 4

APPROXIMATE AVERAGE VELOCITIES OF RUNOFF FOR CALCULATING TIME OF CONCENTRATION

TYPE OF FLOW	VELOCITY IN FPS FOR SLOPES (in percent) INDICATED		
	0-3%	4-7%	8-15% 12-15%
OVERLAND FLOW:			
Woodlands	1.0	2.0	3.0 3.5
Pastures	1.5	3.0	4.0 4.5
Cultivated	2.0	4.0	5.0 6.0
Pavements	5.0	12.0	15.0 18.0

OPEN CHANNEL FLOW:

Improved Channels	Determine Velocity by Manning's Formula
Natural Channels*	1.0 3.0 5.0 8.0
(not well defined)	

*These values vary with the channel size and other conditions so that the ones given are the averages of a wide range. Wherever possible, more accurate determinations should be made for particular conditions by Manning's formula.

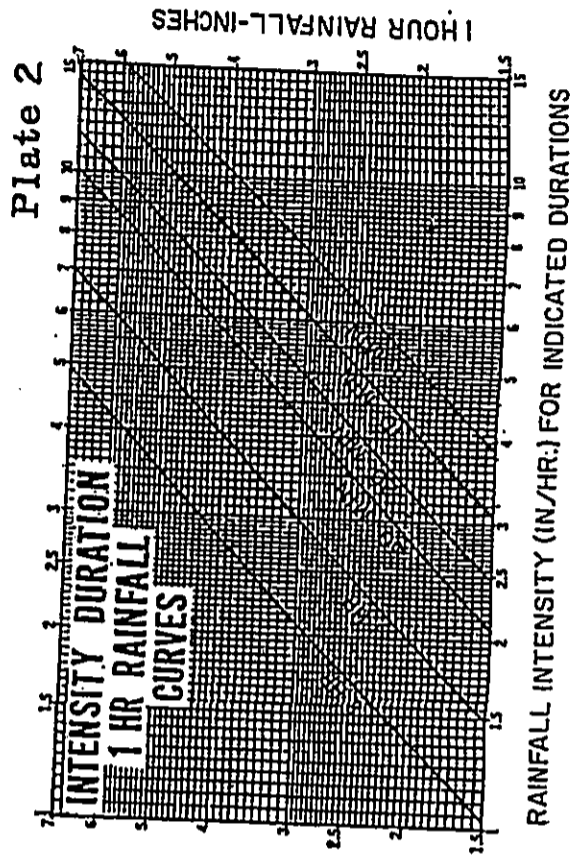


Plate 2

O SOLID WASTE MANAGEMENT PLAN

MAUI BUSINESS PARK PHASE II
SOLID WASTE MANAGEMENT PLAN

Maui Business Park Phase II Description

Maui Business Park Phase II will provide approximately 179 acres of light industrial space in Maui's central commercial and business district in close proximity to the island's primary airport and harbor. Land uses within Maui Business Park Phase II will be consistent with the M-1 Light Industrial District (Chapter 19.24 Maui County Code) and may include warehousing and distribution businesses as well as retailing, light manufacturing, research facilities, offices, and other uses.

Maui Business Park Phase II will comprise two noncontiguous properties identified by: Tax Map Key 3-8-06:4 (portion), Tax Map Key Number 3-8-01:2 (portion), and Tax Map Key Number 3-8-79:13.

The South Project Area is approximately 140.783 acres. It is located directly south of Maui Business Park Phase I across the State-owned right-of-way for the proposed Kahului Airport Access Road. Lots within the South Project Area will typically range from one-third (1/3) of an acre to one (1) acre in size, with larger lots available depending on demand. In accordance with the *Wailuku-Kahului Community Plan (2002)*, the property will be developed in increments not greater than 70 acres.

The North Project Area is approximately 38.217 acres. It is located north of the South Project Area, across Hana Highway, and is adjacent to the parcels owned by Costco and K-Mart. Lots within the North Project Area will typically range from one-third (1/3) of an acre to two (2) acres. Some larger lots may be available depending on demand. Primary access will be provided via Haleakala Highway.

Solid Waste Management

Currently, significant levels of solid waste are not being generated on the Maui Business Park Phase II site from the current agricultural uses; sugarcane fields on the site are either fallow or in limited cultivation and thus do not generate significant waste that is not already properly handled by HC&S.

As required by the County of Maui, this solid waste management plan addresses waste generated by construction during build out of Maui Business Park Phase II. However, recycling will be encouraged after construction, and architects for individual businesses will be encouraged to provide space for individual dumpsters to separate recyclable materials, such as cardboard, from municipal solid waste.

Waste from site preparation and construction will be stored, handled, and properly disposed so as to divert the maximum amount of waste material caused by the development away from the County's landfill.

Wastes generated by site preparation will primarily consist of vegetation, rocks, and debris from clearing, grubbing, and grading. As much as practical, soil and rocks displaced from grading and clearing will be used as fill within the site. This will include filling a small section of the existing drainage basins and building a berm along the eastern edge of the South Project Area for drainage and flood control.

Green waste from grubbing will either be chipped into mulch for use on site or will be taken to green waste recycling centers. Currently there are three green waste recycling centers on Maui: Maui Eko Systems, Inc., Maui Earth Compost & Soil Mixes, and Campaign Recycle Maui. All of these are located in Central Maui.

Phasing of the project will minimize the amount of green waste generated at any one time. In addition, if large amounts of green waste are expected from an individual phase, delivery will be coordinated with the green waste recycling centers to ensure that there is adequate capacity among the centers to accept the anticipated amount of vegetation.

Construction waste will consist of waste lumber, concrete, and other building materials. Very little demolition material is expected, as the site is essentially vacant. The project will develop and implement a waste management and recycling program to maintain clean construction sites, maximize material recycling, and minimize disposal truck traffic impacts. This recycling program will incorporate the "Three Rs" of effective construction waste management:

- Reduce: by preventing waste before it happens through efficient design
- Reuse: by using materials removed during demolition (such as rocks and concrete) on site
- Recycling: by separating recyclable materials from non-recyclable materials and supplying these recyclable materials to a recycler for use as new products

During construction, a job-site recycling plan will be developed and, as much as possible, construction and demolition waste will be recycled. Separate containers will be provided for separate types of construction waste, which will be separated from municipal solid waste. Maui Scrap Metal accepts cardboard and metal for recycling. Maui Earth Compost & Soil Mixes accepts drywall. Maui Eko Systems, Inc., and Campaign Recycle Maui accept clean, untreated lumber. Remaining types of wastes may be recycled if a local recycling vendor is available. Otherwise, non-recyclable construction wastes will be disposed in the construction and demolition landfill near Maalaea.